Environmental Assessment of the Alaskan Continental Shelf

Volume 6. Fish, Plankton, Benthos, Littoral

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for the Year Ending March 1976

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Environmental Assessment of the Alaskan Continental Shelf

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Fourth quarter and annual reports for the reporting period ending March 1976, from Principal Investigators participating in a multi-year program of environmental assessment related to petroleum development on the Alaskan Continental Shelf. The program is directed by the National Oceanic and Atmospheric Administration under the sponsorship of the Bureau of Land Management.

ENVIRONMENTAL RESEARCH LABORATORIES / Boulder, Colorado / 1976

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ANNUAL REPORT

OUTER CONTINENTAL SHELF ASSESSMENT PROJECT
HERRING SPAWNING SURVEY - SOUTHERN BERING SEA

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April 1, 1976

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SUMMARY

This study investigates the spawning ground utilization by forage fishes in the Bering Sea, principally, the Pacific herring (*Clupea pallasii*), and capelin (*Mallotus villoseis*). The current state of knowledge is largely generalize in nature with little completed work in relation to the physical habitat of either species. The northernmost extension of Pacific herring currently known is Cape Thompson in the Chukchi Sea, while Capelin and boreal smelt (*Osmerus eperlanus*) are known to occur north of Demarcation Point near the Alaska-Canadian border in the Beaufort Sea. Herring spawning activities were seen and documented in FY 76 within the study area. Habitat types were recorded for future surveys. Osmerids are thought to be more important as spawners between Ugashik Bay and Cape Sari chef on the north Alaska peninsula. Foreign fishing harvest levels were investigated and discussed. Interviews were conducted with coastal residents to determine magnitude of forage fishes within the villages socioeconomic needs. Needs for further study, along with probable investigative methods, are reviewed.

1. INTRODUCTION

This study is involved, with spawning ground utilization by the Pacific herring (Clupea pallasii) as well as five species of smelt (Osmeridias) that inhabit these—waters. Enumeration and description of spawning grounds will take place, as well as a socio-economic survey of the demands upon the resource by coastal residents .

Herring stocks of the North Pacific Ocean, which ha-ve supported a substantial American commercial fishery since the late 19th century, have never received any significant commercial American. harvest in the Bering Sea, yet for thousands of years the Pacific herring has been a vital part of the subsistence catch of Alaska coastal residents.

In recent years the Bering Sea and Bristol Bay regions have become subject to petroleum exploration and development. Full commercial development of petroleum resources appears eminent in these areas; hence, increased attention has been focused on the herring-smelt resources of the Bering Sea and Bristol Bay. It is generally assumed that accidental spillage of crude oil would be detrimental to herring and smelt spawning grounds. Actual proof that such an accident would be harmful is lacking, however it seems a correct preliminary hypothesis to assume that a spill of crude oil would be harmful.

II. CURRENT STATE OF KNOWLEDGE

Most existing knowledge of herring and smelt spawning grounds in the study area has been gathered as ancillary data from other studies in progress.

Distribution: All available data sources indicate that the Pacific herring extends well north into the nearctic and palearctic zones. Regnart (personal communication) mentions that they have been collected by Canadian investigators as far north as the McKenzie River delta in the Canadian arctic. Several age classes of capelin have been caught off the Sag River delta near Prudhoe Bay, Alaska, and are part of a subsistence fishery in Point Barrow (Bendock, ADF&G; personal communication, 1976). Bendock also mentions catchi boreal smelt (Osmerus eperlanus) in this region. Herring occurance has not been documented between the Demarcation Point and Point Hope, as of this writing. Herring were caught in the Cape Thompson area during research activities of project "Chariot" (Alverson and Wilimovsky, Cape Thompson Report, 1966) .

Herring and smelt resources south of Cape Thompson constitute an integral part in the subsistence fisheries of coastal residences of Alaska and (as an assumption) Siberia. In such villages as Shismareff and Teller, herring are taken in large numbers during the spring spawning period. They are then dried ant used for food. Other fishes use the herring as food. Regnart (Regnart, ADF&G; personal communication, 1976) noted that he found numerous herring in Sheefish stomachs collected in Norton Sound. Regnart (Ron Regnart, interagency report, 1976) noted spawning herring on the north side of Norton Sound while involved in aerial surveys. From the village of St. Michaels (near Stephens Passage) to Unakaleet, numerous schools cf spawning herring have been catalogued. Raw data has not been analyzed although sampling of this population has been conducted. The waters in "the Yukon/Kuskokwim delta are often turbid and of poor habitat type for herring spawning; the importance of. anadromous smelt in this area is not known. Excellent habitat for herring spawning is present in the area of Cape Romanzof, and such activities have been documented (Regnart, interagency report, 1976). In the vicinity of Cape Vancouver, large quantities of herring have been seen spawning and Regnart considers this a prime area for herring.

Herring spawning is extensive in the Bristol Bay area in the vicinity of Togiak, which at one time supported a small commercial herring fishery. Presently extensive subsistence fisheries are active in this region during the spring. Herring spawning and smelt activity on the north side of the Alaska Peninsula has been documented (Glen Davenport, ADF&G memorandum, 1976). Boreal smelt are common overwintering residents of rivers leading into Bristol Bay and the Bering Sea. They spawn in the spring, then descend into the ocean where they carry on feeding activities until they again ascend their native rivers in late autumn. (McPhail and Lindsev's Freshwater Fishes of Northwestern Canada and Alaska, 1970.) 'Large windrows of capelin have been observed along the beach between Cape Senavin and the Three Hills region (Davenport, ADF&G memorandum, 1976). Davenport mentions that, "smelt are locally more important than herring. . .which spawn in large numbers along the north peninsula. They (smelt) are common from Moffet Point to Port Heiden and suspect they spawn from Urilia Bay (N. Unimak Is.) on up into Bristol Bay". (Davenport, ADF&G memorandum, 1976.)

Davenport (in the same memo) interviewed long-term residents of the north peninsula and wrote that significant herring spawning activities probably take place only in Herendeen Bay and Bechevin Bay. These areas are noted as containing substantial amounts of eel grass, which are assumed to be of proper substrate type to offer herring spawning habitat. Although Unalaska lies somewhat west of the study area, extensive herring spawning there has been

well documented. In 1928 the herring fishery became so intense at Unalaska, that seining for this species was made illegal by the Federal Government; during the 19401s nine herring salteries existed in Unalaska (Marlin Bricker, ADF&G memorandum, 1972) .

Biology: Very little American biological research has been carried on with herring stocks in the study area. An estimated catch of 1,000 Pacific herring with an average size of 224 mm were captured a few miles off Cape Thompson in 1959 (Alverson and Wilimovsky, Cape Thompson report, 1966) . Regnart mentioned that intermittent sampling had been conducted in the Cape Vancouver area, but analysis of this data is yet to be completed. Herring in this region are commonly regarded to be of larger body size than more southernly stocks. Yet Bricker's work does not substantiate this (Bricker, ADF&G memorandum, 1972) . A satisfactory biological profile for herring stocks in the Bering Sea is lacking.

III. STUDY AREA

The area of main concern in this report is the coastline lying from point Hope south to Cape Sarichef on the northwest end of Unimak Island. It also includes St". Lawrence, St. Matthew and Nunivak Islands as well as the Pribilof Island group. It is hoped. that the study area can be soon extended to include all the southern portion of the Alaska Peninsula from Cape Sarichef south along the coast to Cape Douglas, including the Shumagin Island and Kodiak-Afognak Island groups.

IV. SOURCES, METHODS AND RATIONALE OF DATA COLLECTION

A literature review employing the OASIS data bank computer is being initiated for herring data that might include any information concerning herring-smelt stocks in the Bering Sea. A complete herring bibliography concerning osmerids will also be complied. Catch statistics were gathered from documents of the International Pacific Fisheries Commission pertaining to USSR, Japanese and Korean efforts in the Bering Sea herring fishery.

In February of 1976 a meeting was called in Anchorage to consolidate and analyze various existing knowledge concerning herring in the Bering Sea, as well as review operational plans, data management plans, and field methods for the approaching season.

V. RESULT'S

Available data indicate that the northernmost extent of Pacific herring stocks in Alaska is at Cape Thompson. Canadian records of herring off the McKenzie River delta will be acquired by this office, as there are indications that this might' be the northernmost extension of Pacific herring, although the McKenzie might well be the northwesternmost extension of the Atlantic herring. North American herring fisheries north of Bristol Bay are utilized at a subsistence level only. Commercial activities begin in Togiak Bay, near Dillingham, Alaska. Smelt are present all the way from Demarcation Point to the southernmost extension of the study area, (Cape Sarichef). All smelt in this area belong to the family Osmeridae; five species of this family are present, completing full life cycles within the study area: boreal smelt (Osmerus eperlanus), capelin (Mallotus villoseis), eulachon (Thaleichthys pacificus), longfin smelt (Spirinchus thaleichthus), pond smelt (Hypomesus olidus). One member of the family Ammodytiadae (the needlefish or sandlance) occurs in the study area and is recorded as being quite common.

A subsistence fishery for smelt (capelin) is known to exist as far north as Point Barrow (Bendock, ADF&G; personal communication, 1976). As far as is known, there are no commercial fisheries (domestic or otherwi se) for smelt in the study area. Subsistence utilization for capelin and other smelts is rot well. known. The occurance of smelt along the north coast of the Alaska Peninsula is thought to be more prevalent than herring (Davenport, ADF&G memorandum, 1976). The habitat type in this area is more favorable for capelin as it consists of open low beaches, with sandy and/or rocky substrates that are free of extensive kelp beds.

The only OCSEAP related herring surveys were completed in the summer of 1975. There were two basic areas of aerial activities: one on the northern portion of the Alaska Peninsula, (June 1975) and the other from Cape Newenham north along the coast to the Yukon River delta (1.975). The results of these surveys are as follows:

Alaska Peni.nsula-north and Unimak Island

In June of 1975 Glen Davenport, ADF&G Area Management Finfish Biologist, Cold Bay, Alaska, along with his assistants Marlin Bricker and Phil Rigby, flew the coastline from Cinder River to Cape Sarichef. Shore types and spawning substrates were noted. Davenport communicated by intradepartmental memorandum en 2/26/76 the following information:

> "...Overall, it's probable that herring spawn in significant abundance only in Herendeen Bay anti

Bechevin Bay on the north peninsula. Mr. Paul Gundersen of Nelson Lagoon advises that herring spawn in May in Herendeen Bay, the main concentration being about Gravel Point. When he was a youngster (about 1935-1940) the spawn was quite abundant on the rocks. We have no reports cf herring spawning in Bechevin Bay but suitable conditions exist there. We have no reports of herring spawning on eel grass on the north peninsula, but major concentrations of eel grass exist in Izembek Bay (est. 60,000 acres - BSFWL) and to a lesser extent Bechevin Bay.. ,

Probably locally more important than herring are the hooligan (capelin, Mallotus villosus) , which spawn in large numbers along the north peninsula. They are common from Moffet Point to Port Heiden and I suspect they spawn from Urilia Bay (N. Unimak) on up into Bristol Bay...In late May of 1974 dense concentrations of hooligan were reported spawning and being wi ndrowed by the surf from Moffet Point to the Black Hills.. . It was evident the seals, sea lions, and birds were attracted by the (masses cf) hooligan. . ."

During surveys of the north peninsula grass habitat types were noted; below are habitat observations by category made by Davenport, Bricker and Rigby.

OUTSIDE BEACH--NO VEGETATION; BARE ROCK/SAND/GRAVEL

1. Port Heiden to Ilnik
2. Cape Leiskof to Moffet Point
3. Cape Glazenap to Urilia Bay
4. Cinder River to Port Heiden
5. Cape Seniavin to Herendeen Bay
6. Cape Kutuzof to Port Moller
7. Rocky Point

INSIDE' BAYS OR COVES WITH BARE SAND, ROCK, MUD & NO VEGETATION

1. Moffet Bay
2. Ilnik Lagoon
3. Hook Lagoon.
4. Port Heiden
5. Urilia Bay
6. Dublin Bay

FUCUS AND/OR EELGRASS WITH SAND, MUD, GRAVEL SUBSTRATE

1. Cinder River Lagoon
2. Herendeen Bay
3. Nelson Lagoon (in vicinity of Kritskoi Island)

4. Chunak Point Bight
5. St. Catherine's Cove
6. Isanotski Strait

EXTENSIVE EELGRASS: ROCK, MUD OR SAND SUBSTRATE
1. Izembeck Lagoon
2. Bechevin Bay

Sixty miles southwest of the immediate study area is the Aleutian Island of Unalaska where an important herring fishery was conducted in earlier years. In early April of 1972 a total of 109 herring were sampled by Marlin Bricker of the Alaska Department of Fish and Game, from Margaret Bay (Bricker, ADF&G memorandum, 1972). The standard length of the sample ranged from 229 to 300 millimeters; weights were taken of 103 herring. The weight of individual herring ranged from 150 to 312 grams, with a mean of 218 grams. out of a random sample of 21 herring, 10 were males and 11 were females; 10 males had a mean gonad weight of 43 grams, while a sample of 11 females had a mean gonad weight of 48 grams. Since the sample was taken in April, and gonad ripeness was not noted, the weight of the female gonads would strongly indicate that the fish included in this sample were "green". Substrate flora was inspected in the area of Margaret Bay and no eggs were found.

Cape Newenham North

Studies were conducted during June and early July of 1975 in this area; only portions of the coast between Cape Newenham and the Yukon delta were covered due to severe time limitations. The survey was completed by Rae 2axter and. Ron Regnart, both staff biologists of the Alaska Department of Fish and Game. A total of 62 schools of bait fishes were observed. A summary of these surveys can be seen in '1'able 1. Regnart reported that:

> "Most schools were observed in relatively shallow water (less that 60 feet) and within 600 feet of the shoreline. The only evidence of. active spawning was observed 6/20/75 approximately 1.5 miles south of Cape Vancouver and on 5/31/75 inside Goodnews Bay.
>
> ...Based on very preliminary information, herring appear to spawn earlier on or near large kelp-covered rocks, while capelin spawn later on sand or gravel beaches. Since both species apparently occur in schools of similar density and size, species identification from aircraft was judged not feasible during the study period. . .
> ...greatest volume of schooled fish was observed adjacent to Cape Vancouver on June .20. P-nether concentration was observed the same date near Cape Romanzof (between the Cape and the airstrip) .

...kelp was evident where ever the substrate consisted of large rocks and these areas were usually adjacent to high bluffs or cliffs. The most extensive kelp beds were observed in the Newenham area from Castle Rock to Cape Pierce. "

Subsistence catches were monitored by interviews in native villages located in the area surveyed by Regnart and Baxter. Annual occurance and fishing methods were learned during the interviews as well as field estimates of number of fish caught. Since the investigators were present in the villages while the fish were drying, it can safely be assumed that the harvest figures gathered are reliable. Regnart continues,

"All coastal residents in the study area apparently utilize herring for subsistence purposes to varying degrees. A total of 133 persons (heads of family units) from four villages reported a herring catch of 366,820 fish, Catch data for each village is shown below:

Village	Numbers of Persons	Numbers of Herring
Tanunak	26	87,130
Umkumiut	38	131,795
Tooksook	45	136,810
Hooper Bay	3A	11,085
	133	366,820

. . .Herring are captured with gillnets fished in the Cape Vancouver area. At the present time most fishermen have replaced their herring gillnets with salmon gillnets. Capelin are abundant but only a few are currently being taker. along shore with dip nets, as capelin are too small to entangle in the gillnets."

Foreign Fishing in the Bering Sea:
It is assumed that the foreign fisheries in the eastern Bering Sea uti li ze herring stocks originating from t-he study area, hence, harvest figures from that fishery are of direct concern to this project. Mr. R. A. Fredin in an INPEC Document 1962, entitled Herring Fisheries and Resources of Eastern Bering Sea states that:

"There are three fisheries for herring in eastern Bering Sea; a Japanese trawl fishery, a Soviet trawl fishery, and a Japanese gill net fishery. The trawl fisheries operate along and inside the 100 fathom line between the Pribilof Islands and St. Matthew Island during the winter months, November to March. The gill net fishery operates off the Bering Sea coast of Alaska from Bristol Bay to Norton Sound during the spring, April to June." (see Plate 1)

H. A. Larkins (interagency memorandum, 1976) states that the USSR is not a party to the International Pacific Fisheries Commission, hence does not report anything directly to that Commission. Rather its annual catches are reported to the United States, and are in turn, supplied to INPFC. Japan is a member of the INPFC and catch statistics are reported directly to the Commission.

Catch statistics, which did not become available from both the USSR and Japan until 1967, demonstrate that both nations combined have harvested 557,022 metric tons of herring east of 180 degrees west longitude in the Bering Sea and by gillnet vessels east of 175 degrees excluding the Aleutian region. So far during the FY 76, the USSR has harvested 2,292 metric tons of herring in the eastern Bering Sea. Japanese catch statistics for this time period are not yet available (Larkins, interagency memorandum, 1976) .

VI. DISCUSSION

Herring spawning investigations during the FY 76 were limited because of lack of manpower and planning bases. The scope of observations made were limited and. preliminary, and no major conclusions or hard facts should be drawn aside from pure nominal level observations. It is evident that little is known about herring and smelt spawning activities in the study area. In an effort to gather more baseline information on this segment of the Clupeid's life history, the principal investigator plans three basic approaches aimed at gathering extensive ordinal and nominal level data:

1. Aerial survey study to obtain empirical evidence of spawning activities through photography with tenative plans to quantify these recorded observations.
2. To gain ground truth via beach parties that will collect basic biological data, (i.e. length, weight, & age).
3. Extensive resource utilization interviews carried on systematically in villages anti towns along the coast of the study area.

Aerial Surveys: Aerial surveys should be flown along the entire coastline during spawning time of herring and smelt to determine where and in what abundance the animals spawn; the study area. shall be zoned. off numerically into "census areas". "Calibration" of the observers eyes will be accomplished as soon as possible to avoid as much misidentification of species, and insure comparability of abundance estimates from the air. Recording of the data will be done on standard forms. To date, methodology of

various aerial surveyors of spawning herring and. smelt have been studied and discussed. No efforts to quantify these observations beyond the ordinal level will be made this year. The type of aircraft best suited to these purposes has been discussed., and tenatively it has been decided that for surveys made in the peak of spawning, a heliocourier, DeHavilland Beaver, or Cessna 185 will be used. Early season surveys will be made with twin engine aircraft for the sake of expedience and safety. While airborn, observers will record field observations on topographic maps and field forms as well as electronic devices, later transcribed after each flight at the base of operations. All observations will be recorded. onto data management forms for key punching.

Beach Surveys: Beach parties shall be flown or boated tc areas designated as "prime study areas". These beaches shall remain constant during the time of the study. Physical parameters will be measured in these areas each year and will include: 1) standard length, 2) weight, 3) scale taken, 4) gonad maturity index, (recorded at set intervals during study, 5) substrate sampled, 6) roe collection and attempts at quantifying extent of spawn, 7) spawning duration and intensity. "Prime study areas" shall be designated such by the principal investigator based on spawning stock abundance and logistical assessibility. When possible field data collected that year shall be processed and submitted on cards or magnetic. tape no later than 90 days after their collection.

Interviews : Interviews shall be conducted in coastal villages and settlements . They shall attempt to ascertain the following facts: 1) Intensity of resource utilization, 2) nature of utilization, 3) method of utilization, 4) periodocity of utilization, 5) social importance of utilization to the individual and/or his family unit. All interviews shall be treated as confidential information and the field investigator shall make all attempts to carry on the interview within the framework of a conversation, When necessary translators will be employed to carry on the interview in the primary language used by the interviewee. Hopefully a person with a strong Eskimo/Aleut background may be employed to carry on this portion of the study. All interviews shall be recorded. onto standard forms at the base station. More casual or discreet means of recording field conversations will be used as formidable electronic or clerical equipment greatly inhibits many village residents during discussion.s with representatives of government agencies . Information should (when possible) not be gathered in a rushed day trip atmosphere where everything must be learned in a very limited time period, as cultural demands of Eskimo/Aleut village life are not "clock" oriented.

Importance of the international fishery shall not be underestimated. Harvest figures shall be carefully monitored as received from the National Marine Fisheries Service. High catch figures offshore could theoretically coincide with low spawning numbers onshore, or (conversely) high winter catches offshore might well indicate high spawning intensity inshore. Yearly comparison will be made, as international data will be monitored. and analyzed annually.

VII. CONCLUSIONS

Considerable baseline data needs to be obtained. concerning herring/smelt stocks in the Bering Sea-Bristol Bay region. Very few conclusions cari be drawn until this is done. Presently, all that can be concluded is that herring spawning along the shores of the Bering Sea is quite evident and. that herring stocks are important on a subsistence level to local inhabitants. The same may be said concerning smelt stocks in the study area.

It appears that herring and capelin have significantly different demands as to habitat type for their spawning activities. Herring require rocky substrate with attached vegetation, while capelin demand long open beaches composed of gravel or sand.

It has been learned that capelin and herring may be easily mistaken from the air. Methodology shall be developed to better differentiate between these two species.

It is evident that the international fishery in the eastern Bering Sea is greatly dependant on herring stocks of North American origin.

VIII. NEEDS FOR FURTHER STUDY

The islands of the Bering Sea *need* to be extensively surveyed for herring and capelin spawning activities. Presently there are no plans to cover these areas, yet the coast of all these islands is roughly equal that of the entire area between Cape Menchikov to Cape Sari chef. It is very important that these islands be surveyed, as herring are known to be present on St. Lawrence Island (Burns, personal communication) .

The principal investigator desires that the area along the south Alaska Peninsula from Cape Sari chef south to Cape Douglas be included in the study area. The impact of an oil spill along this coastline would be marked. Also, herring and capelin spawning activities from Scotch Cap to Castle Cape are tots].1'~ uninvestigated and/or utilized. The impact of an oil spill along this coastline would be impossible to access both environmentally and/or legally because of this lack of formal knowledge concerning the area.

Table 1. Numbers of fish schools classified as to relative size, Cape Newenham to Yukon River' delta, 1975.

Date	Area Surveyed	small 1/	medium 2/	large 3/	Unclassified	Total
5-31-75	Goodnews Bay					
	Little Beluga Mt. to Platinum				5	5
	Remainder of Bay				0	0
					5	5
6-8-75	Cape Peirce to and including Goodnews Bay					
	Cape Peirce to Castle Rock					0
	Security Cove	6	3			9
	Pinnacle Rock to Chagvan Bay entrance	7				7
	Chagvan Bay					0
	Chagvan Bay entrance to Goodnews Gay' entrance	22	4			26
	Goodnews Bay					0
		35	7			42
5-20-75	Cape Chinigyak to Scammon Bay					
	Cape Chinigyak	10				10
	Kangirlvar Bay					0
	Unkumiut to Uluruk Point	22	3			25
	Umkumiut to Cape Vancouver	9	6	2		17
	Cape Vancouver to Tununak					0
	Tununak to Chinit Point	6		2		8
	Chinit Point to Panawat Spit					0
	Kokechik Bay including Cape Romanzov		schooled fish present			?
	Cape Romanzov to Scammon Bay' village	2	—			2
		49	9	4		62

1/ Surface area estimated less than 500 square feet.
2/ Surface area estimated 500-5000 square feet.
3/ Surface area estimated in excess of 5000 square feet.

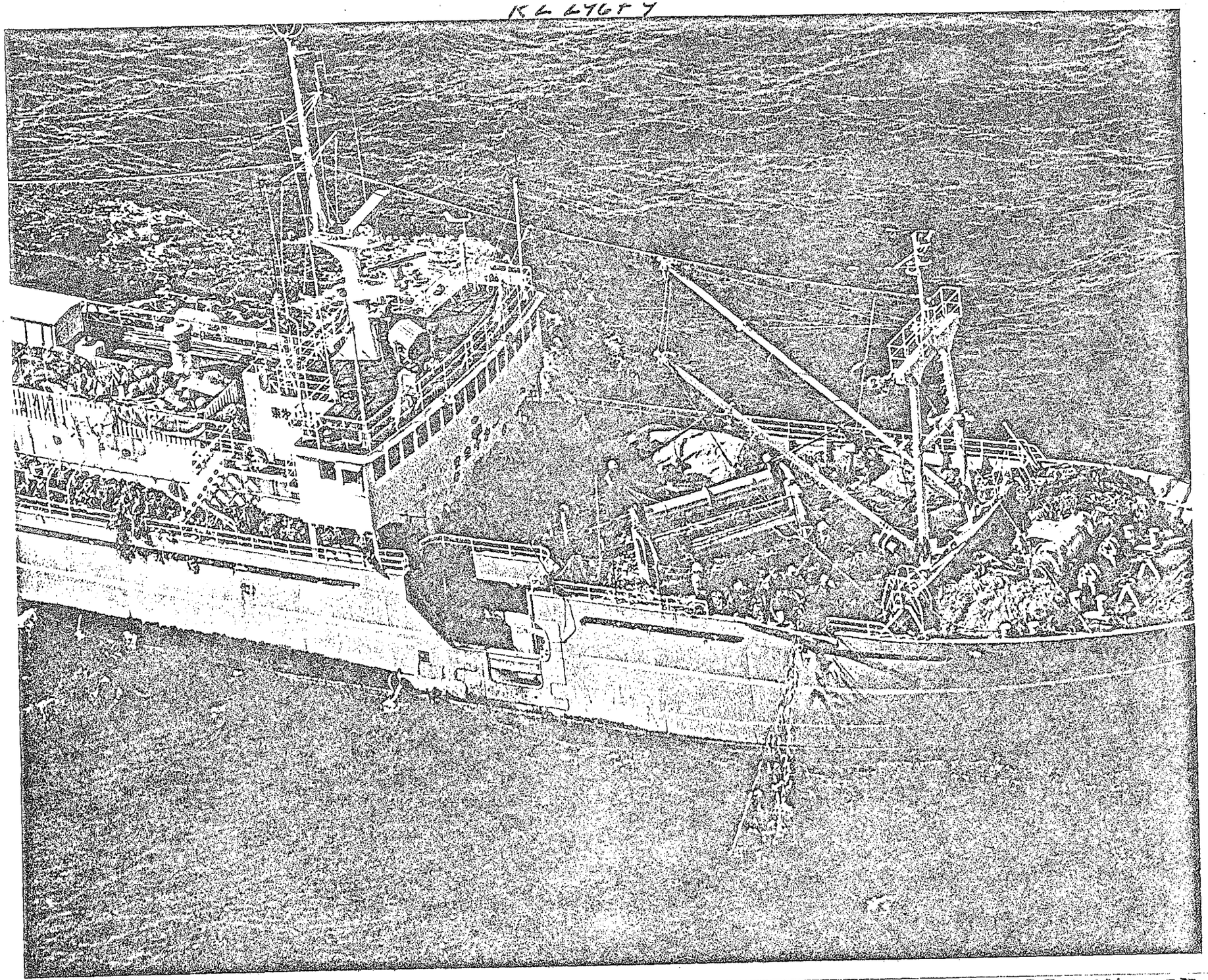

Photo: COURTESY JIM BRANSON, N.M.F.S.

PLATE 1: A JAPANESE GILLNETTER IN THE EASTERN BERING SEA. HERRING CAN BE SEEN IN NET

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ANNUAL REPORT

OUTER CONTINENTAL SHELF ASSESSMENT PROJECT
RAZOR CLAM HABITAT SURVEY - GULF OF ALASKA

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April 1, 1976

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SUMMARY

This study of the Pacific razor clam Siliqua patula (Dixon) is being undertaken to define the extent of the razor clam populations in the Gulf of Alaska between Unimak Bight and the 139° West longitude. Of the fifty locations known to contain favorable razor clam habitat, biological research has been limited to the Swikshak Beach (Alaska Peninsula), Cordova and Clam Gulch (Cook Inlet) areas. It is, therefore, imperative to achieve comparable baseline data. for all the beaches known to be productive for razor clams and. to discover currently unknown beach habitat so that the impact of oil development on this intertidal population of sandy beaches may be monitored.

INTRODUCTION

Among the bivalve clams existing in the Gulf of Alaska, the razor clam is the most important commercial and recreational product from the numerous sandy beaches along the Gulf. It is estimated chat in 1975 in the Cook Inlet area alone, 39,370 man-days of sport digging effort harvested 1.5 million razor clams {David Nelson, ADF&G, February 1976, personal communication).

A general study of the entire Gulf area has been lacking, with current knowledge of the species' density and distribution limited to localized. areas, particularly Cordova, Cook Inlet, and Swikshak Beach on the Alaska Peninsula. Accurate information of the species is unknown for major portions of Kodiak Island, Prince William Sound, the Alaska Peninsula and the Yakutat Bay area.

The objectives and scope of this study are to gather information of razor clam density and distribution on beaches in the area from Yakutat Bay at 139 degrees West Longitude to Unimak Bight on the Alaska Peninsula. Specific objectives of the study are:

1. Investigate all known beat'nes where razor clams are known to occur and map each location with regard to the extent of the species existance and density.
2. Collect clams at each beach to assess density, length and age composition of the population by tide level.
3. Collect core samples of the substrate by tide level at each beach site to investigate substrate composition.
4. Combine Past and current razor clam data for the Gulf Of Alaska areas to formulate the biological parameters of this baseline study.

Secondary objectives will include collection of incidentally captured bivalve mollusks, investigation of razor clam samples for levels of

CURRENT STATE OF KNOWLEDGE

Distribution

Pacific razor clams, Siliqua patula (Dixon) are found on surf swept sand beaches from Northern California to the Bering Sea (Weymouth, 1931). Siliqua alta is coexistent with S. patula but occupies a zone comprised of finer substrate and is found only in the northwestern range from Cook Inlet down through the Alaska Peninsula (Nickerson, 1975). Of the two species S. patula is by far the most abundant and is, therefore, the primary commercially caught clam.

Initial discovery and development of razor clam beds in Alaska resulted as the Washington-Oregon clam beds became depleted and the industry sought new productive grounds for exploitation. The first commercial harvest of razor clams in Alaska occured in 1916 in Prince William Sound near Cordova. In the 1920's the areas along the Alaska Peninsula were explored; commercial quantities of razor clams were located and harvested primarily in Kukak, Hallo, and Swikshak Bays. The Cook inlet area beaches of Pony Creek and the Clam Gulch area near Homer have also been commercially exploited.

From 1916-1973, 53-million pounds have been harvested from the Cordova area with an average annual production of 880-thousand pounds of razor clams. A approximately 1.5-million cases (48 1/2 lb. cans) of razor clam meat were produced over this fifty-seven year period (Nickerson, 1975).

From 1922-1971 approximately 314-thousand cases (48 1/2 lb. cans) and 400-thousand pounds of whole clams have been produced from Kukak, Hallo and Swikshak bays on the Alaska Peninsula (Nickerson, 1975).

From 1918-1971 approximately 80-thousand cases (48 1/2 lb. cans) of razor clam meat and 800-thousand pounds of whole clams were produced from the Cook Inlet area (Nickerson, 1975).

In recent years the harvest in all three of the aforementioned areas has dwindled to only a fraction of its former level. In Cordova this is clue iri part to diminishing razor clan. stocks while in the Cook Inlet and Alaska Peninsula areas the decrease in production is the result of economic and commercial marketing factors.

The current known distribution of razor clams is shown in Figure 1 ana table 1, both from Nickerson (1975) who used industry and Department of Fish and Game sources to complete the table. Work is currently being done to further supplement this list through personal correspondence with native villagers, canneries, crab fishermen and news releases.

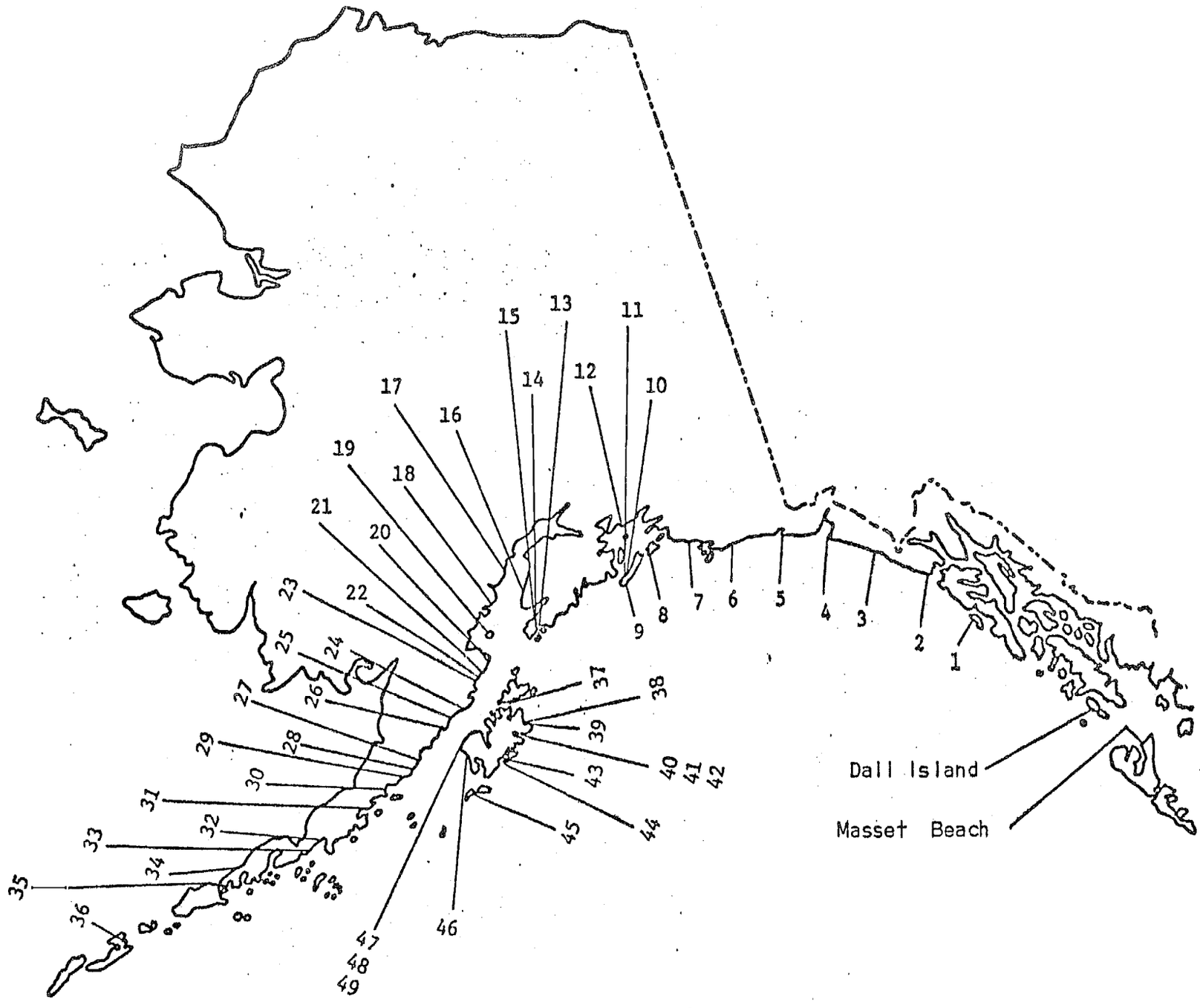


Fig. 1. Geographic locations of known razor clam growing areas in Alaska. (from Nickerson, 1975).

Table 1. Known razor clam growing areas in Alaska

Number	Location of Clam Beds	Extent	Abundance	Historical Utilizat
1	Kruzof Island	1/2 mile	fair	recreational
2	Dixon Harbor	1/2 mile	subsistance quantities	minimal
3	Lituya Bay to Ocean Cape	unknown	unknown	minimal
4	Small beach opposite Yakutat	20 yards	subsistance quantities	recreational
5	Icy Bay	unknown	unknown	minimal
6	Seal River	200 yards	subsistance quantities	none
7	Cape Suckling-Orca Inlet	140 miles	excellent	commercial/recreati
8	Nuchek, Hinchinbrook Island	1 mile	subsistence quantities	recreational
9	Jeanie Cove	1 mile	poor	minimal
10	Hanning Bay	1 mile	poor	minimal
11	Macleod Harbor	1 mile	poor	minimal
12	Eaglik Bay	1/2 mile	unknown	minimal
13	Nuka Island	1/2 mile	subsistence	recreational
14	Scattered beaches from Gore Point to Tonsina Bay	unknown	unknown	minimal
15	MacDonald Spit	1 mile	subsistence quantities	recreational
16	Homer Spit to Cape Kasilof	65 miles	poor to excellent	commercial/recreat:
17	Kustatan to Tuxedine Bay	55 miles	poor to excellent	commercial
18	Chinitna Bay	2 miles	excellent	minimal

Table 1. (cont.)

Number	Location of Clam Beds	Extent	Abundance	Historical Utilizat:
19	Augusti ne Island	1000 yards	fair	minimal
20	Cape Douglas	25 miles	excellent	commercial
21	Swikshak, Biq River & Village beaches	20 miles	excellent	commercial/recreati
22	Halo Bay	7 miles	good	commercial
23	Kukak Bay	10 miles	excellent	commercial
24	Dakavak Bay	3 miles	good	commercial
2 5	Kashvik Bay	2 miles	excellent	commercial
26	Alinchak Bay	4 miles	good	commercial
27	Imwya Bay	2 miles	excellent	commercial
28	Chiginagak Bay	2 miles	g o o d .	commercial
29	Yantarni Bay	10 miles	excellent	commercial
30	Aniakchak Bay	5 miles	excellent	commercial
31	Hook Bay	1 mile	good	minimal
32	Humpback Bay	unknown	unknown	minimal
33	San Diego Bay	2 miles	good	minimal
34	Izembeck Bay	22 miles	good	minimal
35	Bechevin Bay	10 miles	good	minimal
36	Kalekta Bay	1 1/2 miles	fair	minimal

Table 1. (cont.)

Number	Location of Clam Beds	Extent	Abundance	Historical Utilizat
37	Duck Bay	1/2 mile	fair	commerci al/recreati
38	Buskin Beach	1 mile	poor	recreational
39	Middle Bay	1/2 mile	fair	recreational
40	Narrow Cape	5 mi les	poor	minimal
41	Portage Bay	1/2 mile	poor	minor commercial/sp
42	Saltrey Cove	1/2 mile	poor	mi ni mal
43	Ocean Beach	3 miles	fair	minimal
44	Rolling Bay	1 mile	fair	minimal
45	Tugi dak	10 miles	fair	commercial
4 6	Cape Ali tak-Low Cape	10 miles	fair	commercial
47	Bumble Bay	2 miles	fair	commercial
48	Halibut Bay	5 miles	good	commercial
49	Carmel	2 miles	fair	minimal

There are presently 49 known locations containing razor clams. Of these 50% could sustain commercial harvesting operations (Nickerson, 1975). With the introduction of hydraulic dredges to reach below the mean low tide level accessible to beach digging operations (the environmental impact of which has not been investigated) a vast fishery may develop.

One research project which exemplifies the potential commercial value of the razor clam resources was undertaken in 1972 (Gwartney, unpublished, 1972-1973) and continued through 1975 (Kaiser and Koenigsberg, unpublished, 1974-1975). The Kaguyak Bay system of Swikshak, Big River and Village beaches were studied to obtain an estimate of the actual numbers of razor clams available to the commercial harvester.

Swikshak Beach is located on the Alaska Peninsula 70 miles from the town of Kodiak and 18 miles southwest of Cape Douglas within the Katmai National Monument (Figure 2). The beach extends four miles from the mouth of the Swikshak River and is of low gradient, exposing extensive intertidal zone at 10'w tide. Near the mouth of the Swikshak River 1¾ miles of beach may be exposed on extreme low tides. The beach progressively increases in gradient and decreases in width away from the river mouth. Beach near the river consists of fine light sand mixed with volcanic ash and glacial silt. Sand in the northeast portions of the beach is fine to coarse mixed with silt and gravel. A total area of 3,570,000 square yards is inhabited by clams accessible to commercial diggers. Within this area the population densities of clams $\geq$ 115 mm varies from .03 clams per yd^2 to 1.2 clams per yd^2 with a mean average density of .38 clams per yard square. The total "population of clams $\geq$ 115 mm is estimated to be 1.4 million (Kaiser and Konigsberg, unpublished, 1975).

Big River Beach (Figure 2) is four miles west of Swikshak and extends two miles from the mouth of Big River to a rocky bluff. Except'for the narrow portions of beach near Village Rock, the beach extends 1½ miles from high water mark on a tide of -4 feet and is of more uniform terrain and composition than Swikshak Beach. Substrate composition is predominately coarse sand and the beach gradient is minimal. A total area of 850 thousand square yards is inhabited by clams readily available to commercial diggers. The density of clams $\geq$ 115 mm ranges from .8 clams per square yard to 2.52 clams per square yard with an average density of 1.59 clams per square yard or 1.3 million clams $\geq$ 115 mm.

Preliminary research begun on Village Beach indicates that the density of it's clam populations is similar to those of Big River. The extent of this population is unknown.

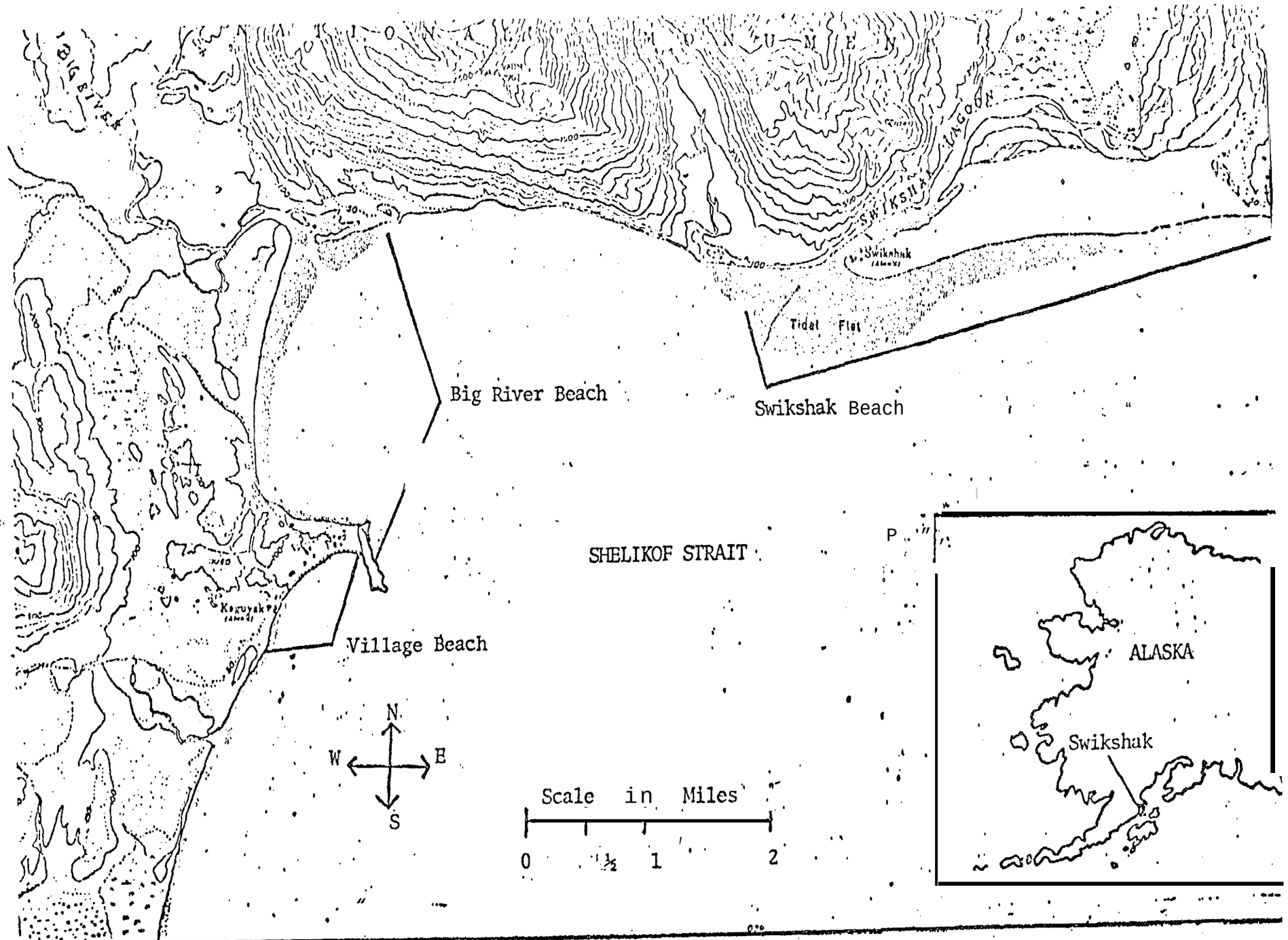


Figure 2. Location of study areas with inset of map of Alaska.

If ¾ of the clams ≥ 115 mm were harvested annually from Big River and Swikshak beaches a total of 300,000 pounds of whole clams could be commercially utilized. This is a conservative estimate in that substantial populations of razor clams exist in the intertidal areas inaccessible to the field researchers during the majority of the field season.

Biology

The life history of S. patula is typical of many bivalves: filter feeding, high fecundity and mortality, and limited growing seasons which are marked by growth rings." Sexual characteristics have been investigated by Weymouth et. al. (1925), Tegelberg (1961), Hirschhorn (1962), Bourne and Quayle (1970) and Nickerson (1975). Sexes are separate in the razor clam with sexual maturity being more closely related to size than age. Indeed, most clams are sexually mature when they attain a size of 4 inches in length (Nickerson, 1975). Spawning in July and August appears to be triggered by a period of minimally sustained water temperature of approximately 47.00°F (8.3°C) (Nickerson, 19'75). Population dynamics and habitat relationships have been investigated most thoroughly by Nickerson (1975) who has established "that the density of razor clams on the low tide terrace is stratified by tide level and that the upper limits of the habitable range appears" to be related to tidal regimes. Techniques for the project are based primarily on the methods established by Nickerson to examine the population by tide level.

STUDY AREA

The project will investigate the sandy beaches in the Gulf of Alaska between Unimak Bight and 13'3° West longitude south of Yakutat. For data collection purposes this broad area has been subdivided into five subareas (Figure 3). The demarcations are based primarily on logistical consideration. Subarea B (Figure 4) will be the major subarea to be explored during the 19'76 field season. It is felt that the eminent oil lease sale in the Kodiak area necessitates a thorough knowledge of the location of major razor clam beds within subarea B so that the awareness of this resource can be used in anticipating the impact of oil development. If time and economic considerations allow, research will be conducted south of Cape Kilokak as indicated.

METHODS OF DATA COLLECTION

Data collection will originate principally from on-site investigation In development of the research objectives and procedures for this

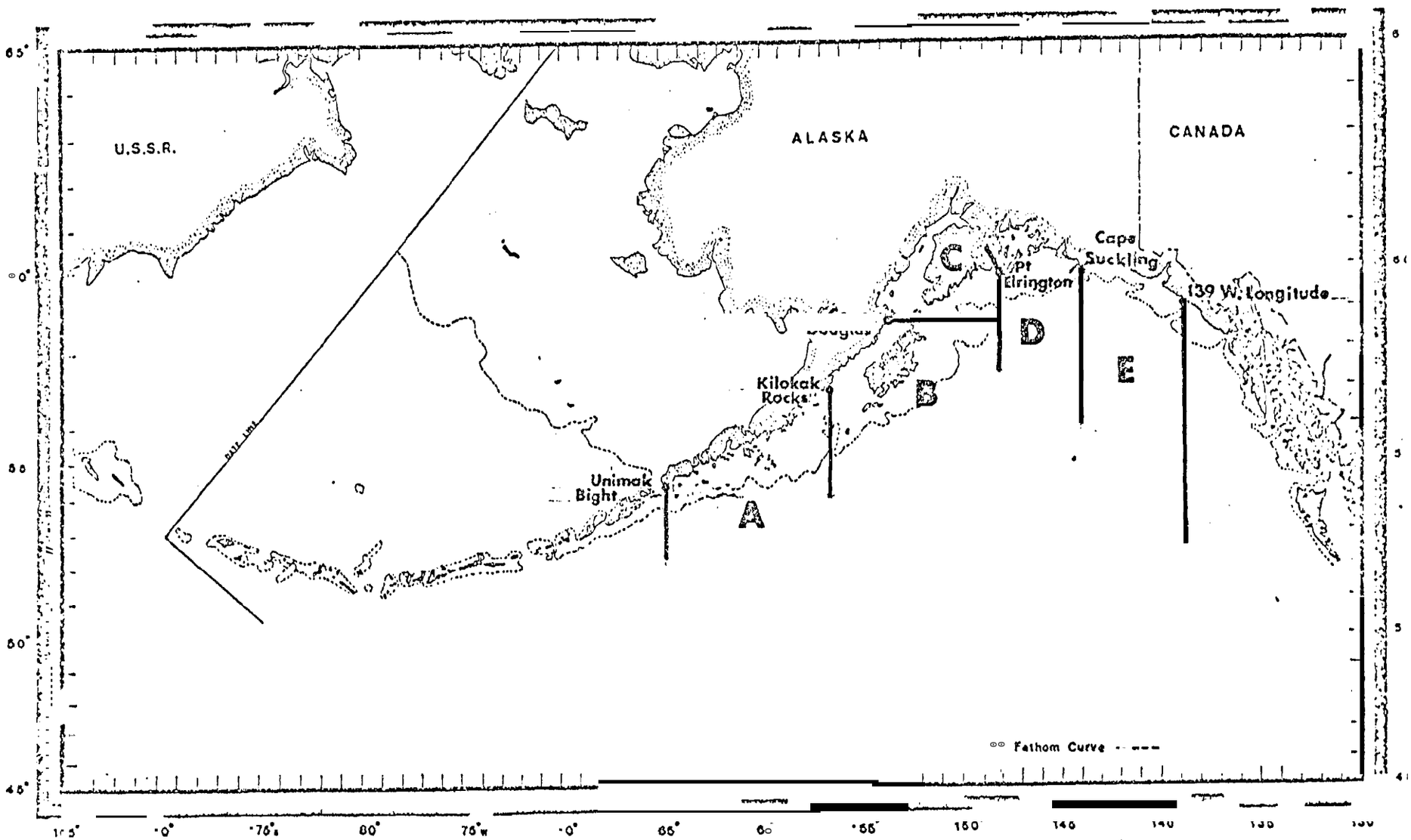
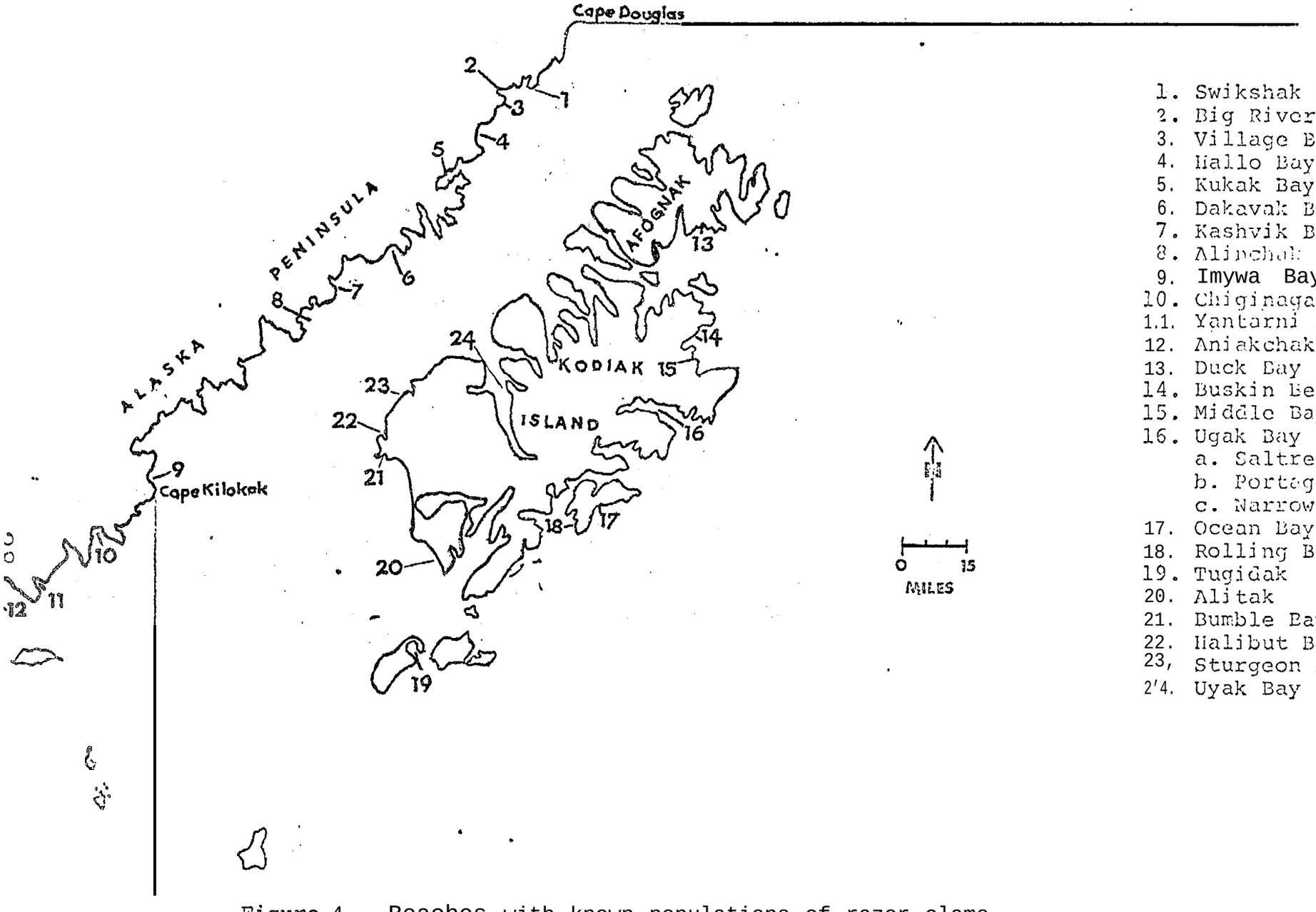


Figure 3. Coastal zoning for razor clam research in the Gulf of Alaska.



1. Swikshak Beach
2. Big River Beach
3. Village Beach
4. Hallo Bay
5. Kukak Bay
6. Dakavak Bay
7. Kashvik Bay
8. Alinchak Bay
9. Imywa Bay
10. Chiginagak Bay
11. Yantarni Bay
12. Aniakchak Bay
13. Duck Bay
14. Buskin Beach
15. Middle Bay
16. Ugak Bay
    a. Saltrey Cove
    b. Portage Bay
    c. Narrow Cape
17. Ocean Bay
18. Rolling Bay
19. Tugidak
20. Alitak
21. Bumble Bay
22. Halibut Bay
23. Sturgeon Head
24. Uyak Bay

Figure 4. Beaches with known populations of razor clams to be initially surveyed, 1976.

study, the OCSEAP program objectives of structuring a broad baseline assessment study were included.

Significant variation of razor clam density exists at any given beach by tide level and at differing points horizontally along the stratums of the low tide terrace. It is therefore essential that each station consist of measurements taken at each tide level. The number of stations per beach will be dependent on time available, manpower and overall OCSEAP objectives.

To date no beaches have been surveyed within the framework of the study, although valuable information already exists for many locations and will be incorporated as appropriate. The experience of research studies of razor clam populations at Swikshak and Big River beaches and those in the Cordova area have provided the basis for planning the current study.

Each site or station transect will be placed arbitrarily within the boundaries of the clam population. Tide levels by feet will be determined and marked. At each tide level a three by twenty meter plot will be established. Within each plot all clams that are "showing" will be dug with shovels. Three samples of 1/3 meter square will be excavated to a depth of .305 m (one foot) and the sand washed through a fine mesh screen to collect clams < 40 mm that are difficult to recover by pinpoint digging. In this way an overall distribution of size and age for a particular tide level will be achieved.

Collected specimens will be measured for total length and aged by counting the number of annuli on the valves (Hirschhorn, 1962). If time permits, the size of razor clams at sexual maturity will be determined. Samples will be collected to monitor the incidence of paralytic shellfish poisoning. All other incidentally captured bivalve mollusks will be classified and total numbers and sizes per tide level determined.

Additionally, at each tide level, a core sample measuring 2.54 cm in diameter will be drawn from the substrate to a depth of 20 cm. Substrate composition will then be determined using a mechanical sifter. Also the environmental parameters of salinity, air, water, sand temperature and barometric pressure will be collected.

CONCLUSION

The importance of the Pacific razor clam *Siliqua patula* must be considered in terms of recreational and commercial utilization prior to any petroleum development along the Gulf coast. Most of the important known razor clam beaches are near areas of current or proposed oil development. The habitat of this species on the open surf swept sandy

beaches of the coast make it highly vulnerable to problems associated with oil exploration and development. As a result, it is essential to gather the needed information and assess the current condition of razor clam stocks with the study area before oil development proceeds.

SUMMARY OF 4TH QUARTER ACTIVITIES

Funding for the project was delayed until mid-March. Therefore, the 4th quarter has been spent in developing an operational plan, determining methods and selecting equipment, It was not possible to conduct any field research. Field research is anticipated to begin during the first week of May.

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RU 27

Loren B. Flagg

ADF&G

Kenai Peninsula Study of Littoral Zone

The Quarterly Report printed in the July-September 1975 Quarterly Reports is to be considered the Annual Report for this Research Unit.

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Research Unit #58

Sept. 1, 1975 - April 1, 1976

23 pages

ANNUAL REPORT

A Description and Numerical Analysis of the Factors Affecting the Processes of Production in the Gulf of Alaska

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March 26, 1976

I. Summary

Objective 1. To conduct a search and present a compilation of available baseline biological and associated physical and chemical data from the Gulf of Alaska (planktonic realm).

Conclusion: Conclusions will be shown when the study is complete.

Implications: Measurement of, the effects of petroleum development will depend upon comparison of data with pre-development figures (i.e., those of this study}.

Objective 2: To use the compiled data for a description of the temporal and geographic variation in phytoplankton standing stock (and species), production, and related physical and chemical factors.

Conclusion: Literature reports indicate that phytoplankton standing stock remains constant during the year in large areas of the Gulf, even though production increases in the spring. Further conclusions will be drawn when the study is complete.

Implications: Evidence of natural fluctuations in plant biomass and production will be available for comparison with changes related to petroleum development. Grazing and circulation patterns indicate the possibility of long term toxins (hydrocarbons) in the food chain leading to salmon.

Objective 3: To use the data from Station "P" in a model of phytoplankton productivity and to test the sensitivity of the model to changes in physiological constants and external parameters.

Conclusion: Conclusions will be drawn when the study incomplete.

Implications: The model may be used to relate natural and oil-related changes in the environment to plant production.

II. Introduction

A. General nature and scope of study

A study of the potential impact of modifications to an ecological system must determine both the quantity and distribution of organisms and the relationship between these various organisms. Baseline studies are necessary in order to assess the average stocks in an area and the natural variations within these stocks. Knowledge of the energetic which relate the different organisms is also necessary in order to estimate changes which might be expected from modifications of the system. Even more important, a general understanding of the gross processes controlling the ecological system, when applied to a simple model, is an invaluable tool in designing and implementing the baseline studies. This study encompasses the pelagic ecosystem in the Gulf of Alaska, concentrating on the first step of the food chain.

II. Introduction

B. Specific objectives

The specific objectives of this study are:

1) To search the existing literature and unpublished data in order to compile baseline information on factors of importance to phytoplankton production.

2) To synthesize the baseline information into a description of the seasonal and geographic distribution of phytoplankton standing stock, production and related physical and chemical factors insofar as the existing data are suitable.

3) To use the data to initialize a numerical model and to determine the combinations of process submodels which lead to distributions in the dependent variables that are in agreement with observations.

4) To test the sensitivity of the results of the "standard" run to changes in the submodels and independent variables; identify those variables and processes which strongly influence the results.

C. Relevance to problems of petroleum development

The results of this study are relevant to petroleum development in two ways: First, the baseline information which we are compiling may be used (where the existing data are suitable) to compare effects after petroleum development with the natural range of values in the pelagic ecosystems. Second, we will be able to suggest the types of modifications to the plant community which might be associated with a large scale oil spill.

This study will describe the 'normal' state of the ecosystem in the Gulf of Alaska, as well as any natural fluctuations of plant populations that have occurred in the past. Where the data are adequate, comparisons with this norm should be the basis of any future study of the actual impact of petroleum development on the pelagic ecosystem. We will also point out areas in which we feel the data are lacking. We expect the model results from Station "P" to indicate the variables which most strongly influence primary production. It would stand to reason that these variables should also be gathered in any further studies in the Gulf of Alaska if they are not already available.

It is obvious even now that, with the exception of the area around Station "P", there are insufficient data in the Gulf of Alaska to describe quantitative cause and effect relationships. However, individual species of phytoplankton are likely to be most sensitive to chemical changes in the environment so that changes in species distribution may be good indicators of changes in the ecosystem. This study will describe those species distributions that have been found in the past.

To actually predict the effects of an oil spill on the primary producers is a task far beyond the capabilities of the present study. To do this, one would need supporting information on the effect of oil on the physical properties of the water column and on the physiology of the plants and animals. Still, we can suggest the nature of the changes which might occur. For instance, a layer of oil on the sea surface may be expected to decrease the transmission of light and the transfer of turbulent energy across the air-sea interface. This can be modeled by decreasing the incident. radiation and by reducing the vertical mixing. This same layer of oil might affect the plant community by decreasing the maximum production rate and by increasing the respiration rate (an artificial means of increasing mortality).. We can try the above demonstrations in order to evaluate the value of this scientific model as a management tool.

The effects of an oil spill on the productivity of underlying waters would be, for the most part, short term effects. There is also a possibility of long term effects of petroleum development in the Gulf of Alaska. One such long term effect would be the introduction of different oil fractions into the food chain. Some of these fractions may not be toxic to organisms low on the food chain, but could be toxic to man. For instance, high boiling aromatic hydrocarbons are suspected as long-term poisons, perhaps carcinogenic ones; and the nonhydrocarbon fractions of crude oil behave as the aromatic compounds (Blumer, 1969). Our study summarizes the information on zooplankton distributions and on the basic circulation pattern in the Gulf of Alaska. During the spring bloom, it has been reported that grazing by a large stock of herbivores keeps the phytoplankton standing stock at a constant level (McAllister et al., 1960). If an oil spill were dispersed into tiny droplets either chemically or by wave action, these droplets would likely be consumed along with the living cells. Circulation patterns, described. in the literature we have reviewed, indicate that in the eastern Subarctic the consumed hydrocarbons would be distributed to the main feeding grounds of the salmon. In addition to the counterclockwise flow around the Gulf of Alaska, currents flow north from the Alaskan Stream through the Aleutians to Bristol Bay (see Figure 1). Thus, chemicals of unknown but suspected toxicity to man could become concentrated in one of his major food sources.

111. Current "state of knowledge

A. Baseline "data .

Some of the readily available information on the physical oceanography of the Subarctic Pacific Ocean has been described by a number of authors (e.g. , Tully and Barber, 1960; Uda, 1963; Dodimead, Favorite and Hirano, 1963; Tully, 1964; Tabata, 1965; and references cited therein). Likewise, some of the major publication's with biological data for the same area include the works of McAllister, Parsons and Strickland, 1960; 'Anderson, Parsons and Stephens, 1969; parsons and LeBrasseur, 1969; Parsons and Anderson, 1970; Larrance, 1971a; and Anderson and Munson, 1972. In addition to the more readily available data mentioned above, other relevant biological information from the area are contained in the north-south sections made through the Gulf in past years, e.g. , Ursa Major and Zetes expeditions in 1964 and 1965 (Scripps Institution of Oceanography, 1967), the HAKUKO MARU in 1970 (Marumo, 1970), and the R/V T. G. THOMPSON in 1972. Also, a winter cruise in February 1967 by the R/V THOMPSON which covered a large area of the Gulf of Alaska has produced a unique set of data on primary production, plant nutrients and hydrography at a time when observations are most difficult "to obtain.

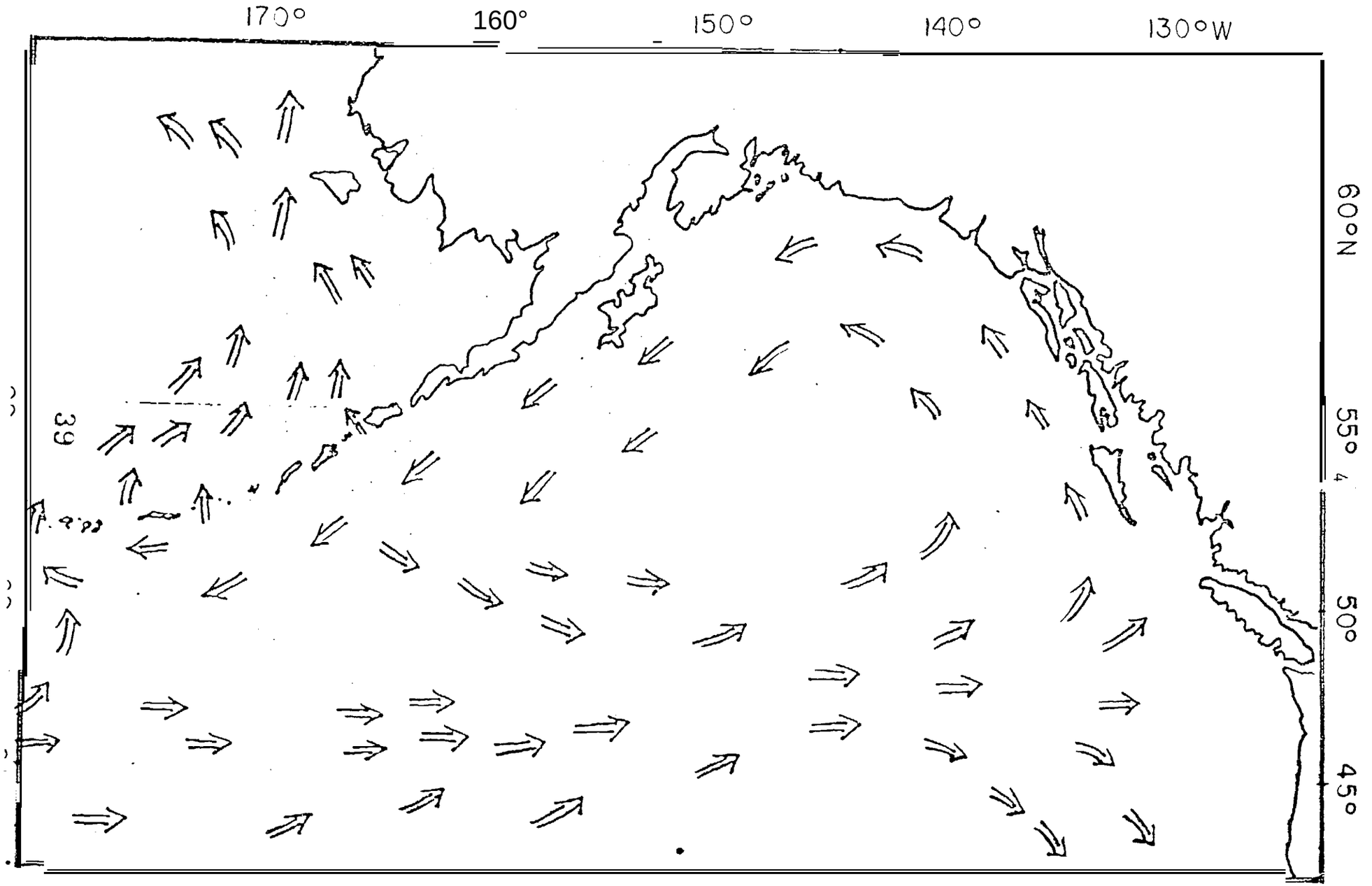


FIGURE 1. PERSISTENT CIRCULATION IN THE SUBARCTIC REGION (after Uda, 1963)

One of the largest blocks of existing data was obtained through several decades of study carried out at Ocean Weather Station "P" by Canadian oceanographers, the results of which are reported in various papers and technical reports. A second very large block of data was obtained during a five-year study (January-June, 1968-1972) made from commercial vessels crossing from North America to Japan via the Gulf of Alaska and near to the Aleutian Islands (Anderson and Munson, 1972; Munson, in preparation). In these studies, enumeration of phytoplankton species, and measurements of surface chlorophyll and nutrient concentrations, productivity, zooplankton volume, mixed layer depth, temperature, and isolation were made at frequent intervals during the period of the spring bloom. In addition to the measurements made from the commercial vessels, more sophisticated sampling from research vessels including measurements of the vertical distribution of parameters was carried out from a number of oceanographic cruises taken over similar cruise tracks. In March and April 1969, studies were conducted by the Fisheries ResearchBoard of Canada, Nanaimo (T. R. Parsons) aboard the ENDEAVOUR; in June and July 1970, samples were collected by Hokkaido University (S. Motoda) aboard the. OSHORO MARU: and the University of Washington (G. Anderson) made similar measurements from the T.G. THOMPSON in the spring of 1970. "Other biological cruises aboard the R/V THOMPSON were made during the summers of 1973 and 1974.

Some of the above data have been summarized to describe features of the distribution of biological parameters in the Northeast Pacific.

Evidence of seasonal variation has been derived from long term monitoring at Station "P" (145°W 50°N). In contrast to the marked phytoplankton blooms over the Continental Shelf, phytoplankton biomass in the open ocean region of 145°W 50°N remains relatively constant throughout the year. In this area primary production increases in the spring months, and grazing is assumed to keep the plant biomass constant (McAllister, et al., 1960).

The "investigations show that there are high nutrient concentrations in the waters of the Gulf of Alaska during the winter-and that, in the summer, the nutrients in the coastal waters are substantially reduced while the nutrients in the oceanic waters', though reduced, remain in fairly high concentration. However, surface concentrations of phytoplankton in oceanic waters remain quite uniform throughout the year. Parsons and LeBrasseur (1969) have shown that the relationship between the thermocline depth and the incident radiation lead to establishment of a spring bloom which starts in March around the edge of the Gulf of Alaska but does not begin until May in the central portion of the Gulf. This shorter period of plant growth from the coast outward is offered as an explanation for the reduced level of nutrient removal from offshore oceanic waters as compared with coastal waters. It is further suggested (McAllister and Strickland, 1960) that secondary production in the offshore waters also contributes to limiting the standing stock of phytoplankton during spring and to recycling nutrients. In the winter, high vertical mixing in combination with low light intensities result in higher nutrient concentrations in the surface waters.

Some large scale, non-seasonal fluctuations in biological, chemical, and physical parameters have been observed in the vicinity of Station "l?". In 1956-1957, waters at Station "P" resembled waters of the Alaskan Gyre, which is of a pure Subarctic character. From 1958-1960, warmer waters with lower oxygen content were observe

at Station "P" (Parsons and LeBrasseur 1967). These were interpreted to be mixed waters of the Transition Zone (Marlowe & Miller 1975). During this time, the distribution of zooplankton species reflected the northern movement of mixed waters; a biological difference between Subarctic water and Subarctic water overlain by Transition water was observed (Geynrikh 1968). For example, the zooplankter Parathemisto japonica was confined to areas where Subarctic water occurred at the surface as well as at depth, while Calanus pacificus occurred in surface Subarctic waters and Subarctic waters underlying Transition waters (Beklemishev 1961). In 1961, water at Station "P" returned to the 1957 condition of pure Subarctic features.

In 1962, zooplankton biomass at Station "P" decreased by a factor of 5, remained low for 3 years, then in 1965 returned to pre-1962 levels. (Longhurst, et al., 1972). The decrease was not correlated with any other parameter, biological or physical. Other unexplained, non-seasonal variations in salinity and oxygen content have also been observed at Station "P" (Marlowe and Miller, 1975) .

Fewer studies have dealt with geographic variation of biological features in the northeast Pacific. Venrick (1969) found the neritic phytoplankton to be markedly distinct from the oceanic species, and the boundary between oceanic and neritic to be very sharp. Larrance (1971a) found productivity and chlorophyll a substantially higher in coastal waters of the Aleutian chain than in the Alaskan Stream. Beklemishev and Nakonechnaya (1972) found discrete phytoplankton blooms in both Subarctic and Transition Zone waters. The smallest patches had dimensions of 150 x 420 nautical miles, while others were larger. The patches in the Subarctic water coincided with the area of high phytoplankton biomass described by Parsons and Anderson (1970). Areas which have received intensive investigation are the inland waters of Alaska (Bruce 1969; Iverson et al. 1974; Curl 1972; Iverson 1972; DeManche1974; Kirk 1973; Schell 1974; Iverson, Curl, and Sangen 1974; Homer et al. 1973) and British Columbia (Parsons 1965; Gilmartin 1964; Parsons et al. 1969, 1970; Stephens et al. 1967; Strickland 1959, 1961; Waldichuck 1956).

B. Numerical Model

Primary production in the open ocean, where changes due to horizontal advection are assumed to be small, may be summarized by an equation describing the time rate of change of chlorophyll, an indicator of plant abundance, at a given point:

$$\frac{d\,(\text{chlorophyll})}{dt} = \text{vertical mixing} + \text{sinking} + \text{gross production} - \text{respiration} - \text{zooplankton grazing}$$

The major inputs into this equation, the independent variables, include the turbulent mixing coefficient, the nutrients and light which control gross production, and the changing population of herbivores which graze on the phytoplankton. In addition to the independent variables, it is necessary to know several parameters associated with the physiology of the plants and animals.

Two of the three independent variables, the nutrients and the zooplankton may themselves be dependent on changes in the plant material. If these variables have not been measured, they may in theory be described by two additional time-dependent equations. The three equations, that for chlorophyll and the additional ones describing the nutrients and the zooplankton would have to be solved simultaneously. In practice, our knowledge of the processes relating nutrient production, nutrient depletion, and zooplankton growth to chlorophyll content and other factors is quite poor; so that it is more reliable to have measurements of these two variables. The vertical mixing coefficient is very poorly known for the oceans. At best, it has been measured at a few locations for limited times. In the past, models of primary production have been forced to assume constant values for this coefficient or to guess reasonable time and depth variations for it.

IV. Study Area

In order to obtain as much baseline data as possible, the study area covers the Gulf of Alaska expanded west to 180° and south to 42°N. This area includes the entire eastern Subarctic (excluding the Bering Sea) as well as part of the Transition Zone. For the numerical model, Weather Station "P" has been chosen as the study area because of the extensive time series of biological and physical data collected there.

V. Sources, Methods and Rationale of Data Collection

A. Baseline Data

The data have been compiled from as many published and unpublished sources as possible. The following cruises collected biological data from the study area:

R/V BROWN BEAR: 199, 235, 275, 280, 282, 287, 288 (Stephens 1964, Love 1963)
R/V T. G. THOMPSON: 012, 059, 072, 082, 091 (U. Washington, unpublished)
R/V HUGH M. SMITH 046 (McGary & Graham 1960, Stephens 1964)
R/V KELEZ: 166, 167, 168, 268, 367, 567, 667, 767 (Larrance 1971b)
M/V PARAGON: 266 (Larrance 1971b)
R/V PIONEER': N066 (Doty 1964)
R/V AGASSIZ: Ursa Major (U. of California 1967)
R/V ARGO: Zetes I (U. of California 1970)
R/V G.B. REED: 164 (Stephens 1964)
CNAV OSHAWA: 1961, 1962 Productivity Cruise (Stephens 1964)
R/V ENDEAVOUR: Trans Pacific (Anon 1970)
R/V HAKUKO MARU: 694, 702, 742 (Takahashi et al. 1972, 1974; Marumo 1970; Horibe 1971; Kuroki 1975)
R/V OSHORO MARU: 042, 044, 046, 048, 004, 009, 014, 024, 028, 032, 037, 041, 001 (Faculty of Fisheries 1959, 1960, 1961, 1962, 1964, 1965, 1966, 1968, 1969, 1970, 1972, 1973, "U. of Washington unpublished)
R/V VITYAZ: 029, 045, (Koblents-Mishke 1969, Kompleksnie 1973)
*Ships of Opportunity: 002 to 043 (U. of Washington unpublished)
Weather Station Papa: 1959-1969 (McAllister 1962; Stephens 1964, 1966, 1968, 1970; LeBrasseur 1965)

*These are commercial vessels which were instrumented to make oceanographic observations.

Variables which have been compiled for each station in the study area are: chlorophyll a, phaeopigments, productivity, and zooplankton wet weight integrated over the euphotic zone; one-percent light depth; secchi depth; mixed depth; daily incident radiation; and at each depth: chlorophyll a, phaeopigments, productivity, oxygen, phosphate, ammonia, nitrate, nitrite, silicate, pH, alkalinity, temperature salinity, zooplankton wet weight. Early cruises recorded fewer variables than later ones.

The data have been reduced to comparable units. Only productivity values which have been obtained from incubation in daylight using neutral density filters on matched depth samples have been retained. Productivity values obtained from incubation in an artificial light source, from composite samples, from depth samples incubated without filters, and from surface samples incubated with filters have not been included. Chlorophyll a values obtained from the equations of Richards and Thompson (1952) and Parsons and Strickland (1960) will be reduced by 24% (Banse and Anderson 1967) in order to conform with the revised equations by UNESCO (1966). Of the various zooplankton methods, only wet weight derived from vertical tows of the upper 150 meters have been compiled. Zooplankton density was assumed to be 1 g/cc and volumes have been converted directly to wet weight (1 cc/1000m^3 = 1 mg/m^3).

B. Numerical Model

Ocean Station "P" represents one of the longest time series of sampling in the open Pacific Ocean. Extensive meteorological data are available from the site through collection aboard weather ships. In addition, extensive physical oceanographic records have been obtained at the site. Of the four independent variables in the chlorophyll equation, light and zooplankton data are available for many years. Many fewer data exist for nitrate, the assumed limiting nutrient. However, those data which exist show that nitrate is never in low enough concentration to limit plant growth. Thus, the only major input which remains unmeasured is the mixing coefficient. At Station "P" there are numerous measurements on the time and depth dependence of the oceanic temperature. If we assume that temperature and chlorophyll are both "mixed" by the same processes, then the temperature data may be used to calculate an apparent mixing coefficient which may then be used as an input into the equation describing chlorophyll production.

Using the measured light and zooplankton data and the calculated mixing coefficients, the time rate of change of chlorophyll in the water column will be calculated. The function submodels in the production equation may then be adjusted to bring about reasonable agreement between the calculated and measured chlorophyll distributions. Taking the result as a "standard" case, we can then observe how the predicted chlorophyll production would change in response to natural and man-induced variations in the input variables and parameters.

Even though nitrate is found to be non limiting at ocean Station "P" and hence not a factor in phytoplankton production, the nitrate distribution does depend upon chlorophyll production, regeneration by zooplankton excretion, and mixing by physical process. Therefore, as a final step, it will be desirable to see if the assumed mixing, along with the measured chlorophyll and zooplankton distributions, can adequately account for the observed nitrate values.

VI. Results

A. Baseline Data

All available data have been compiled. Stations are being assigned geographic areas (see Figure 2), and a computer sorting and statistical program is being developed. Synthesis of the baseline information into a description of seasonal and geographic variation will begin once all the data have been punched onto cards.

B. Numerical Model

We have surveyed the published literature for Station "P" in order to familiarize ourselves with the work that has been done at that location and the ideas which have been advanced to explain the biological observations. We have transcribed part of the relevant information from that station into computer-compatible format in order to examine more closely certain data. In particular, we have collected data between the years 1959 and 1967 at times when chlorophyll measurements were available. We have used averaged values of the data where applicable and data from specific years when necessary. Chlorophyll values were averaged over the years 1959-1967 in order to obtain an adequate coverage in depth and time. Depth-integrated production was averaged for the years 1961-1963. Zooplankton biomass (wet weight) was averaged from 1956 to 1964. Nitrate data are presently available only for the years 1965 through 1967. Monthly values of incident radiation were averaged for the years 1960 to 1967. Finally, because of the exceedingly large amount of temperature data available, only the water column temperature for 1970 was used in calculating the apparent mixing coefficient.

The qualitative, interpretation of the averaged data is consistent with the published literature, namely that:

1) Chlorophyll values show decreasing values with depth but apparently insignificant variation with time.

2) Nitrate levels are always non-limiting for phytoplankton growth but do show a seasonalvariation with somewhat decreased surface values in the summer months.

3) The depth-integrated chlorophyll standing stock is virtually unchanged throughout the year.

4) Both the integrated plant production and the zooplankton biomass show peak levels during the spring.

The modeling effort has been broken into three parts: 1) the calculation of an effective mixing coefficient utilizing temperature data; 2) the creation of a chlorophyll model along with a sensitivity analysis; and 3) the running of a nitrate model in order to check the consistency of the first two steps. We have nearly completed Part 1): the calculation of a time and depth dependent apparent mixing coefficient. We expect to have results from the chlorophyll model and the sensitivity analysis before the end of this contract period. The nitrate model, along with other work which will be discussed later, will be undertaken in the following year.

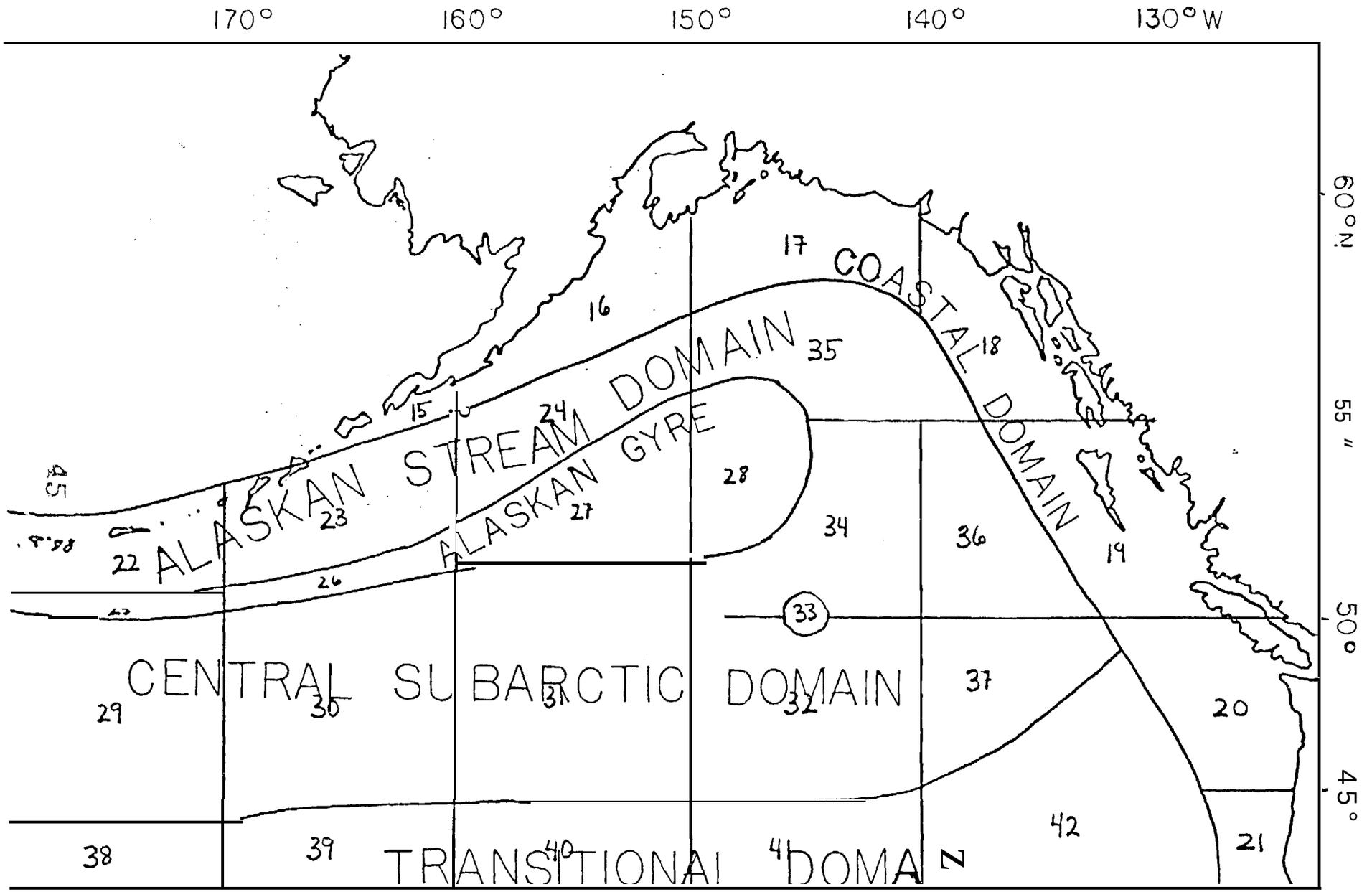


Figure 2. GEOGRAPHIC AREAS (after Dodimead, Favorite, and Hirano, 1963)

In order to calculate an effective mixing coefficient, temperature records for 1970 from Station "P" have been averaged into monthly mean values and then fit with analytic functions (Figure 3). Assuming that temperature (as well as biological matter) is subject mainly to vertical mixing, we can describe the time rate of change of temperature, T, by:

$$\frac{\partial T}{\partial t} = \frac{1}{\rho c} \frac{\partial}{\partial z} \left[K_z \frac{\partial T}{\partial z} \right] \qquad (1)$$

where:

- ρ is the density of the water
- c is heat capacity of the water
- z is the depth in the water column
- K_z is the mixing coefficient

For ease of calculation and as a first approximation, we assume that the time rate of change of the temperature is sufficiently small so that the temperature distribution is nearly at steady state. In this case:

$$\frac{\partial K_z}{\partial z} \frac{\partial T}{\partial z} + K_z \frac{\partial}{\partial z}\left(\frac{\partial T}{\partial z}\right) = 0 \qquad (2)$$

and this is satisfied if:

$$K_z \propto \left(\frac{\partial T}{\partial z}\right)^{-1} \qquad (3)$$

Using the above approximation, profiles of K_z have been calculated for each of the monthly temperature profiles. The profiles of K_z are shown in Figure 4; Figures 5 and 6 give the time and depth dependence for the temperature and the apparent mixing coefficient. Equation (3) only predicts the shape of K_z but not the absolute magnitude. In order to estimate the magnitude of the mixing coefficient, we compared our results to predictions by Vo Van Lanh and Pivovarov (1974) and to calculations involving the assumed annual heat flux through the sea surface at Station "P". Preliminary results suggest a maximum K_z value of about 60 cm^2/sec at the surface in the winter. We are in the process of using this, calculated mixing field to see if we can reconstruct a reasonable time-dependent temperature field, i.e., one that is qualitatively similar to the observed one.

VII. Discussion

As mentioned earlier, Station "P" is an area with one of the most comprehensive data sets relevant to calculations of primary production. Still, there are limitations in the application of those data. The two major problems are the quantity and coverage of the data at any given time and the simultaneous availability of the necessary data. Table 1 shows the available independent variables when there are chlorophyll measurements for comparison. Data collected after 1967 are more complete in coverage, but processing has been slow and more recent data have not been published.

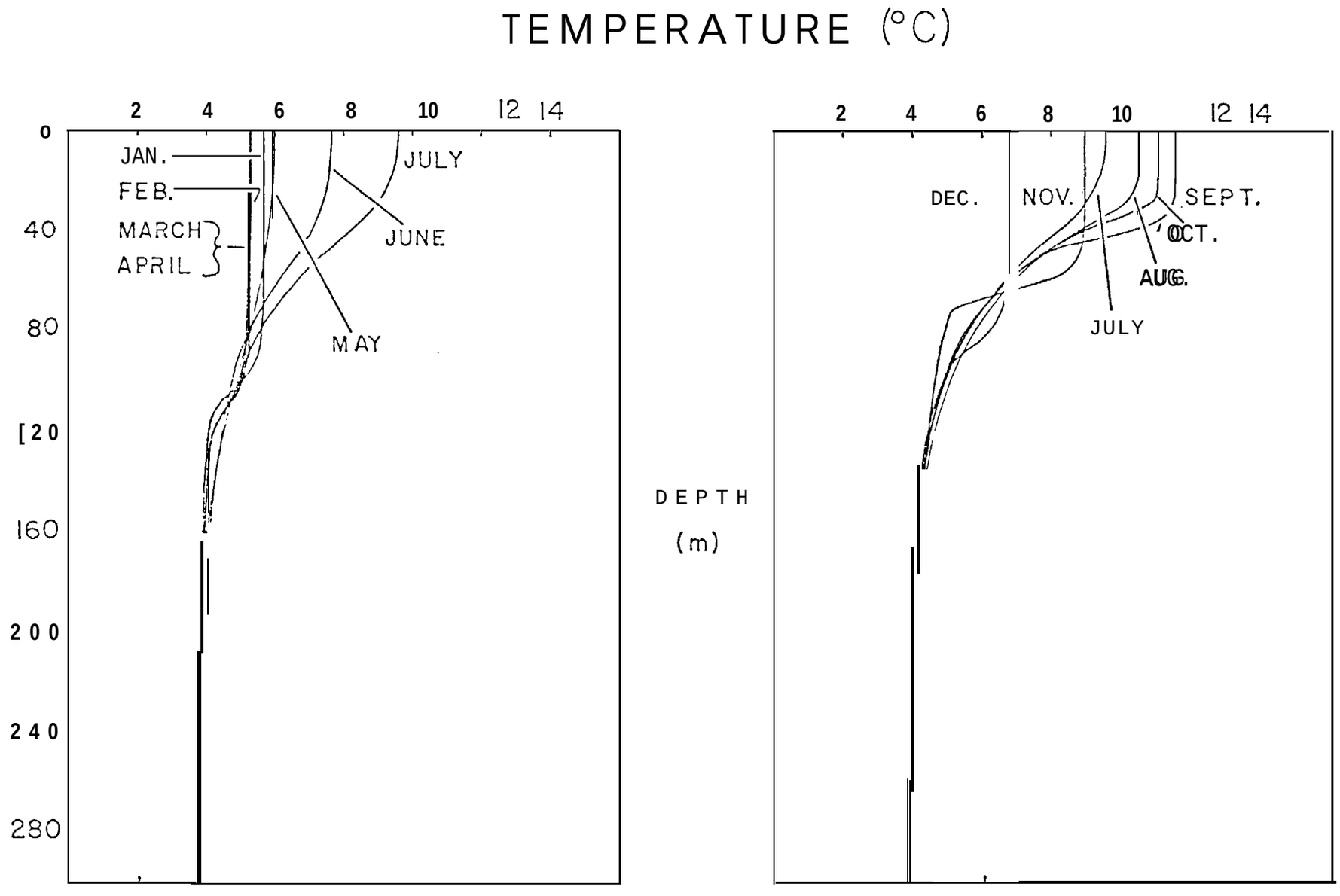


Figure 3. Analytic Fit to Monthly Mean Temperature at Station "P" in 1970

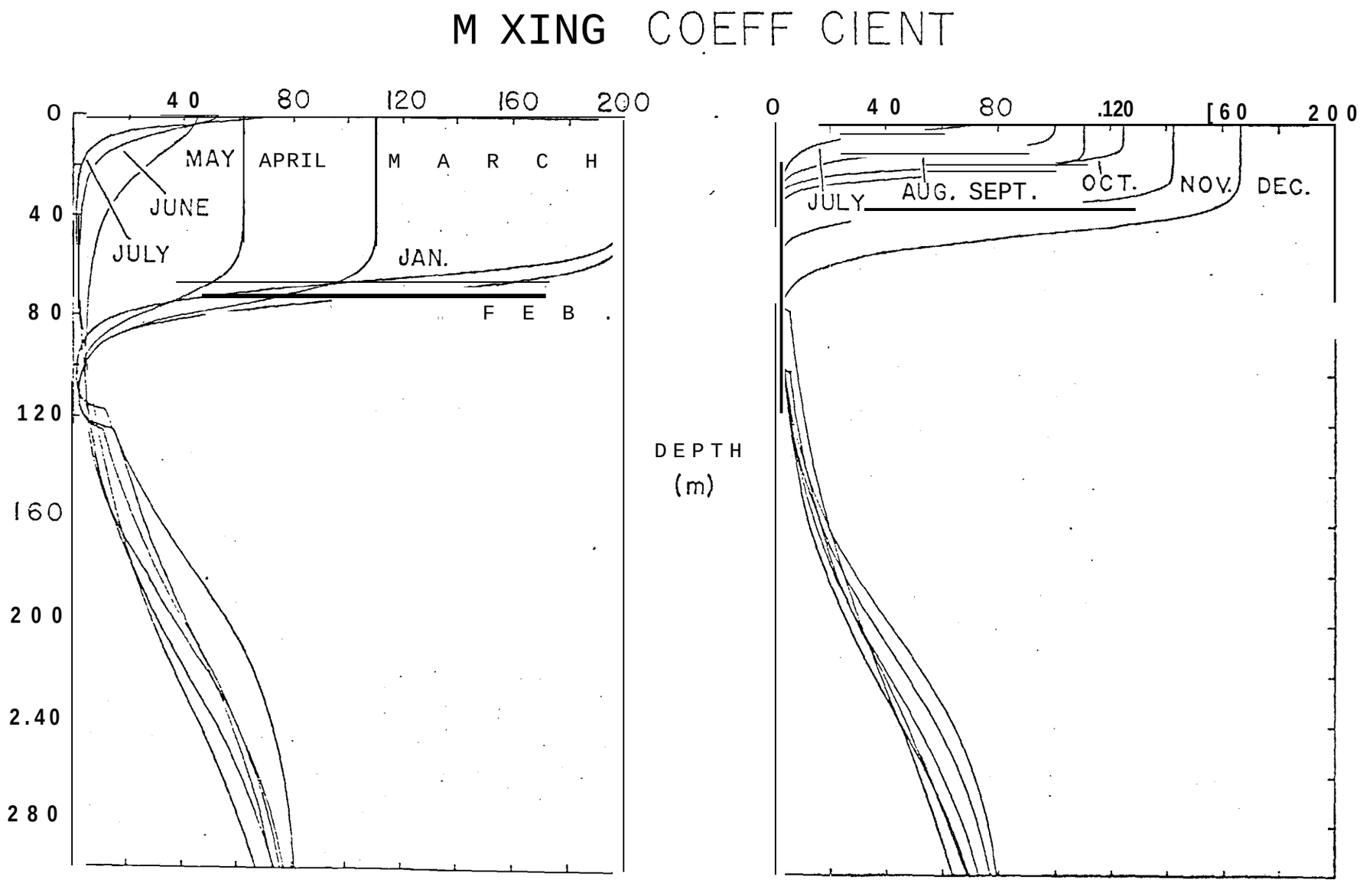
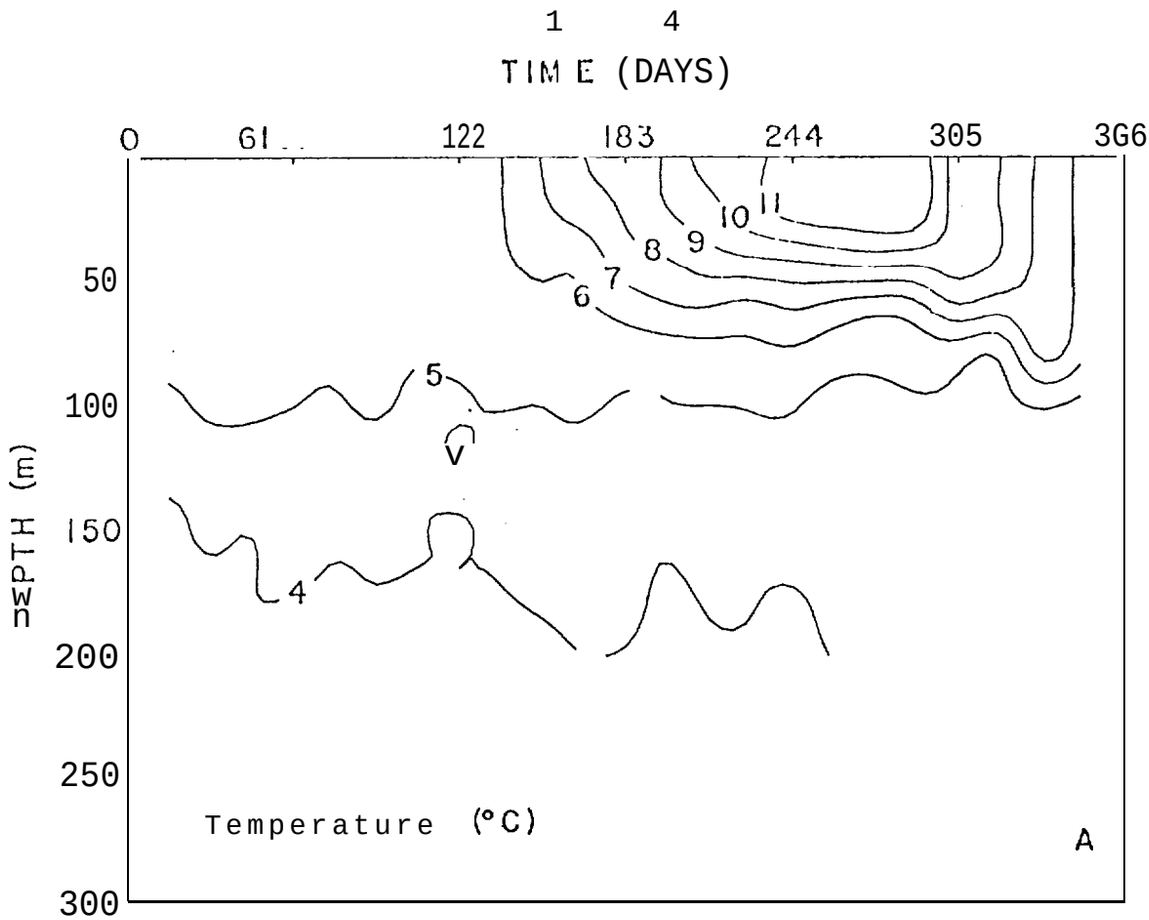


Figure 4. Mixing Coefficients, K_z, calculated from Temperature Data (Fig. 3) using Equation 3. The magnitude of K_z is in arbitrary units.



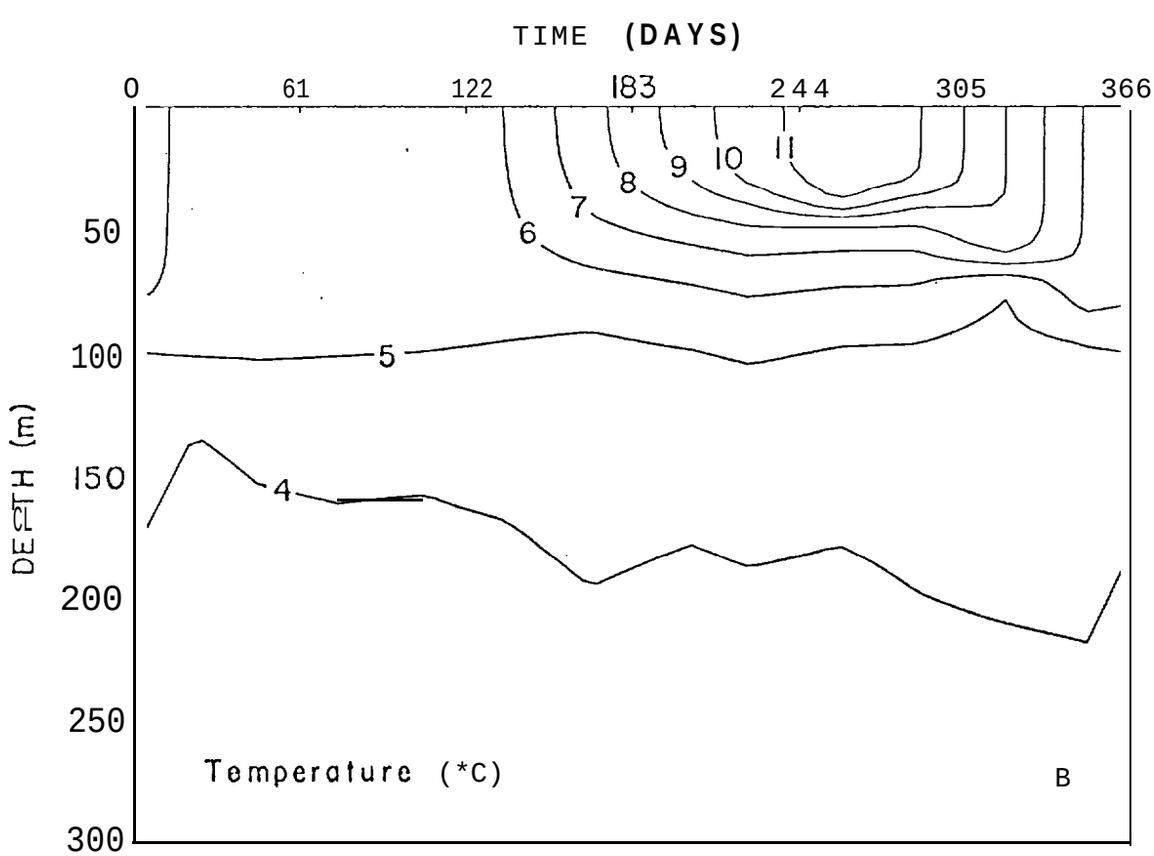


Figure 5. Time and Depth Variation of Water Temperature at Station "P"
A) From bi-monthly data
B)From temperature fit (Fig. 3)

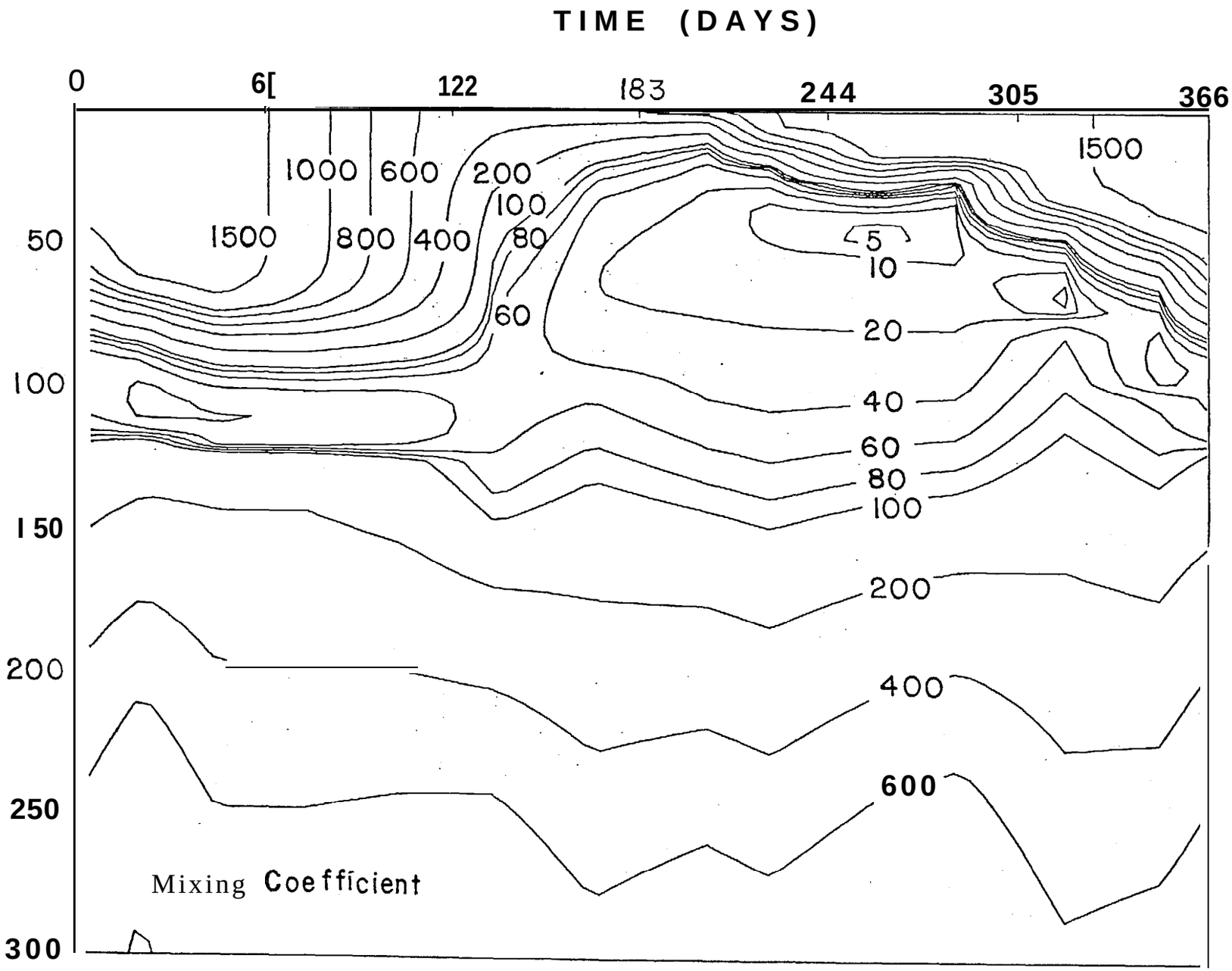


Figure 6. Time and Depth Variation in the Apparent Mixing Coefficient (from Fig. 4). Units as in Fig. 4

Table I. Biological, Chemical, and Physical Data from Station "P"

	Chlorophyll a	Zooplankton	Nitrate	Radiation	K_z (Temperature)
1959	P^1	P			P
1960	P^2	P		P	P
1961	P^2	P		P	P
1962	P^2	P		P	P
1963	P^2	P		P	P
1964	P	P		P	P
1965	P	u	P	P	P
1966	P	u	P	P	P
1967	P	u	P	P	P
1968	(P)	s	(P)	P	P
1969	(P)	s	(P)	P	P
1970	s	s	s	P	P
1971	s	s	s	P	P
1972	s	s	s	P	P

P – Published data

(P) -published: not in hand

P^1– published: very few data

P^2– published: few data below 60 m.

U – unpublished: being processed

S – sampled: unprocessed and unpublished

VIII. Conclusions

Because of delays in funding and subsequent delay in hiring personnel, work on this grant did not begin until September 2, 1975. We hesitate, therefore, to give statements of conclusions which at best would be only preliminary and subject to major revision at a later date.

IX. Needs for Future Study

A. Baseline Data

A preliminary plot of all stations occupied to date reveals a lack of samples from the upper Gulf of Alaska (north of 55*N) and, over the whole study area, few samples are available from the months of October, November, and December. When and if these gaps in the data base are filled, the new data should be entered into the statistical program of this study to broaden the conclusions which will be drawn on both geographical and temporal variation in the Gulf of Alaska. One area which deserves special attention is the position of the biological boundary between the neritic and oceanic realm. Marked differences between these realms occur in both phytoplankton biomass and species. Charts of species distributions, which will be included in this study, will provide preliminary results. However, the samples were not spaced closely enough across the boundary to be definitive. The combination of the old data with that being collected presently by the OCSEP investigation should add insight to the problem.

B. Numerical Model

We mentioned earlier that one of the studies to be undertaken in the future should be the development of a nitrogen model to compare the measured nitrate distribution with that predicted from our assumed phytoplankton and K_z distributions;

It was also pointed out that the K_z distribution was calculated under steady state assumptions. This can and should be improved by making the calculation which allows for time variations in the temperature distribution.

In the present work, values of the independent variables were averaged over differing lengths of time and even for different periods. This was partly because of data limitations and partly because some of the data were already available in average form from the literature. In the future, it would be desirable to pick specific years to model. Longhurst et al. (1972) pointed out that there was exceedingly low zooplankton biomass in 1962-1964 in comparison to other years. Since we expect zooplankton to exert a major influence on production, it is desirable to run the model for one year when zooplankton biomass is low and one year when biomass is high. Data are not available at present to model a high zooplankton biomass year, but we understand that the necessary information should be published in the near future (LeBrasseur, personal communication),

X. Summary of 4th Quarter Operations

Because our study uses existing data, we have little to include in this section that has not been presented above in the annual report. As a follow-up to our semi-annual report of October 29, we can report the following new sources of data from cruises:

R/V HAKUKO MARU 702, 742
R/V OSHORO MARU 004, 009, 014; 024, 028, 032, 037, 041, 042, 044, 048
R/V PIONEER N066
R/V VITYAZ 045

We have followed up on all leads from OASIS, ENDEX, and World Data Center A, as well as those from the Universities of Alaska and Oregon State, Auke Bay Fisheries Laboratory, Nagasaki Marine Observatory, and the Moscow Plankton Laboratory. We have acquired some unpublished plankton species counts from those sources, as well as a small amount of unpublished Chemical and biochemical data (including chlorophyll a and C^{14} uptake) from inland waters,

The program chosen for statistical analysis is System 2000, a new and versatile program. Format of all data will conform to that of other biological investigators in the Gulf of Alaska.

All 4th quarter operations on the numerical model are described in the above sections.

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OCSEAP ANNUAL REPORT

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Review of Literature and Historical Data on Non-salmonid Pelagic Fisheries Resources of the Eastern Bering Sea and Gulf of Alaska

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ANNUAL REPORT

Review of Literature and Historical Data on Non-salmonid Pelagic Fisheries Resources of the Eastern Bering Sea and Gulf of Alaska

I. Summary of objectives, Conclusions and Implications with Respect to OCS Oil and Gas Development

The basic objectives of this study are to provide: (A) an inventory and review of the literature and unpublished data on the non-salmonid pelagic fishes of the eastern Bering Sea and Gulf of Alaska, and (B) a description of the temporal and spatial distributions of the subject species based on analysis of available historical data.

The literature and data inventories are essentially completed. However", the data reformatting and literature review are still in progress and the analyses of' species distribution data have not yet been initiated. Consequently, conclusions as to the status of our knowledge of individual species is not presented in this report. However, it can be concluded, even from the preliminary examination of literature and data sources, that only an uneven and fragmentary description of the composition, distribution and relative ecological importance of the pelagic fish community will be possible using extant data and literature.

As determined at the beginning of the contract period, and as stated explicitly in the October 24, 1975 Progress Reports for RU #64 anti RU #354, this study will not consider the issue of how OCS oil and gas development may affect the stocks of non-salmonid pelagic fishes.

II. Introduction

A. General nature and scope o-F study

The general nature and scope of this study are indicated in the summarized and specific objectives listed in Section I and Section II B (below). In addition, the following facts are pertinent:

1. The research to date indicates significant amounts of information are available for relatively few species and that, aside from the compilation of occurrence records for a variety of relatively rare species, the study will focus on approximately 20 species (Appendix A).

2. The study rarely deals with data from the inshore (mainly intertidal) region, particularly if the data comes under the purview of other Research Units. For example, the study is not attempting to compile unpublished data on the distribution and abundance of herring spawn. However, information on herring spawning in the literature would, of course, be used in a description of the herring's life history.

3. The study is not concerned with semi-pelagic fishes such as pollock, cods, rockfishes and sablefish. The October 24, 1975 Progress Reports for RU #64 and RU #354 indicated that this study would be concerned with the pelagic occurrence of these species. This has been determined to be impractical and all information on these species is now being treated by the demersal resource projects (RU #174 and RU #175).

4. As indicated in the earlier Progress Reports: (a) the nomenclature, taxonomic status and morphology o-f the subject species will not be described in any detail, (b) speciation and subpopulation problems will not be treated unless they are obviously controversial issues and (c) the literature review will not concern itself with papers on the processing, utilization or marketing of the subject species which are commercially exploited, nor will it include papers on the effects, or potential effects, of contaminants on the subject species.

5. The general scope of the information which will be included for individual species is indicated in the outline attached as Appendix B. This outline was developed primarily as a guide for compiling literature.

It is evident that for most species little or no information will be available on many of the items listed. This is because most of the data were collected during the summer months on an incidental basis using sampling gears not designed to capture the subject species. Also, most of the species are unexploited and the fishery statistics on those which are harvested are generally poor in terms of both quantity and quality.

B. Specific objectives

1. Review and summarize the published and unpublished scientific literature on distribution, abundance, life histories, and population dynamics of non-salmonid pelagic fishes of the eastern Bering Sea and Gulf of Alaska.

2. Examine and summarize unpublished research vessel survey and commercial fishery data on the distribution, abundance, and size composition of the subject species,

3. Prepare data report on records of the distribution, abundance, and size composition of the subject species.

4. Prepare an annotated bibliography and a narrative report which collates results of studies undertaken under objectives 1 and 2 and describes, within the constraints of the available data, observed temporal and spatial distributions of the subject species.

C. Relevance to problems of petroleum development

This study is expected to provide the only organized review and synthesis of information available on the subject species in the area of concern. Without such a study, it would be extremely difficult to even begin to predict the effects of OCS petroleum development activities on the subject species. The study is considered to be one of the important

first steps required to begin to fill the obvious void in our knowledge of pelagic nekton of the study area.

111. Current State of Knowledge

No comprehensive reports have been located for those stocks of the subject species which inhabit the study area. Even for herring there is a lack of life history and distribution information, and the historical record of herring abundance provided by foreign fisheries is highly fragmentary. The lack of exploitation of, and research on, the subject species appears to be a function of their relative abundance and value, and of their lack of vulnerability to traditional commercial fishing and research sampling gears. It is expected that marked changes in the current state of knowledge will not occur until there is greater commercial and/or research vessel deployment of modern gear and equipment used for the detection and capture of schooling pelagic fishes. Should this occur, then information on the distribution, abundance and biological characteristics of species such as herring, capelin and other smelts, and of the off-bottom components of semi-pelagic species such as pollock and rockfish might increase significantly.

Iv. The Study Area

The eastern Bering Sea was defined as extending from the Aleutian Islands to 60° north latitude and from 1800 to the Alaskan coast. The Gulf of Alaska was defined as that area from the Alaska coastline south and east to 52° north latitude and 135° west longitude, respectively. Examination of unpublished data records is essential)\ confined to these areas.

The annotated bibliography will also be limited to sources on these areas to the extent that it is practical. However, since, as indicated above, life history data on stocks inhabiting the study area are limited, information obtained from studies of the same species from adjacent areas will be included

in the narrative review.

V. Sources and Methods of Information Collection

A. Literature review

Sources of literature have included the library resources of the Northwest Fisheries Center and the University of Washington library system. A number of translations of foreign literature have been borrowed from various sources. In addition, an OASIS computerized literature search was made through NOAA's Environmental Science Information Center.

The literature review was initiated by examining major literature indices and some of the more comprehensive references on fishery research investigations in the study area. Them method of literature citation, filing and review is as follows:

1. Enter complete citation on file card and arrange by author and year;
2. Periodically duplicate accumulated reference cards and place in file sorted by publication;
3. Obtain and examine source literature and verify accuracy of reference;
4. Prepare annotation and, if necessary, select pages to be duplicated;
5. Papers and/or pertinent extracted information placed in file arranged in order of final report outline; and
6. Foreign literature translated as necessary.

B. Data collection

Sources of data which have been inventoried include:

1. Univ. of Wash., FRI [1/] high seas salmon purse seining studies (1956-69)

1/ Names of institutions and investigations referred to by abbreviations are listed in Appendix C.

2. Univ. of Wash. , FRI Kodiak Island inshore pink salmon tow netting studies (1963-75)

3. Univ. of Wash., Dept. of Oceanography, IGY and NORPAC cruises

4. Univ. of Hokkaido, R/V Oshoro Maru cruise records

5. ADF&G, shark control program (1961-64)

6. ADF&G, northern Bristol Bay exploratory fishing survey (1974-75)

7. ADF&G, offshore salmon indexing studies

8. ADF&G, selected commercial landing statistics (1969-75)

9. NMFS/NWFC high seas salmon gillnetting studies (1955-72)

10. NMFS/NWFC exploratory fishing cruise records (1948-72)

11. NMFS/NWFC observer records from Japanese fishing vessels (1963-69 and 1972-75)

12. NMFS/NWFC observer records from Soviet fishing vessels (1975)

13. NMFS/ABFL Bristol Bay salmon purse seining and tow netting studies (1965-70)

14. NMFS/ABFL Bering Sea survey (1968)

15. NMFS/ABFL comparative estuarine studies (1967-68)

16. Fisheries Agency of Japan high seas salmon gillnetting studies

17. Japanese commercial fishery statistics available from the INPFC

Certain published Canadian research vessel data records may be used in the study. However, a November 1975 request to gain access to unpublished Canadian files has not been responded to and it is unlikely we will be able to utilize the unpublished Canadian data.

The sequence of steps involved in inventorying data records and preparing them for archiving and analysis is as follows:

1. Search for and identification of sources of unpublished research and commercial fishery data records.

2. Examination and verification of data for completeness and accuracy.

3. Selection of data records applicable to the geographic area and species of concern to this study.

4. Transformation of basic data record into a uniform format for computer processing.

5. Data analysis and archiving.

Data to be archived are formatted in the form approved by the OCSEAP Project Office. Because certain outside agencies have objected to having their data archived with the EDS, and because restrictions" have been placed on some of the data available at the NWFC, the following decisions have been made with regard to data archiving and reporting:

1. NMFS data will be provided to OCSEAP in one of the following forms: (a) in their basic form with permission to archive therewith the EDS; (b) in their basic form, but with the stipulation they not be archived with the EDS; or (c) in summary form.

2. Non-NMFS data will not be archived with the EDS. They will be reported as in 1b and 1c immediately above, subject to the constraints imposed by the review processes of the non-NMFS agencies which supplied them.

VI. Results

A. Literature review

Approximately 600 references on non-salmonid pelagic fishes have been located and examined. Of these, approximately 430 were of indirect value, 225 were found to contain information useful to the narrative report and about 100 will be included in the annotated portion of the bibliography.

The OASIS literature search recently resulted in a return of bibliographies from three files: Biological Abstracts (400 references), Biological

Information Retrieval Systerrr (336 references) and Oceanic Abstracts (291 references). The computer printouts are still being reviewed, but it appears very few new references of significant value will be added to the current file.

Review and annotation of available papers is continuing.

B. Data records

The inventory of data available in sources listed in Section VB of this report has been completed with the exception of source numbers 3, 4 and 7. The total numbers anti/or status of data records available from source numbers 1, 2, 9 and 16 were indicated in the October 24, 1975 Progress Reports on RU #64 and RU #354. Totals for all other data sources are still being compiled and will be included together with the results of data analysis in future reports.

A comprehensive format for archiving all data to be used by this study was developed and subsequently approved by the OCSEAP Project Office.

Appropriate sections of the taxonomic coding list developed by the University of Alaska were reviewed, corrected and verified in consultation with RU #175, and forwarded to the University.

Approximately 50 percent of the data records have been reformatted and placed on punched cards. Examination, selection, verification and reformatting of the remaining data records is proceeding as they become available from the various sources.

VII. Discussion and Conclusions

Interpretation and discussion of results is not possible until the analytical phase of this study is completed, Conclusions reached to date were discussed above in Section 1.

VIII. Needs for Further Study

Until the analyses and results of this study are available, it will not be feasible to specifically identify priorities for future study. However, as indicated in this report and in the previous progress reports, it appears that achieving even a moderately comprehensive understanding of the size and composition of the pelagic resource base will necessitate major field efforts requiring financial, technical and personnel resources which are significantly greater than those which are likely to be available to the OCSEAP program in the foreseeable future.

IX. Summary of Fourth Quarter Operations

Fourth quarter activities were essentially a continuation of those begun during the 2nd and 3rd quarters. During the 4th quarter the OASIS computer search was completed, data from ADF&G and NMFS/ABFL were inventoried, and the data which were reformatted were placed on cards.

APPENDIX A

Proposed Species List of Non-Salmonid Pelagic Fishes

Lamnidae

Salmon shark (*Lamna ditropis*)
Basking shark (*Cetorhinus maximus*)

Carchrinidae

Blue shark (*Prionace glauca*)
Spiny dogfish (*Squalus acanthias*)

Clupeidae

Shad (*Alosa sapidissima*)
Herring (*Clupea harengus pallasi*)

Osmeridae

Surf smelt (*Hypomesus pretiosus*)
Capelin (*Mallotus villosus*)
Rainbow smelt (*Osmerus mordax dentex*)
Eulachon (*Thaleichthys pacificus*)

Scomberesocidae

Pacific saury (*Cololabis saira*)

Carangidae

Jack mackerel (*Trachurus symmetricus*)

Bramidae

Pacific pomfret (*Brama japonica*)

Trichodontidae

Sandfish (*Trichodon trichodon*)

Zaproridae

Prowfish (*Zaprora silenus*)

Ammodytidae

Pacific sandlance (*Ammodytes hexapterus*)

Icosteidae

Ragfish (*Icosteus aenigmaticus*)

Hexagrammidae

Atka mackerel (*Pleurogrammus monopterygius*)

Scombridae

Chub mackerel (*Scomber japonicus*)
Albacore tuna (*Thunnus alalunga*)

APPENDIX B

1. Distribution and abundance by life stage (juveniles and adults)
   a. Total area;
   b. Relative abundance by time and area; and
   c. Ecological/oceanographic determinants of distribution changes.
2. Life history and behavior
   a. Reproduction
      (1) Sexuality, mating and fertilization
      (2) Age and size at maturity
      (3) Fecundity
      (4) Spawning
         (a) Seasons, areas, frequency
         (b) Egg stage: structure, size, hatching type, predators and parasites
   b. Larval and juvenile histories
      (1) Rate of development
      (2) Feeding and movements
      (3) Predators, competitors and survival rates
   c. Adult history
      (1) Longevity
      (2) Hardiness
      (3) Predators, competitors, parasites, and diseases
   d. Nutrition and growth
      (1) Food and feeding behavior
         (a) Food types and amounts
         (b) Feeding behavior: season, location, time
      (2) Growth
         (a) Age-length and age-weight relations

(b) Relative and absolute growth rates

e. Behavior

(1) Migrations

(2) Bathymetric and vertical movements

(3) Schooling characteristics

(4) Behavior in relation to sampling/detection tactics and strategy

3. Population structure and dynamics

a. Sex ratio, size composition, age composition

b. Abundance and density

(1) Relative abundance and standing stock estimates

(2) Density estimates and changes in density

c. Recruitment

d. Mortality

(1) Natural mortality rate

(2) Fishing mortality rate

e. Yield models and estimates

f. Population/community/ecosystem relations

4. Fishing

a. Vessels, gear, and gear selectivity

b. Areas and seasons

c. History of fishery

(1) Distribution of effort

(2) Catch statistics

5. Conservation/management regulations

APPENDIX C

Names of institutions, etc., referred to in report by abbreviations.

Abbreviation	Name
AB FL	Auke Bay Fisheries Laboratory
ADF&G	Alaska Department of Fish and Game
FRI	Fisheries Research Institute
IGY	International Geophysical Year
INPFC	International North Pacific Fisheries Commission
NMFS	National Marine Fisheries Service
NORPAC	
NWFC	Northwest Fisheries Center

FINAL REPORT

Research Unit #78, 79

July 1, 1975 - March 31, 1976

BASELINE CHARACTERIZATION, LITTORAL BIOTA, GULF OF ALASKA AND BERING SEA

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BASELINE CHARACTERIZATION, LITTORAL BIOTA, GULF OF ALASKA AND BERING SEA

I. Summary of Objectives, Conclusions, and Implications with respect to OCS Oil and Gas Development

The objective of this study is to locate and describe the major populations of intertidal biota in the Gulf of Alaska and southern Bering Sea. In order to achieve this objective the following questions must be answered: What is the distribution and percent occurrence of the major intertidal habitat types, and what are the seasonal and spatial distributions of biota in areas representative of these habitat types?

Although it is too early to draw strong conclusions from this work regarding the location of oil rigs or the effects of oil on intertidal communities, some relevant points may be made based on our work to date.

As might be expected, rocky intertidal areas lead all others in terms of number of species and biomass in the Gulf of Alaska and southern Bering Sea. This dominance by rocky areas in terms of species and biomass may be reversed in the Pribilof Islands and northern Bering Sea, however, where ice scour removes much of the attached community in the middle and upper intertidal zones. Sandy , and especially muddy, substrates may allow infaunal populations to develop which are partly protected from scouring effects.

The lower intertidal and shallow subtidal zones in the Pribilof Islands included species not found elsewhere in western North America. Whether they are endemic or derived from Asian sources has not been determined. Extraordinary measures should be taken to maintain the intertidal and shallow subtidal areas of the Pribilof Islands in an undisturbed state because they may contain unique species and ecological relationships.

The extremely high variability encountered, especially at rocky sites,

indicates that it will be impossible to predict which populations and densities are to be expected in unstudied areas. However, the large number of sites we have enumerated should give a good understanding of seasonal changes, dominant species associations, and general habitat types. Based on this information, it may be possible to, investigate an area following a pollution incident and determine how it has been altered based on expected occurrences of dominant components. Also, research at intensive study sites may make it possible to monitor sublethal effects related to wide-scale, non-catastrophic increases in pollutants.

II. Introduction

A. General Nature and Scope of Study

This project is concerned with providing a general characterization and inventory of the intertidal and shallow subtidal biota in the region from Yakutat in the eastern Gulf of Alaska to Cape Newenham in northern Bristol Bay. Research began in the summer of 1974 in response to BLM requests for environmental studies prior to oil leasing. As the geographic areas of concern grew, this project was accordingly expanded to encompass new areas in both the western Gulf of Alaska and Bering Sea.

B. Specific Objectives

There are two objectives in this study: to determine the distribution of the major habitat types (sandy, muddy, rocky, etc.) along the coastline; and to determine the densities and distribution of biotic populations within these habitat types.

There are several phases to each objective. The distribution of habitat types is presently being determined through the use of visual reconnaissance methods from fixed wing aircraft. Additional information utilizing aerial photography and multispectral scanning methods is being produced in mutual cooperation with NASA and the Environmental Research Institute of Michigan.

The distribution of organisms within habitat types is being determined by field parties from the Auke Bay Fisheries Laboratory (ABFL), with logistical assistance from the Pacific Marine Center. Additional projects include an extensive literature survey, a study of the accumulation of biotic debris in the "drift zone," the estimation of variability between sampling areas, and more intensive studies at sites which ma?- receive major impact from oil exploration in the eastern Gulf of Alaska.

C. Relevance of the Study to Petroleum Development

The intertidal and shallow subtidal areas provide one of the major points of contact between floating or dissolved pollutants and the marine substrate. The majority of biota in these areas are non-motile and are unable to avoid repeated exposure as oil or similar con-pounds come ashore. In addition to the obvious problems of suffocation or acute toxicity, other effects may occur. For instance, removal of littoral populations may cause changes in the feeding patterns of marine birds and mammals. It may also change the reproductive potential of certain marine fishes.

The drift zone, because it is not an area of biological activity, is often overlooked in intertidal studies. Yet, this highly visible region accumulates the results of high marine mortality and can be used as an indicator of pollution effects. The drift zone aspect of this study is seeking to qualify and quantify those species which are likely to be adversely affected by oil and gas development.

III. Current State of Knowledge

A. Distribution of Intertidal and Shallow Subtidal Biota

At the time this study was initiated almost nothing was known of the distribution of biotic habitats along the Alaskan coast. With the exception of a few widely spaced studies, an equally small amount of information was available on the occurrence and density of plants and animals within the general habitat types[1].

During 1974-75 an immense effort was undertaken to obtain needed information. In 1975 the entire Bristol Bay coastline, the southern Gulf side of the Alaska Peninsula[2] and the region from Yakutat to Cordova were surveyed from an amphibious aircraft. The occurrence of littoral habitat types was recorded, as were the occurrences of marine birds and mammals and offshore kelp beds. This phase of the aerial survey work will be completed during 1976 and the results will be compiled into an atlas by the end of the year.

Other aspects of aerial survey work are also being investigated. Color and false color infrared photographs of the outer coasts of Hinchinbrook and Montague Islands were taken in August by a NASA Convair 990C flying at 3,000 feet. The results are striking and one set of photographs is included with this report. During 1976 the Environmental Research Institute of Michigan will test a multispectral scanner to determine if aerial overflights can provide quantitative and synoptic data on the type and densities of dominant algal

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1 A bibliographic section (Appendix D) is included with this report. A special collection of references, specifically related to general intertidal community studies has been prepared and precedes the bibliography.

2 Unfortunately, these data, representing many hours of difficult flying, were lost following the crash of the OAS plane carrying our biologist.

organisms along the entire coastline.

As the distribution of habitats was being investigated by aerial methods; research into the types and distribution of organisms within the general habitat types was initiated. Sampling in the fall of 1974 at nine sites in the eastern Gulf of Alaska yielded approximately 180 quantitative samples and the first large-scale study of intertidal biota ever undertaken in that area. The project was expanded in 1975 to include visits to approximately 25 sites and the collection of over 1200 quantitative samples. Many of the sites were studied in both the spring and in the fall, making a total of 45 site visits.

Much of the work in 1975 was limited to studies at rocky sites. During 1976 extensive sampling will be carried out at sandy and muddy habitats. Because of the relative speed and ease with which these areas can be examined, we believe that an even greater number of sites will be sampled in 1976. When the information from these studies is combined with the newly gained information on habitat and substrate distribution we should be able to make inferences concerning potential impact areas.

B. Effects of Oil on Intertidal Communities

The effects of petroleum development on intertidal biota are difficult to predict, especially in the unstudied Alaskan environment. Recent research in other areas (Mitchel et al., 1970; Smith, 1968) indicates that certain crude oil spills have had very little effect on the dominant organisms. In some cases algae were able to secrete a mucous covering which protected them from toxic or suffocating effects (Clarke et al., 1975). Some invertebrate species are able to withdraw into shells or topographic features which provide them some protection from oil.

The opinion that crude oil spills have little effect is not, however,

universally accepted and data from other such spills have shown a severe detrimental ef feet (Wilson and Hunt, 1975). Sublethal effects are also being discovered. For instance, thin films of crude oil can reduce the CO_2 exchange of algae (Schramm, 1972) or depress the biosynthesis of nucleic acids in algae (Davavin, et al., 1975). Aromatic hydrocarbons can also cause cancerous growths in certain seaweeds (Boney, 1974).

Although many invertebrates may survive the initial oiling, increased mortality or other detrimental effects may be caused by inability to remain attached to or within protective substrates (Dicks, 1973; J. Karinen, personal communication) , reduced feeding activity through loss of chemotaxis (Atema and Stein, 1974; Brown, 1974), respiratory decrease (Stegeman and Teal, 1973; Avolizi and Nuwayed, 1974), or changes in molting patterns (Karinen and Rice, 1974) .[3]

Whatever the case for crude oil, it is swell accepted fact that refined petroleum products, or the detergents used to disperse oil, almost always have a devastating effect on intertidal biota (Smith, 1968; Mitchell et al., 1970; Chia, 1971; Wilson and Hunt, 1975). When these compounds come ashore, mortality can be extreme. Repopulation of such an oil-impacted area may take only a few weeks for certain diatom and algae species (Castenholz, 1967; Chan, 1975) to as much as five years to reestablish mussel beds (North, 1967). Total recovery may take several years (Michael et al., 1975).

The problem is compounded not only by the varying effects of different petroleum types on different species, but also by the frequency of impact on an area. Areas receiving chronic inputs, as from permanent offshore oil rigs or tanker transfer systems, may show different rates and types of recovery

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[3] The assistance of Fred Johnson and Dr. Douglas Weber in providing background for this section is gratefully acknowledged.

than areas which receive an impact from a one-time spill. Sandy and muddy substrates may trap the oil and release it slowly during periods of reworking.

The effects which constant, low levels of oil have on critical larval stages could possibly change recruitment and settling patterns among dominant species. This in turn could result in changes in the utilization of such an area by marine bird-s, fish, and mammals. Studies to delineate such effects, and their potential for occurring in the Gulf of Alaska, need to be carried out. While oil spill areas may recover in a few years, areas receiving chronic oil fluxes may show permanent changes in community patterns.

Joint efforts with the physiology section of NMFS are seeking to understand some of these complex phenomena. The intertidal research team is actively participating in making collections of organism, providing logistical support, and helping to choose which organisms and areas will be studied.

IV. Study Areas

The areas covered in this report lie along the coastlines of the Gulf of Alaska and Bering Sea. The Gulf studies extend from Yakutat (139°W) in the eastern Gulf of Alaska to the Shumagin Islands (159°W) in the western Gulf (Figure 1). The Bering Sea research attempted to circle the area from slightly west of Unimak Pass north to Nunivak Island and then southward around through Bristol Bay and the western Al.aska Peninsula (Figure 2)[4].

Our studies are being extensively coordinated with other projects. Sandy and muddy beaches in the Bering Sea are being studied in conjunction with geological beach profiling teams from the University of South Carolina and Wesleyan University. Sandy beaches on the Alaska Peninsula are being studied in conjunction with Alaska Department of Fish and Game razor clam research. Muddy substrates will be studied, in part, with U.S. Fish and Wildlife Service personnel. Methodology has been developed through extensive consultation with intertidal research personnel from Western Washington State College presently studying arctic beaches.

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[4] Engineering problems aboard OSS Surveyor forced a cancellation of our proposed research at the most northerly stations on Nunivak Island and in the Kuskokwim delta.

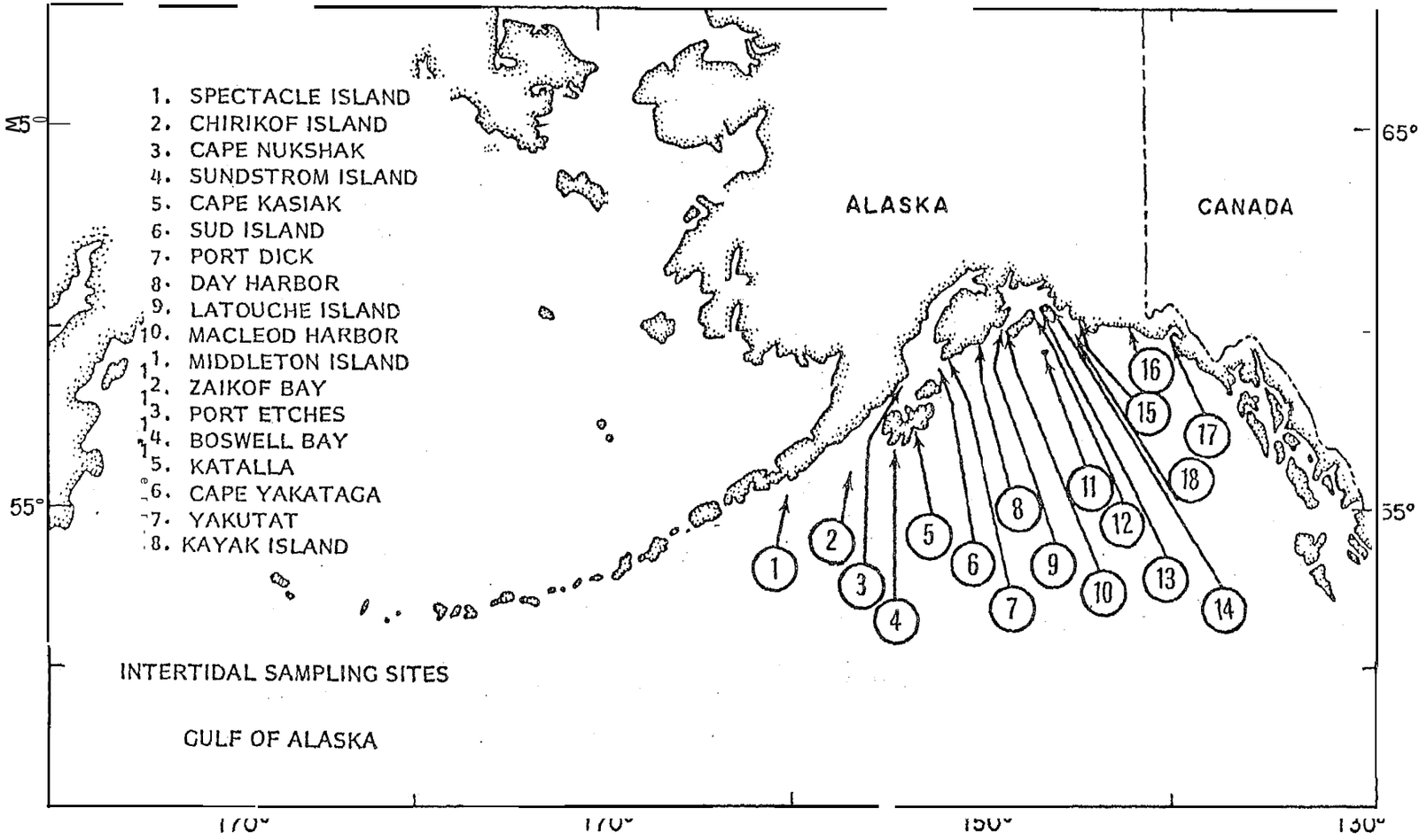


Figure 1. Intertidal study sites in the Gulf of Alaska.

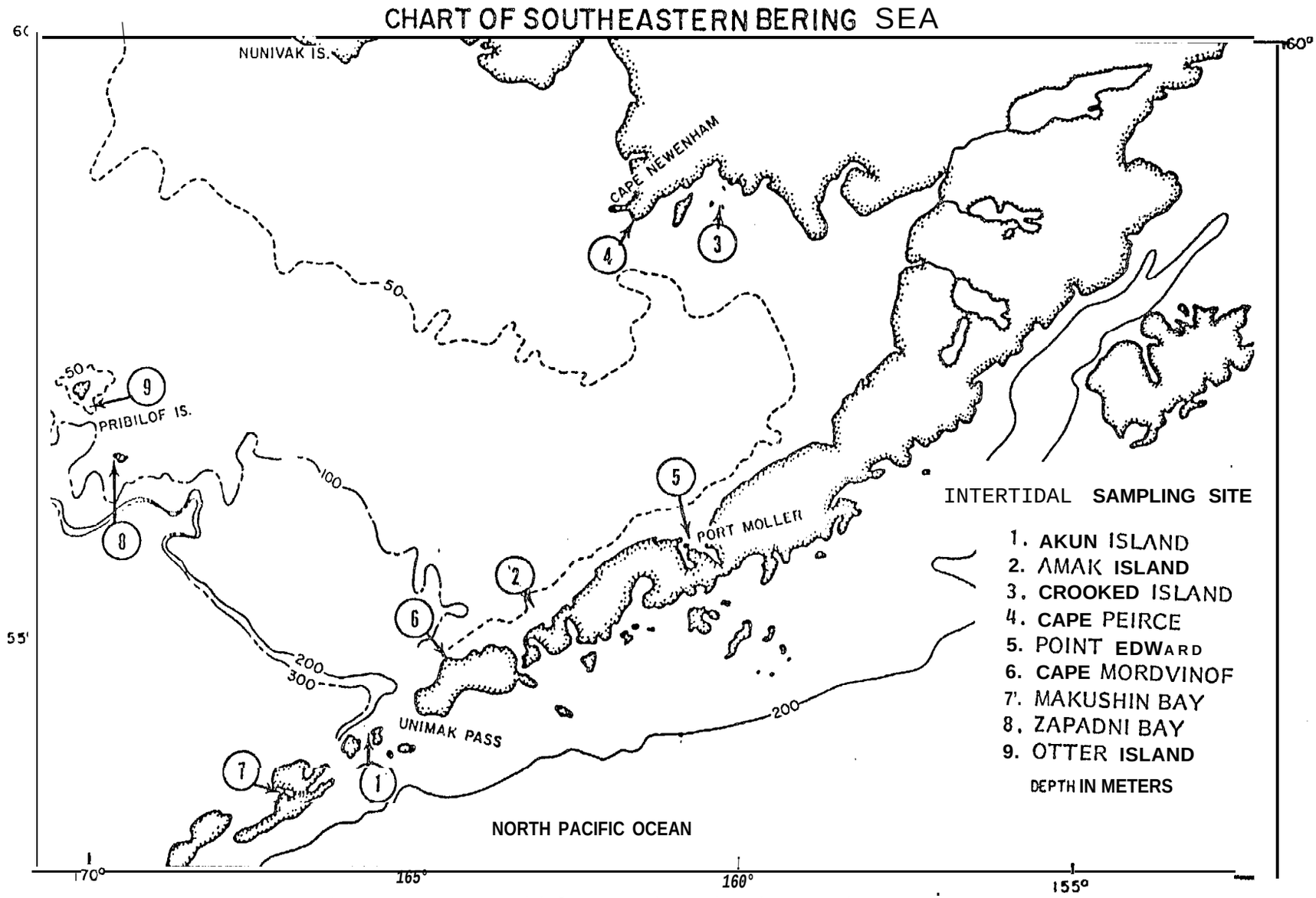


Figure 2. Intertidal study sites in the, Bering Sea.

V. Source, Methods, and Rationale of Data Collection

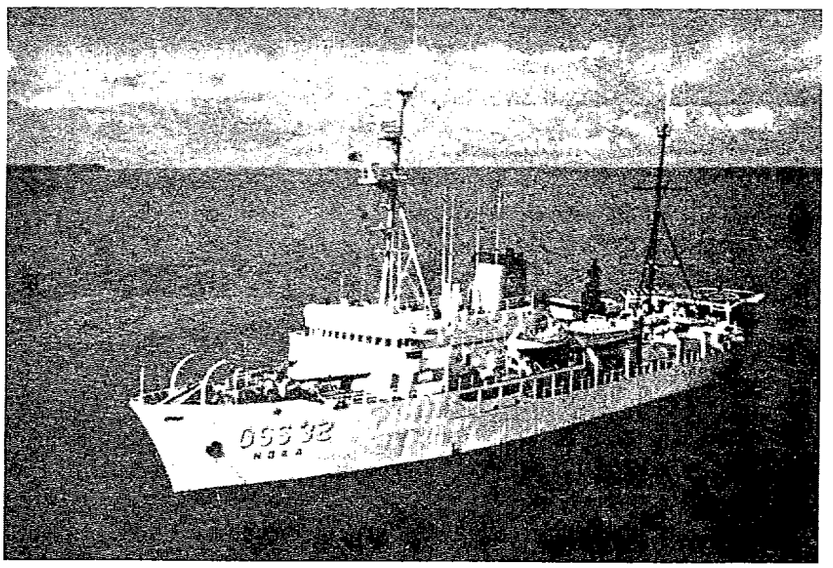
A. Intertidal Baselines

1. Rocky Sites

At each rocky site, one to three transect lines are extended across the beach from the highest area of tidal influence to the water's edge at low tide. The number of lines used at each site is determinedly the shape and biological homogeneity of the beach; on a low gradient beach often only one long line (75-200 m) is sampled, whereas on a steep beach, as many as three short lines (15-50 m) are sampled.

Sampling frames (1/16 m^2) are laid at regular intervals along the line. The area under each frame is photographed and the biota are scraped from the rocks (Figures 6 and 7) and preserved in 10% formalin for shipment to the University of Alaska Marine Sorting Center. The elevation of each sample is determined with a transit and stadia rod using standard engineering procedures (Figures 8 and 10). Leveling is done with respect to predicted low tide levels, and the heights of permanent bench marks are established for each beach.

A second sampling method was developed to study areas which contain large boulders or irregular topography. This method involves sketching a facsimile of the area to be sampled, and the biotic zonation, on a sheet of Mylar plastic. Numbered, homogeneously arrayed dots are then placed on the sketch. A random number table is used to choose the dots which will be projected into sampling locations. Numbered arrows are then placed at the corresponding locations on the rock face and photography and leveling follow. Destructive quantitative collections (1/16 m^2) are taken in areas with similar biota. The rock face itself is not destructively sampled and remains as an undisturbed study site.



Fig, 3, --The NOAA vessel Surveyor was used to transport field parties to remote locations.

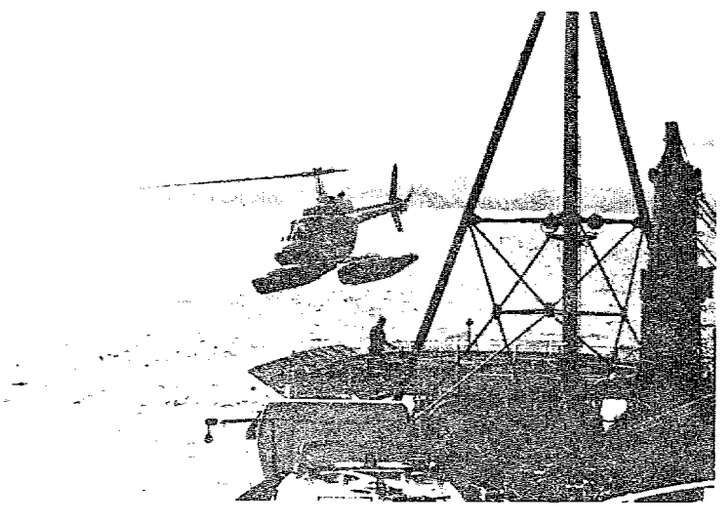


Fig. 4. --A NOAA helicopter was often used to transport field parties to shore.

Fig. 5. --The helicopter landing at a beach near Katalla in the Gulf of Alaska.

Fig. 6,--Sampling on a rocky substrate along a transect line.

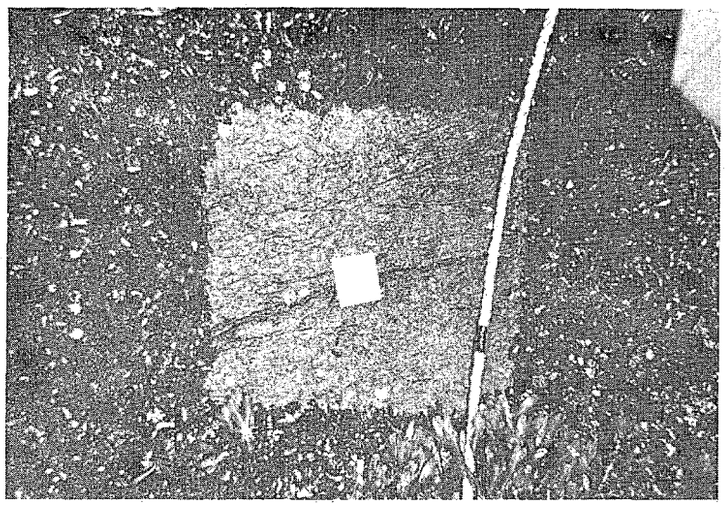


Fig. 7.--View of the area after a quantitative 1/16 m^2 sample has been collected.

Fig. 8.--Gathering data on tidal elevations.

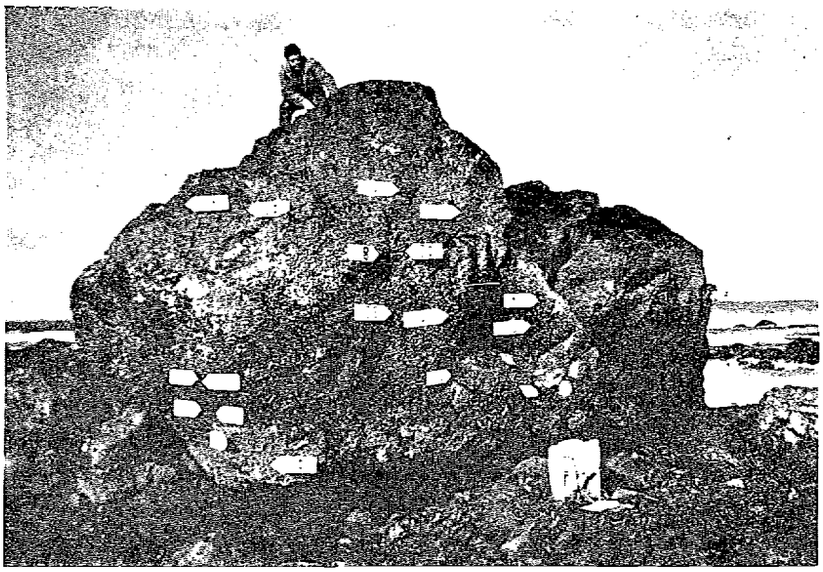


Fig. 9. --An example of a vertical rock face being sampled using the Myren-Pella method for randomization of samples,

Fig. 10.--Leveling data and photographic documentation being taken from a vertical face,

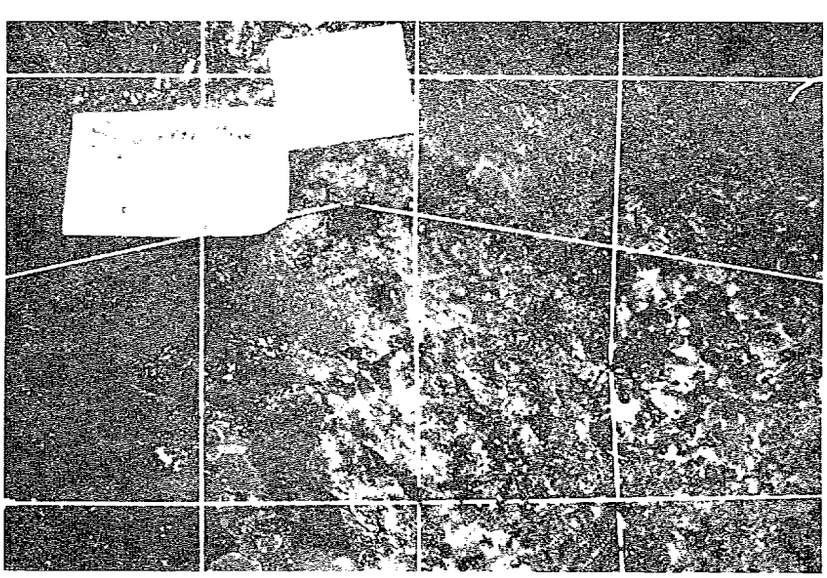


Fig. 11 .--A "nested" quadrat sampler.

A third sampling method is also occasionally utilized on rocky beaches. It involves the use of a "nested quadrat sampler." This frame consists of 16 squares, each 1/64 m^2 (Figure 11). Different sized areas, or all 16 of the 1/64 m^2 areas may be collected. The resulting data are studied and combined to determine the adequacy of different sample sizes and the variability between samples.

2. Muddy and Sandy Sites

At muddy and sandy sites, transect lines are also used, but the substrate is sampled using a cubical mud corer. It measures 10 cm on a side, and collects approximately one liter of sediment. The corer is often used twice vertically; once to collect biota from the 1-10 cm depth, and often a second time to collect biota from the 10-20 cm level. Two pairs of replicate samples are often collected from each location long the transect line (Figures 12 and 13).

Following quantitative sampling, additional collections of organisms (termed "species collections") are made when time permits, to obtain representative specimens of unusual or scarce species in the vicinity of the site.

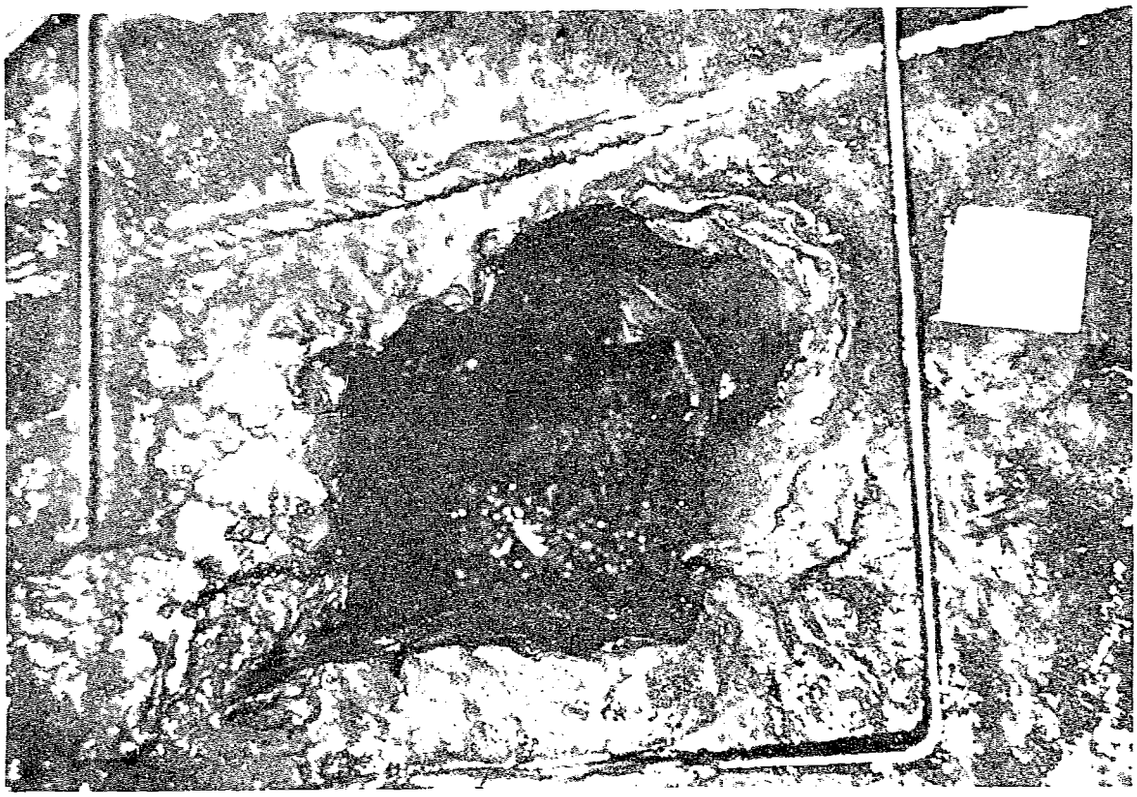
B. Subtidal Baselines

1. National Marine Fisheries Service

The objective of the NMFS subtidal research team has been to provide subtidal biological information to supplement the intertidal collections made at each site. The NMFS divers survey, whenever possible, seaward of the intertidal sampling site. The information gathered includes type and slope of bottom, dominant plants and animals, and a list of all recognized species.

Fig. 12. --Sampling a muddy habitat along a transect line.

Fig. 13.--View of area after a mud sample has been taken.



Photographs are taken of the general site, the area along sampling lines, and individual organisms. Specimens of plants and animals are collected for later identification.

The timing and duration of subtidal work is usually limited by the movements of tlie Surveyor and the priorities of other research groups. With only four to five hours spent at a station it is not usually possible to carry out more than two short dives. On subsequent visits, however, quantitative sampling is often carried out using newly developed "air lift" methods.

2. Dames and Moore

A contract (45.5k) to provide an ecological assessment of sublittoral communities at three sites in the NEGOA area was negotiated with Dames and Moore, Inc., in July, 1975. Sampling is being carried out quarterly at LaTouch Point, Macleod Harbor, and Zaikof Bay (Appendix A, Figure 1) in conjunction with NMFS intertidal programs. In addition *to* providing qualitative estimates of substrate, and the distribution and occurrence of dominant species, quantitative observations have been made. Permanent transect lines have been placed and referenced to bench marks. Fixed quadrats and transects are being used in studies of temporal changes in populations. Seasonal variation in vegetative standing crops is being determinedly measuring biomass and estimating percent coverage.

C. Aerial Habitat Classification

Observations are made from fixed wing aircraft flown at approximately 200 foot elevations. Flights are made during daylight low tide periods, approximately two hours before, to two hours after, each low tide. Data are recorded onto Geological Survey (1:63, 360) maps.

The coding is as follows:

Composition
Bed rock--black line
Rubble--red line
a. rubble >2 ft. square
b. rubble <2 ft. square
c. combination of a. and b.
Gravel--blue line
Sand--green line
Mud--purple line

Slope of exposed beach
1. Vertical
2. Steep
3. Moderate
4. Flat

Biological cover on substrate
I - Bare
II - Light
111 - Medium
IV - Heavy

Other data recorded on the charts include seabird rookeries, sea mammal . "haul-out" areas, sea mammals in water, dead sea mammals, location of eagle sightings, land mammals seen on beaches, and location of kelp beds.

D. Drift Zone Studies

Study sites at Yakutat, Cape Yakataga, and Middleton Island were chosen because they are on open coasts adjacent to proposed oil and gas lease sites and air service and housing facilities are available. All are low gradient sand and gravel beaches. The Yakataga study area is bisectedby a rock reef; the Middleton site is bordered by rocky reefs.

Each study site was divided into five successive l-km lengths and permanently marked with paint, survey flagging, and a numbered sign. Sites were sampled each season for three to five consecutive days at high tide. only visible drift biota were recorded (i.e., no attempt was made to uncover items buried under sand, rocks, or windrows of drift). To insure valid counts all items encountered were destroyed, marked, or collected. This procedure and the practice of removing drift biota from the beach on the first day of each

seasonal visit permitted an *estimate* of daily accumulation rates per km.

The numbers of all drift animals found along the shore were recorded. If a species was too numerous or too small to quickly enumerate, it was subsampled in a randomly selected 100-m section in at least one of the 1-km study transects.

Individual animal weight and length were recorded if possible. Shells and carapaces of invertebrates were measured when intact but only vertebrate samples were weighed.

Algal drift was difficult to enumerate because of the problem of identifying individual plants. The kelp *Nereocystis luetkeana*, which has one "float" at the apex of its stipe, was enumerated by counting beached floats. The accumulation rate of this kelp was arbitrarily used as a crude but helpful index of the rate of algal accumulation. Estimates were made of the dominant species of algae in the drift as well as the biomass of total daily accumulation.

All study sites were photographed seasonally. A complete list was made of each animal and plant species (both drift and alive) encountered each day in or adjacent to each km of shoreline traversed. Daily accumulation rates per km are presented for only the most abundant species of drift.

E. Literature Survey --

The retrieval and summarization of literature have been restricted geographically to include the Arctic Ocean, Bering Sea, Gulf of Alaska, and Pacific Ocean off the coasts of Alaska, British Columbia, Russia, and Japan. Information on deep-water fauna and flora has been excluded. NOAA's Technical Information Division through their OASIS literature search program provided us with the majority of references. Personal libraries of the scientific staff at ABFL have been examined. The ABFL library staff has provided a great deal of assistance. Staff of the Arctic Environmental Information and Data

Center of the University of Alaska in Anchorage have been very cooperative and have given us access to their literature files.

A standard form was developed to include the literature citation, a key word index, and an abstract for each article examined. A subject and author index will be used for retrieval of information from the bibliography. A copy of each article is being obtained or searched so that a reference file can be established and keyed to the bibliography for immediate use. This will provide a working bibliography capable of being easily updated and available to all members of the project.

VI. Results

A. Intertidal Baselines

1. Sampling success

Nine stations in the eastern Gulf of Alaska were sampled during the fall of 1974. A total of 45 stations were sampled from April through September of 1975. The 45 stations included two visits each to nine eastern and seven western Gulf of Alaska sites. Two other sites, Kayak Island and Port Etches, were each sampled once in the eastern Gulf, and nine stations were sampled once each in the Bering Sea. Makushin Bay, in the Bering Sea, was sampled twice.

Approximately 180 quantitative intertidal samples were collected in 1974 and approximately 1,300 in 1975 (Table 1). Over 3,500 photographs, 100 qualitative species collections, and 44 trace metal samples were also taken.

Since the beginning of the program 1,479 quantitative samples have been collected. Sorting by the University of Alaska Marine Sorting Center has proceeded slowly and data from 391 samples have been received. The data from approximately 200 of the samples are included in Appendix A.

A complete format compatible with NODC requirements has been developed and the first batch of data was submitted in December, 1975. Since that time, several formats have been written to provide geographical and statistical analysis of data. As an example, the tables in Appendix A were sorted and printed by computer. Future programs will enumerate sample variability species richness, species diversity and community associations, and will correlate species occurrences with physical factors. Comparisons will also be made within and between stations.

Table 1. Quantitative intertidal samples collected in 1974-75.

Region	Location	Rocky							Muddy							Sandy						
		Fall 74	April 75	May	June	July	August	August	September	Fall 74	April 75	May	June	July	August	August	September	Fall 74	April 75	May	June	July	August	September
Yakutat-Cook Inlet																								
	Yakutat	5			15			12																9
	Cape Yakataga	30			41			39																4
	Katalla	15	33					37																
	Kayak Island							19																
	Middleton Island									10	10						10							
	Boswell Bay		2					5		44	22						30							
	Port Etches		15																					
	Zaikof Bay	16	44					41																
	Macleod Harbor	34	17					33																
	LaTouche Point	25						43																
	Squirrel Bay	37																						
	Day Harbor	23	19					44																
	Port Dick (WCOA)				31	20																		
	Sud Island (WCOA)				23	50																		
Kamishak Bay-Unimak Pass																								
	Three Saints Bay				28	16																		
	Cape Nukshak				26	30																		
	Sundstrom Island				34	47																		
	Chirikof Island				37	30																		
	Spectacle Island				32	26																		
Unalaska-Kvichak Bay																								
	Akun Island					28																		
	Amak Island					20																		
	Crooked Island					17																		
	Cape Pierce					17																		
	Point Edward												38											
	Port Moller												6								4			
	Cape Mordvinof					12																		
	Makushin Bay					23		21																

Region	Location	Rocky						Muddy						Sandy					
		Fall 74	April 75	May	June	July	August	August	September	Fall 74	April 75	May	June	July	August	August	September	Fall 74	April 75	May	June	July	August	August	September
Pribilof and Nunivak Island																									
	St. George						42																		
	Otter Island (Pribilofs)						37																		
	Cape Mendenhall (Nunivak)	Cruise Terminated																							
	Cape Mohican (Nunivak)	Cruise Terminated																							

2. Substrate Comparison

Preliminary analysis of data indicates that the highest biotic densities are found at rocky sites. Comparisons between rocky (Macleod Harbor], muddy (Boswell Bay), and sandy (Yakutat) beaches were made for the zone extending from mean lower low water (MLLW) to one meter above MLLW (Table 2).5 Rocky areas, as characterized by Macleod Harbor[6], are significantly higher ($P < 0.01$) than muddy or sandy areas in terms of species and biomass. Muddy areas are second with a similar number of species but greatly reduced biomass. Sandy sites have significantly lower ($P < 0.01$) values for both biomass and number of species.

This situation may not occur in the northern Bering Sea, possibly as a result of ice scour. Study sites in the Pribilof Islands and at Cape Pierce in northern Bristol Bay, for instance, showed almost no intertidal life in the normally lush rocky areas. With the exception of small populations of littorine snails and a few Fucus and Halosaccion plants, the rocks were almost bare two feet or more above MLLW. Below this level the normally lush biota was found.

3. Sampling Variability

Three aspects of sampling were examined: quadrat size, sample size, and percent cover estimates vs. wet weight. Data on quadrat sizes were analyzed to determine how adequately our sampling unit (1/16 m^2) represented each general collecting site. Data on sample sizes were analyzed to determine how

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[5] Rocky data are collected within a 1/16 m^2 area. Muddy and sandy data are collected within a one liter volume. Thus, the validity of the comparison is somewhat reduced by the difference in methodology.

[6] Macleod Harbor data were used because they provide the most complete group o-f samples for analysis. This area is, however, one of the least diverse and least densely covered areas we have investigated.

Table 2---Comparison of mean numbers of species and wet weight biomass from three different habitat types. (s = standard deviation.)

Habitat Type	Mean number of species	s	Mean biomass (grams)	s	Sample size
Rocky (Macleod Harbor)	30.3	14.5	243.6	231.4	15
Muddy (Boswell Bay)	21.6	5.6	8.5	8.5	14
Sandy (Yakutat - Yakataga)	1.5	1.1	0.02	0.02	6

adequately each dominant species was being collected. Percent cover vs. wet weight data were analyzed to determine how adequately the rapid, but superficial estimates of algal cover represented the actual biomass of dominant species. Biomass data are collected quite slowly and at a much greater expense.

a. Quadrat size.

Several nested quadrat samples were taken from four locations in 1974. Three groups from Squirrel Bay were analyzed for this report. Species richness (number of species) and species diversity[7] were computed for all of the different quadrat sizes taken in the *Fucus* zone and the transition zone nests[8] (Figures 14 and 15).

Animal diversity and richness increased markedly with an increase in quadrat size from 1/64 m^2 to 1/16 m^2. Above 1/16 m^2 the increase was much more gradual. This indicates that samples collected within a 1/16 m^2 frame will contain most of the animal species found at the general position along a transect line.

Plant diversity and richness increased similarly to the animal parameters in the transition zone. In the *Fucus* zone, however, plant diversity and richness were lower for all quadrat sizes and no trend was discernible.

b. Adequacy of Sample size in determining individual population levels.

Population means, variances, and variance to mean ratios were calculated for the dominant species for the nested quadrats from Station A[9]. The values

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[7] *Methods of* calculation are discussed in Appendix B.

[8] The "*Fucus*" (*Fucus distichus*) samples were collected at a level 7.7 feet above mean lower low water where this algal spe.ties was the visually dominant organism. The "transition" samples were collected at a site 6.1 feet above MLLW where *Fucus* was less dominant and several other algal species were present.

[9] "Station A" was located 2.2 feet above MLLW. This zone was dominated by the algae *Rhodymenia palmata* and *Maria marginata*. Dominance is measured by relative contribution to the sample biomass.

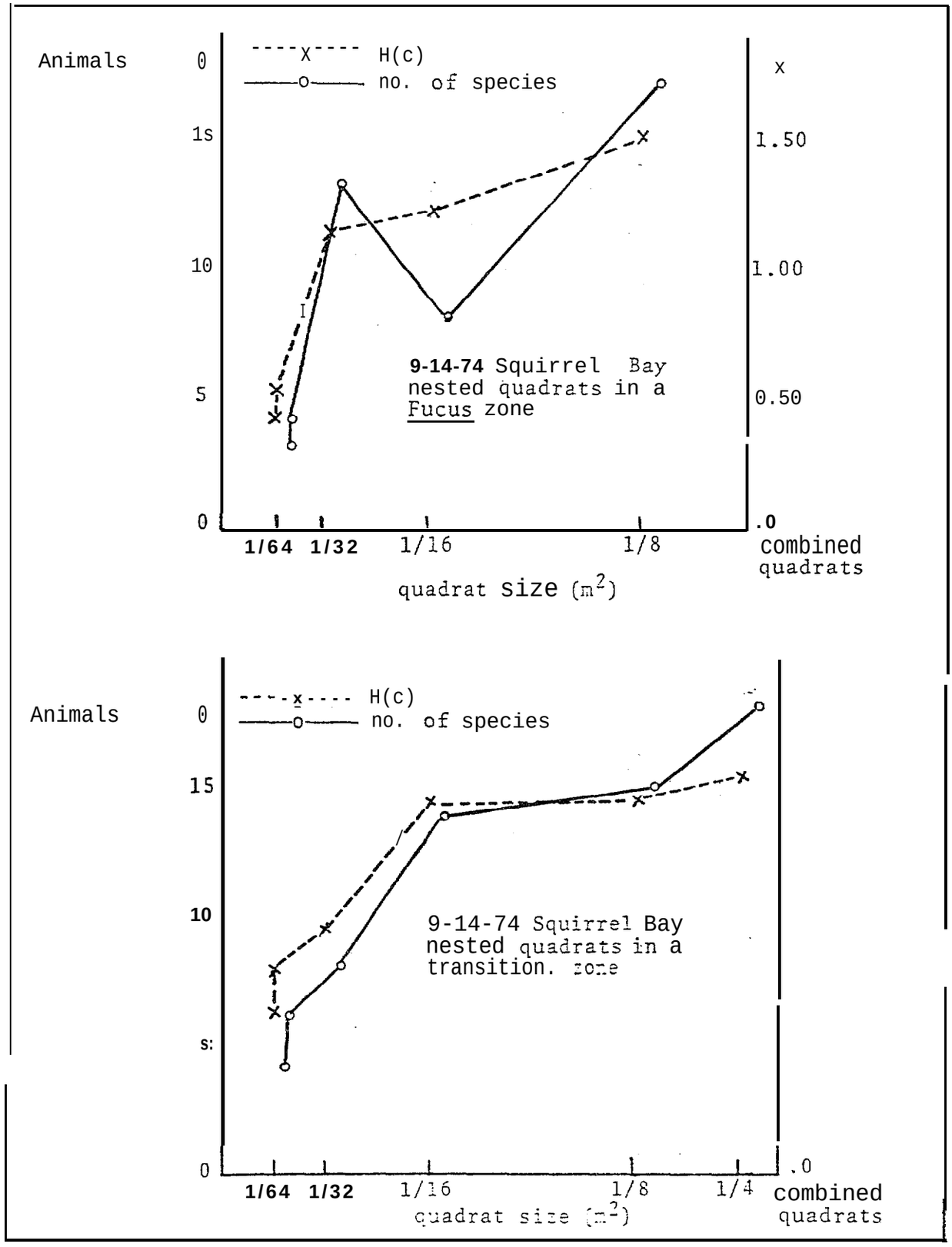

Figure 14. Number of species and species diversity (H=Brillouin's index) of animals measured with varying quadrat sizes at two sites in Squirrel Bay, September 14, 1974.

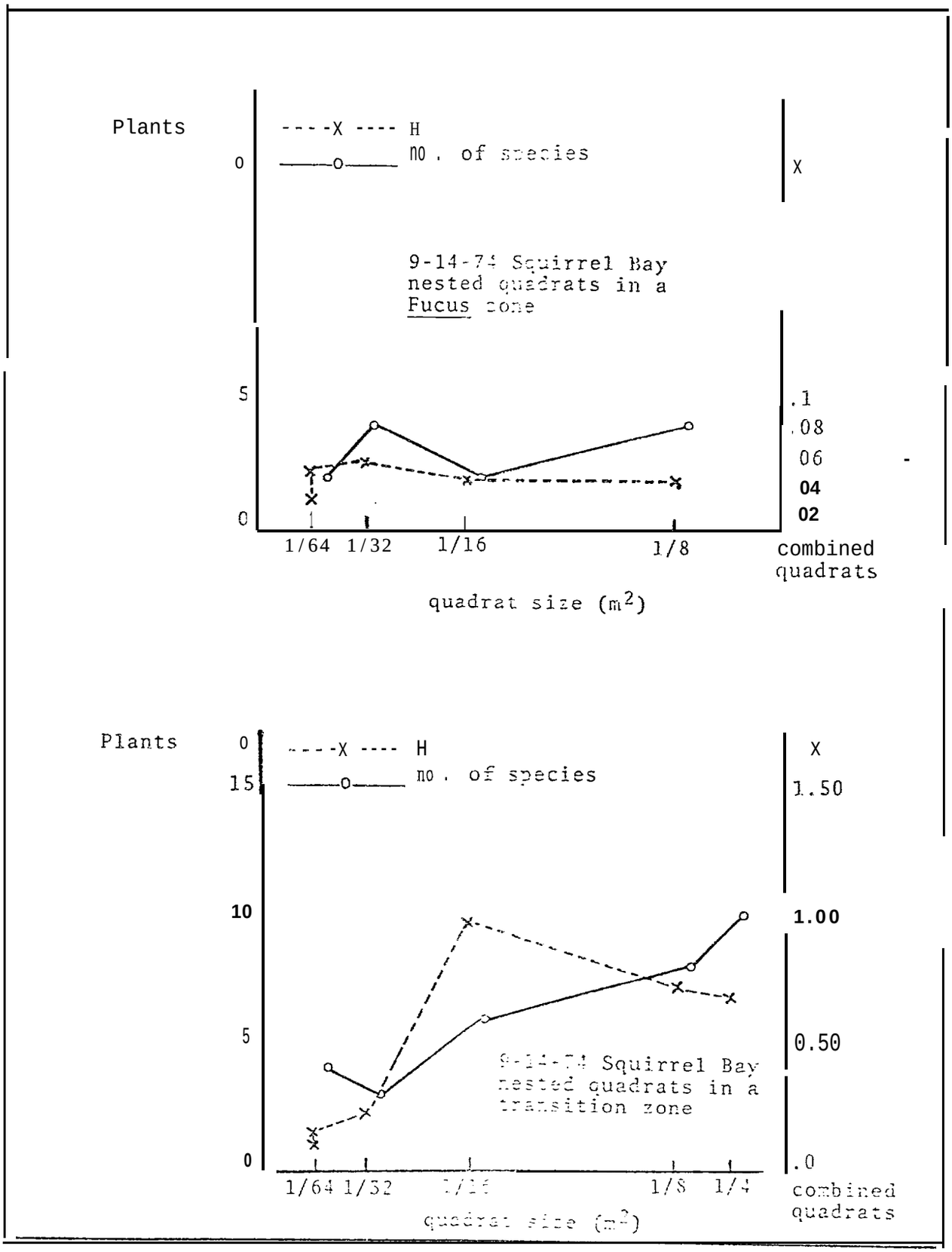

Figure 15. Number of species and species diversity (H=Brillouin's index) of plants measured with varying quadrat sizes at two sites in Squirrel Bay, September 14, 1974.

were constructed from (1.) one set of nested samples containing sixteen contiguous 1/64 m^2 collections and (2) three sets of four 1/16 m^2 collections which were constructed from the sixteen 1/64 m^2 collections (Table 3). Deviation of the V/M ratio from 1.0 indicates anon-random distribution of the variable. For these data the V/M ratio ranged from 1.00 for Musculus discors measured in 1/64 m^2 quadrats to 242 for oligochaetes measured in rectangular 1/16 m2. (The large number indicates a highly contagious distribution for oligochaetes.) The ratio did not vary consistently with changes in quadrat type.

To further illustrate the high variability which was encountered, a "required sample size" was calculated for the square quadrats. The "required sample size" (Snedecor and Cochran, 1967, pp. 111-113) is the number of observations per treatment needed to detect a 0.5 $\bar{X}$ change in the population mean 90% of the time when tested at the 95% significance level (Table 4). The data for means and variances from Table 3 were used to make the determinations.

The required sample size varied from 6 for Musculus discors (mussels) sampled with 1/16 m^2 quadrats to 1,256 for Fucus distichus sampled with 1/64 m^2 quadrats. There was an approximately four-fold increase in the required sample size when the quadrat size was reduced from 1/16 m^2 to 1/64 m^2. Applying this measure to the 1/4 m^2 area of Station A, the area from which the variances were calculated, showed that if sampling were random it would be necessary to sample 80% of the entire area to enumerate the more variable species.

c. Percent cover vs. wet weight analysis.

Percent cover estimation is a standard procedure for rapidly enumerating the dominance of algal species. Unfortunately, only those organisms which cover a significant area (>1%) within a sampling frame are recorded. Rare or small organisms might be missed, The method is also dependent on the taxonomic

Table 3.--Species means, variance (δ^2), and variance/mean ratios (δ^2/m) for various sets of contiguous quadrats constructed from the contiguous 16 - 1/64 m^2 quadrats taken from Station A in Squirrel Bay on 9/14/74.

Species	1/64 m^2			1/16 m2 horizontal		
	mean	δ^2	δ^2/m	mean	δ^2	δ^2/m
Mytilus edulis	18.69	1,469.03	78.6	74.75	3,303.95	44.2
Musculus discors	4.13	4.13	1.0	16.50	13.20	0.8
Lacuna marmorata	10.06	106.64	10.6	40.25	205.28	5.1
Lacuna vincta	1.88	16.17	8.6	7.50	94.5	12.6
Fucus distichus	0.73	7.884	10.8	2.90	25.23	8.7
Rhodymenia palmata	20.95	230.45	11.0	83.80	1,810.08	21.6
Oligochaete sp.	27.25	4,037.06	148.1	109.00	8,886.50	81.53
Polychaete sp.	2.44	13.00	5.53	9.75	33.19	3.40
	1/16 m^2 vertical			1/16 m^2 square		
Mytilus edulis	74.75	8,992.42	120.5	74.75	6,450.93	86.3
Musculus discors	16.50	24.75	1.5	16.50	19.8	1.2
Lacuna marmorata	40.25	623.88	15.5	40.25	410.55	10.2
Lacuna vincta	7.50	64.5	8.6	7.50	154.5	20.6
Fucus distichus	2.90	25.23	8.7	2.90	25,23	8.7
Rhodymenia palmata	83.80	569.84	6.8	S3.80	1,106.16	13.2
Oligochaete sp.	109.0	26,391.0	242.0	109.0	17,228.5	158.0
Polychaete sp.	9.75	21.69	2.22	9.75	23.19	2.39

Table 4.--Estimates of the number of random samples required to compare two means with 90% probability of showing a statistically significant difference at the 95% level when the experimental mean differs as much as 50% from the control mean (Snedecor and Cochran, 1967).

Species	Quadrat type	
	1/64 m^2 square	1/16 m2 square
Mytilus edulis	353	97
Musculus discors	20	6
Lacuna marmorata	87	21
Lacuna vincta	385	231
Fucus distichus	1,256	251
Rhodymenia palmata	44	13
Oligochaetes	457	122
Polychaetes	184	21

capabilities and subjective opinions of each individual researcher. It is, however, very rapid and a great amount of data can be collected in a short amount of time.

During 1974 a total of 184 percent cover enumerations were made. In 41 cases the enumerated sample was later collected and wet weight determinations were made. Statistical correlation analysis was performed on the cover and weight data (Table 5).

With the exception of the genus Alaria, correlations were highly significant ($P < 0.01$) in all cases. Values were highest for the smaller species (Halosaccion glandiforme, Rhodymenia palmata, Odonthalia floccosa - Rhodymela larix[10]). In the case of Fuchus distichus and especially Alaria, the correlations were lower. These species are bigger and a few ants can cover a relatively large area. The long blades of Alaria, for instance, can drape across several frames while the plant is actually attached many feet away. Thus, a few large blades can completely cover a sampling frame while contributing no biomass to the sample taken within.

This method of sampling has been largely discontinued as a means of quantitatively enumerating rocky areas. The highly significant correlations for certain species indicate, however, that it will remain a valuable tool when large areas need to be rapidly enumerated in terms of dominant species. We anticipate using percent cover analysis extensively in "ground truthing" the aerial overflight phase of this program.

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10 The data for O. floccosa and R. larix were combined because of some apparent inconsistencies. The two species are quite similar and may be confused. They often occur together and combining data did not reduce the correlations.

Table 5.--Correlation coefficients (r) for percent cover vs. wet weight values of dominant algal species.

Algae	Sample Size (N)	r	Significance
Fucus	16	+0.641	<.01
Halosaccion	11	+0.779	<.01
Odonthalia - *Rhodymela*	20	+0.856	<.01
Rhodymenia	12	+0.872	<.01
Alaria	12	+0.042	N.S.

Table 6. --Correlation coefficient matrix for six species from Station A, Squirrel Bay, computed from 16 1/64 m2 quadrats and four 1/16 m2 quadrats. (* = P<0.OS; ** = P<0.01)

	Musculus discors	Rhodymenia palmata	Alaria-Fucus sp.	Mytilus edulis	Polychaete s, .	Oligochaete sp.
Musculus discors: 1/64	1.0000	0.6682**	-0.0353	-0.1017	0.1294	-0.1385
1/16	1.0000	0.9938**	-0.4164	0.2487	-0.0344	0.1304
Rhodymenia palmata: 1/64	----	1.0000	0.0570	0.1637	0.2359	0,1113
1/16	----	1.0000	-0.3426	0.1741	-0.1096	0.0564
Alaria - Eucus sp.: 1/64	-----	----	1.0000	0.3369	0.3646	0.3097*
1/16	----	----	1.0000	-0.0.584	0.0603	0.0057
Mytilus edulis: 1/64	----	----	----	1.0000	0.8408**	0.9822**
1/1.6	----	----	----	1.0000	0.9595**	0.9927**
Polychaete sp.: 1/64	. . .	----	----	----	1..0000	0.8443**
1/16	----	----	----	----	1.0000	0.9862**
Oligochaete sp.: 1/64	----	----	----	----	----	1.0000
1/16	----	----	----	----	----	1.0000

4. Associations

Correlation coefficients were calculated for selected species found in the sixteen 1/64 m^2 samples collected at Station A in Squirrel Bay (Table 6). Analysis of several samples from within a small area (1/4 m^2) helps to pinpoint relationships which might be lost when samples from the entire area are pooled.

Four correlations were found to be significant. The occurrence of mud dwelling polychaete and oligochaete worms was highly correlated, probably because they occur in similar habitats. Both of these were correlated with the mussel Mytilus edulis. M. edulis grows in densely clumped aggregations. These aggregations tend to trap sediment (DiSalvo and Guard, 1975) and provide a - highly organic, muddy habitat for the worms. Thus, all of these associations can be explained biologically.

The association between Musculus discors and Rhodymenia palmata is also to be expected. M. discors uses intertidal algae as a substrate. (In some areas this species can be found almost completely covering individual algae.) Thus, its presence is linked to the occurrence of suitable algae for sites of attachment.

B. Subtidal Baseline

Approximately 50 dives were made by NMFS biologists in conjunction with intertidal studies in the Gulf of Alaska and Bering Sea. Reconnaissance studies, species collections, and extensive photographic documentation were completed at 22 sites. One series of quantitative samples was obtained during the second visit to Makushin Bay, using an airlift sampler. Muddy and rocky areas were both sampled quantitatively.

The value of subtidal research became increasingly obvious as we proceeded northward in the Bering Sea. Rocky sites in the Pribilof Islands and at

Cape Pierce, while almost devoid of attached biota intertidally, were very lush subtidally. Collections of organisms previously undescribed in published literature for the central and eastern Bering Sea were made possible through the use of SCUBA equipment. A list of species thus far described is included in Table 7. Additions to this list will probably be made following consultation with Japanese colleagues.

Research by biologists from Dames and Moore has focused on extending intertidal research into shallow subtidal zones. Seasonal variations in biomass and size frequency distribution have been measured as well as changes in distribution and numerical abundance. A report of initial results is included in Appendix E. A more complete report will be prepared following analysis of winter data in March, 1976.

C. Aerial Survey

Over 88 hours of observations were made by aerial survey. The entire Bering Sea coastline from Cape Newenham through Unimak Pass and all of the Krenitzen Islands were flown. The Gulf of Alaska coastal areas from Yakutat to Cordova and from Chignik to Unimak Pass were also flown (Figure 16). Unfortunately, the data from the Chignik to Unimak area were lost when the plane crashed on takeoff on August 26, 1975. Included with this were the complete observations for the Shumagin Islands.

The type of observation which resulted from the overflights is shown in Figure 17. The data from these charts will be used to determine the percentage occurrence of the major habitat types. They will also be drafted into figures, of which this is a possible prototype, which may be duplicated and used by other investigations.

Table 7. --Species collected in non-quantitative samples from St. George, Pribilof Islands.

PHAEOPHYCEAE *
- Cymathere triplicate I
- Laminaria yezoensis I
- Alaria marginata I
- Alaria sp. I
- Fucus distichus I

RHODOPHYCEAE *
- Rhodymenia palmata I
- Rhodymenia sp. I
- Cirrulicarpis gmelini I
- Constantine rosamarina I
- Halos accion glandiforme I
- Phycodrys riggii I
- Iridaea sp. I
- Odonthalia kams chatica S
- Schizomenia pacifica S
- Ptilota pectinata

PORIFERA
- Demospongiae
- Halichondria panicea I
- Chonrocladia alaskensis S
- Mycale adhaerer. 3 S
- Leucandra heathi I
- Myxilla incrustans I
- Forcepia us chakowi S
- Sponge I

CNIDARIA
- Eunephyta sp. 1 S
- Eunephyta sp. 2 S

AN THOZOA
- Haliclystis steknergeri I
- Haliclystis sp. I
- Epiactis marsupials I
- anemone S Q I

RHYNCHOCOELA
- Rhynchocoela S Q I

ANNE LIDA
- Polynoidea S Q
- Harmothoe extenuata I

I = Intertidal
S = Subtidal
D = Drift
Q = Quantitative

*NOTE: This represents only part of the algae collection at St. George. There are a number of subtidal species which are unique (i. e. not found elsewhere on American coasts). We are seeking help from Japanese experts in identifying these species.

Table 7 (continued).

ANNE LIDA cont.
E teone longs I
Phyllodoce maculata S Q
Autolytus Sp. I
Autolytus prismaticus I
Typos yllis alternata S Q I
Typosyllis pulchra I
Exogone gemmifera S Q I
Parasphaerosyllis sp. I
Nereis sp. S Q I
Glycera capitata S Q
Protodorvillea gracilis S Q
Nainereis quadricuspida S Q
Spio filicornis I
Cirratulus cirratus S Q I
Amrnotrypane aulogaster S Q
Phloe minuta i
Capitellid S Q
Capitella capitata S Q
Maldanid S Q
Nicolea zostericcla S Q
Terebellides stroemi I
Chone gracilis S Q
Potamilla sp. S Q I
Potamilla neglects I
Pseudo sabellides littorals S Q
Fabricia sabella I
Pseudopotamilla reniformis I
Pontogenia andrijaschevi I
Oligochaete S Q I
MO LLUSCA
Schizoplax brandtii I
Tonicella rubra S I
Cryptochiton stelleri S
Musculus **discors S I**
Mytilus edulis I
Hiatella **arctica S** I
Pododesmus **macro schisma S**
Modiolus modiolus **S**
Nudibranch S Q
Volutharpa perryi **S I**
Volutharpa ampullacea **S I**
Collisella **pelts I**
Nucella **lima S** I
Velutina plicatilis **I**
Margarites helicinus **S**
Littorina sitkana I

Table 7 (continued).

MO LLUSCA cont.
- Fusitriton oregonensis I
- Notoacmaea scutum S
- Margaritas giganteus S I
- Lamellaria s tearnsi S
- Acmaea mitra S
- Spongidradsia aleutica S
- Onchidiopsis hannai S
- Bulbus fragilis S I
- Natica clausa S
- Buccinum sp. S Q
- Mitrella rosacea S Q
- Doridae I
- Naticidae I

PYCNOGONIDA
- Ammothea pribilofensis S Q I
- Achelia spinosa I
- Ammothea alaskensis S I
- Ammothea spp. S I
- Nymphon phoxichilidium I
- Phoxichilidium femoratum S

CRUS TA CEA
- Balanus rostratus S
- Leptochelia sp. S
- Idotea ochotensis I
- Amphipod I
- Melita sp. 2 S Q
- Parallorchestes ochotensis I
- Anonyx multiarticulatas S Q
- Ischyrocerus sp. 1 I
- Calliopiella sp. I
- Ampithoe rubricatoides S Q
- Ampithoe sp. I
- Parapleustes cf. P. johanseni S Q
- Pleustes panopla S Q
- Caprellid S Q I
- Caprella cristibranchium I
- Dermaturus mandtii S I
- Pagurus dalli I
- Cancer oregonensis S
- Pugettia gracilis S

INSE C TA
- Cole optera

BRYOZOA
- Bryozoan I

AS TEROIDEA
- Henricia leviuscula S
- Henricia eschrictii S I

Table 7 (continued).

ASTEROIDEA cont.
Leptasterias sp. S I
E CHINOIDEA
Strongylocentrotus droebachiensis S Q I
OPHIUROIDEA
Ophiopholis aculeata var. kenne rlyi S
Ophiuroid S Q
HO LO THUROIDEA
Sea cucumber S Q
Cucumaria pseudocurata I
SIPUNCULIDA
Sipunculid S Q
HE MICHORDA TA
Tunicata I
Sigillinaria sp. I
Polyclinidae S I
Species 1 I
Species 2 S
Species 3 (Aplidium?) S
Species 4 S
Styela (clava?) S
Species 2 S
TELEOSTEI
Liparid S Q
Liparis cyclopis I

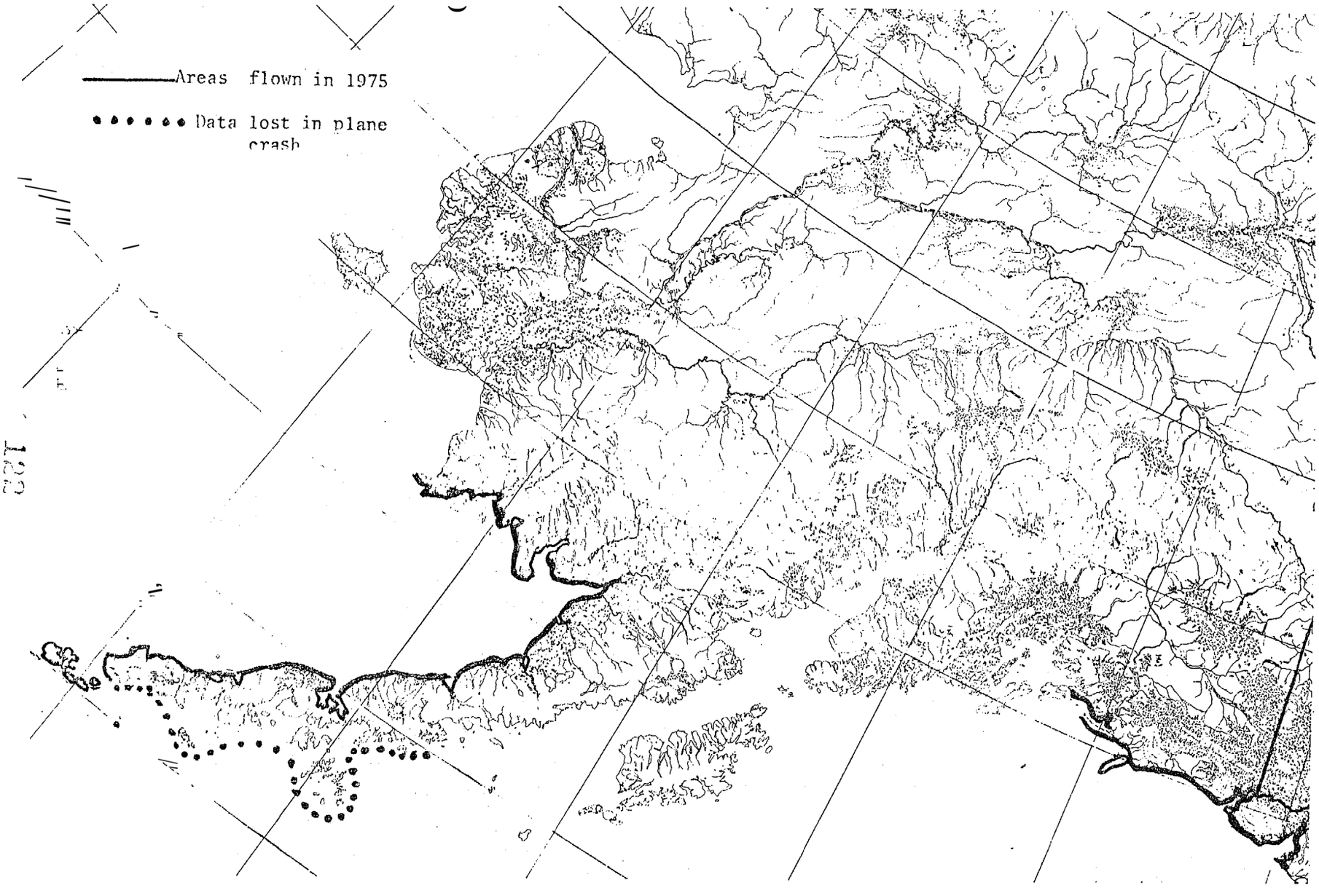

Figure 16. Coastal areas flown during aerial reconnaissance in 1975.

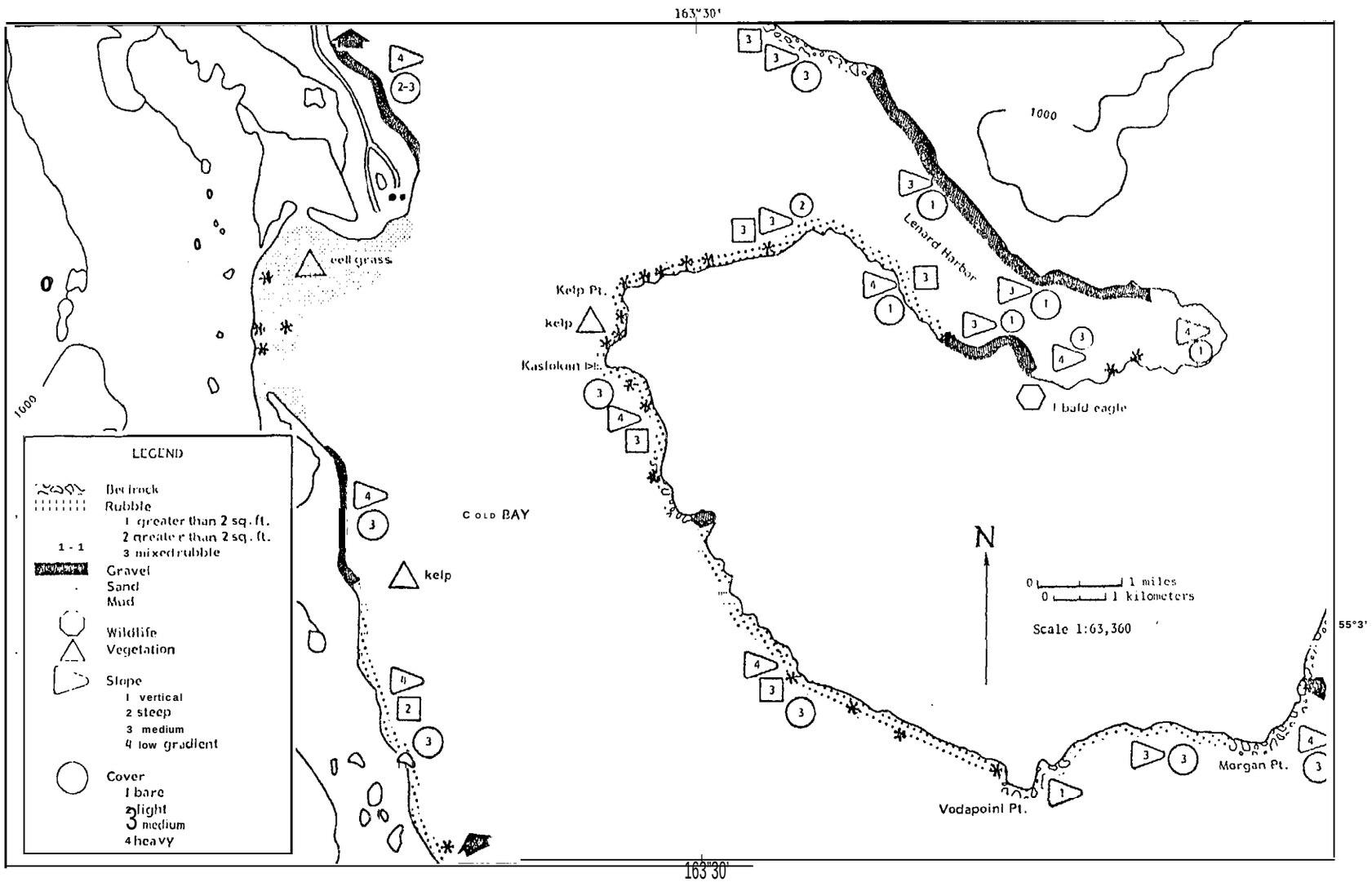

Figure 17. **Prototype diagram used to represent results of the aerial reconnaissance of aerial habitats.**

D. Drift Zone Studies

The drift in the three study areas was characterizedby invertebrate hard parts (shells, carapaces, etc.) and algal remains (Appendix Tables C1-C4). Freshly dead, intact invertebrates occurred but were rare, especially at Yakutat and Cape Yakataga. Drift algae at Yakutat and Cape Yakataga consisted primarily of small, fresh fragments, while algal drift at Middleton Island ranged from fragments to entire plants and consisted of fresh and decomposed material. Drift algae was least abundant at all study localities during the winter sample period.

Fish, bird, and mammal remains were rare. Live and dead fish and sea birds were found while only skeletal remains of marine mammals occurred in the drift. Dead sea birds occurred in the drift only during the winter sample (Table C5).

Drift accumulation was considered light to moderate at all three localities during all seasons sampled. Total number of drift items was greater at Yakutat during all seasons sampled than at the other two localities.

Yakutat: The drift at Yakutat was characterized by empty razor clam (Siliqua patula) shells, Dungeness crab (Cancer magister) carapaces, and unidentified jelly fish and ctenophores. Table C6 shows the numbers and mean daily accumulation rate per km of shoreline of the most abundant[11] drift biota found at Yakutat during all seasons sampled. Except for razor clam shells, whose numbers remained constant, all other items decreased in abundance from summer through winter.

Very little drift kelp occurred at Yakutat. Although no measurements were made, total daily accumulation was estimated at less than 5 kg (wet weight)

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11 An abundant species is defined as one with a mean of two or more individuals per km per day during at least one season sampled.

during all seasons sampled.

Cape Yakataga: Drift at Cape Yakataga was characterized by invertebrate remains i.e. sponges, razor clam shells (Siliqua patula), worm tubes (Eudistylia sp.), and limpet shells (Notoacmaea persona). Daily accumulation rates per km of shoreline of the most abundant items are presented in Table C7. All these items exhibited at least a two-fold increase from autumn to winter. Accumulation of drift kelp was estimated at less than 2 kg (wet weight) per day during both seasons sampled.

Middleton Island: The drift at Middleton Island was characterizedby drift algae and invertebrate remains. The most abundant algae during both seasons sampled were Laminaria spp. followed by Nereocystis luetkeana and Cymathere triplacata. Daily accumulation rates of Nereocystis appeared to be directly related to the rate of accumulation of algal drift at Middleton Island. Autumn accumulation rates of algal drift were estimated at hundreds of kg (wet weight) per day, and the winter rate at tens of kg (wet weight) per day.

Invertebrate remains at Middleton Island were characterized by limpet (Acmaea mitra) and snail (Fusitriton oregonensis) shells, and sponges. Table C8 shows the numbers and mean daily accumulation rates per km of shoreline of the most abundant items. While the abundance of Nereocystis decreased from autumn to winter there was a marked increase at the same time in the abundance of the invertebrate remains.

Appendix Tables C9, C10, and C11 give the species and relative numbers of sea and shore birds and marine mammals observed adjacent to the study localities during all seasons sampled.

E. Literature Survey

Over 500 references have been collected and assembled in the attached bibliographical listing (Appendix). The majority of these articles have been obtained and are currently being abstracted for the final bibliography. Upon completion a subject/author index will be used for information retrieval.

pertinent scientific information exists in a wide variety of reports, publications, documents, etc. Since this listing was completed, an additional 150-200 references have been found. Many of these are unpublished references (contract reports, university theses, etc.) and are nearly ready for compilation into the bibliography.

This bibliography will provide our scientists and other interested parties a source of readily available information on the intertidal invertebrates and algae in the coastal waters of Alaska.

VII. Discussion

In the Gulf of Alaska and southern Bering Sea, rocky intertidal areas appear to dominate in terms of biomass and number of species when compared with sandy and muddy areas. Although this conclusion is presently based on a small amount of analyzed data, it is substantiated by large numbers of field observations.

This was not found to be the case in the Pribilof Islands, and presumably in the northern Bering Sea. Apparently, ice scouring removes much of the attached life a short distance above MLLW. This effect may be expected to increase and extend below MLLW in the more northerly areas where the ice is . thicker and of longer duration. Thus, the protection afforded to infaunal organisms in muddy and possibly in sandy habitats may lead to a more diverse biota than that found in rocky areas. Quantitative samples from muddy subtidal sites in the Pribilofs showed a high diversity of infauna. Several of these species may be expected to occur in protected areas above MLLW. This possibility will be investigated in 1976.

The biota of the Pribilofs below MLLW is quite rich. Because much of it occurs in shallow subtidal zones it has not been previously described in published literature.[12] Preliminary analysis indicates that some of the species may not be North American in origin. It is possible that they may be derived from Russian and Japanese biota (eg. Cirrulicarpis gmelini) or possibly be endemic to the islands (eg. Onchidiopsis hannai). When the oceanic distribution of species collected in the Pribilof Islands is enumerated we believe it will provide insight into the currents and long tern movement of water masses in the

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12 The algae of this region are known from only one publication published before the turn of the century (Setchell, 1899).

Bering Sea.

Analysis of our data on seasonal and spatial variability has not been completed yet. Preliminary studies of spatial variability between samples from a rocky site in the Gulf of Alaska indicates that a great number of random samples will need to be taken to statistically detect a change in population size. Indeed, for the more variable species as much as 80% of their area would have to be enumerated. This is not feasible from a cost standpoint. It is also not possible because destroying a population is a poor way to study it. Stratified random sampling may be used to reduce variation sufficiently for general descriptive purposes and for detecting changes in some cases. Where this is inadequate, well censused, permanent sites will be necessary for detecting change.

Greater homogeneity may be encountered in muddy and especially sandy sites. Variability in these areas, however, may also be high enough to preclude accurate estimation of population changes among the more variable species. Studies in 1976 will attack the problem of variability at non-rocky sites and our ability to predict populations in unstudied areas.

Because of the dynamic character of intertidal communities it will probably be impossible to make accurate predictions knowing only the habitat type. In this case, our ability to discuss changes will have to be done in two ways. Effects due to low level petroleum buildup will be studied through the use of future monitoring sites at stations adjacent to oil-related activities. Our understanding of oil spills, on the other hand, will rely on defining community associations within major habitat types. Preliminary analysis indicates that significant correlations may be found between certain species and groups of species. These associations seem to be based on biological

requirements. By studying a large number of rocky sites it has been possible to describe many of the major types of rocky communities. The associations differ between rocky community types but are probably predictable within types.[13] Thus, effects due to an oil spill can be determined by first noting the obvious mortality and then by studying the changes in expected occurrence.

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[13] For instance, predicting the occurrence of sea otters in an area is probably not possible. As soon as the otter is discovered at a previously unstudied site, however, many associated effects may be predicted. Such effects as the occurrence of lush algal zones due to the reduction of herbivore populations (urchins, abalone, etc.) may be predicted and an analysis of the area can be made.

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VIII. Conclusions and Literature Cited

A. Conclusions

1. The highest numbers of intertidal species and greatest intertidal biomass are found at rocky sites in the Gulf of Alaska. Muddy sites are second and sandy are third.

2. In the Pribilof Islands, Cape Pierce, and presumably in the northern Bering Sea, ice scour removes much of the attached biota. Consequently, low diversity and low biomass are found in rocky intertidal areas.

3. In the Pribilof Islands the subtidal flora is very lush. Many of the species do not occur in western North America. They may be derived from the Asian flora orbe endemic to the islands.

4. A 1/16 m^2 quadrat is not significantly less adequate for comparing species richness and diversity than 1/8 m2 or 1/4 m^2 quadrats, but is significantly more efficient than 1/64 m2 quadrats.

5. Intertidal organisms have aggregated patterns. Resulting high variability can make random sampling to estimate density unfeasible over large areas in rocky zones. Stratified sampling may improve descriptive results but some permanent sampling units that can be intensively censused should be established to assure detection of any change in the abundance of certain species.

6. For small species of algae (Halosaccion glandiforme, Rhodymenia palmata, Odonthalia - Rhodymela), the method of estk.sting dominance by percent cover is highly correlated with biomass.

7. Associations between species were detected through correlation analysis using either 1/64 m^2 or 1/16 m2 quadrats. These associations could have been predicted based on the biological requirements of the species.

8. Drift biota in the eastern Gulf of Alaska consisted primarily of invertebrate hard parts and algal remains. Marine vertebrates were rare.

9. Dead sea birds occurred in the drift only during winter. Drift algae were least abundant during this period.

10. Seasonal changes in the abundance and kind of drift organisms are considered to reflect life history characteristics or changes in the physical environment.

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IX. Needs for Further Study

1. The effects which ice scouring has on intertidal communities should be investigated. In the southwestern Bering Sea where ice scour has no effect, communities are diverse and well developed. In the Arctic Ocean where ice scour is extensive almost no intertidal communities exist. At an intermediate location in the Pribilof Islands diverse communities are found below MLLW but not very far above. Although many other factors may contribute to this effect it is possible that ice-related gradients may be located and their effect on variability can be deciphered.

2. Special emphasis should be placed on making extensive collections of Pribilof Islands biota. Our research to date indicates that much of the flora is derived from Asian sources. An understanding of the derivation and distribution of these species will help to elucidate mass transport phenomena in the central Bering Sea. It will also add to our understanding of the colonization of isolated islands in subarctic waters.

3. The problem of variability in muddy and sandy sites should be studied on a large scale. Rocky sites are extremely variable and it does not seem possible to predict the occurrence of communities between study areas. This problem may not be as acute in sandy and muddy areas. We will be studying this problem in great detail this summer.

4. In order to understand the effects of oil on intertidal communities, physiological studies should be carried out on the "keystone" (Paine, 1969; Paine and Vadas, 1969) species. Estimates of adult and critical stage tolerances should be made. The effects of sublethal dosages should also be determined. Intensive study sites should also be maintained in areas adjacent to oil-related activities in order to monitor changes.

APPENDIX A

DATA B Y STATION-S

1974 Quantitative Collections

YAKUTAT
YAKATAGA
KA TALLA
MIDDLE TON ISLAND
BOSWELL BAY
ZAIKOF BAY
MAC LEOD HAR BOR
SQUIRREL BAY
ANCHOR GOVE

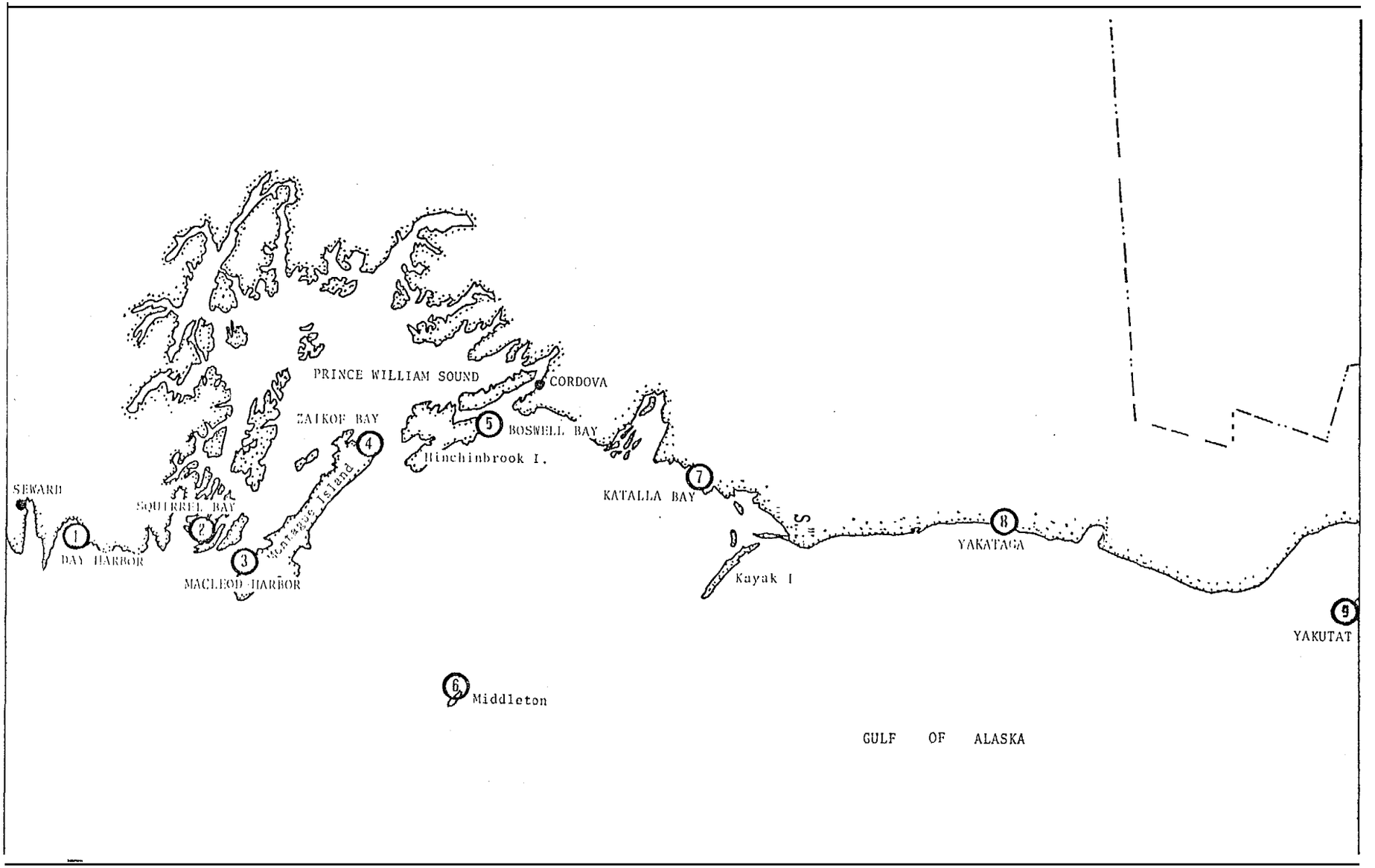

Figure A-1. Location of intertidal sampling sites in the eastern Gulf of Alaska, Fall, 1974.

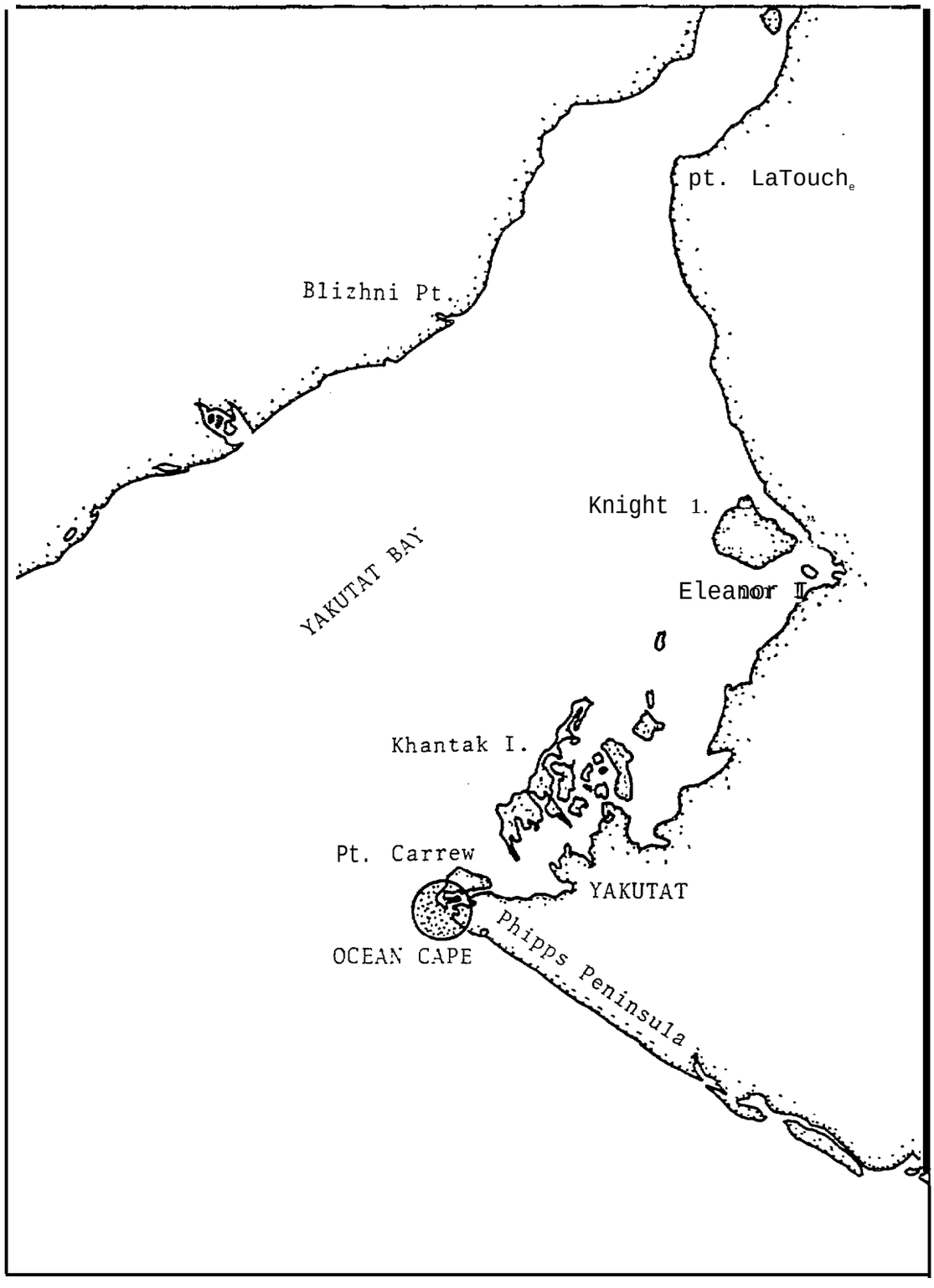

Figure A-2. Yakutat sampling site.

SPECIES OF YAKUTAT

CHLOROPHYTA
- Percursaria percuss
- Rhizoclonium riparium

PHAEOPHY TA
- Ectocarpus sp.
- Pylaiella littorals
- Fucus d istichus

RHODOPHY TA
- Endocladia muricata
- Gigar tins latis sima
- Rhodoglossum californicum
- Rhodymenia palmata
- Ptero siphonia ar ctica
- Laurencia spectabilis
- Odonthalia floccosa

TURBE LLARIA
- Turbellaria

RHYNCHOCOELA
- Rhynchocoela
- Emplectonema gracile

ANNE LIDA
- Typosyllis a. adamantea
- Enchytraeidae

MO LLUSCA
- Pelecypoda
- Mytilis ed ulis
- Collisella pelta
- Collisella digitalis
- Notoacmaea scutum
- Li ttorina s itkana
- Lacuna marmorata

ARACHNIDA
- Halacaridae

CRUS TACEA
- Balanus glandul a
- Gnori.mosphaeroma oregonensis

INSE C TA
- Chironomidae
- Insects

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 1 YAKUT, T DATE: 10/11/74
LATITUDE: 59 32 30 N LONGITUDE: 139 52 50 W
STATION INVESTIGATEDFOR 1.5 HOURS BEGINNING AT 1:00 IN TIME ZONE: + 9
CATALOG NBR:AB740365 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY:NO INFORMATION
SAMPLING TIME: 1:45 ARROW NBR: F01 GEAR: POINT SAMPLE
ELEVATION: 2.58 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
PERCURSARIA PERCURSA	ND				.001	0.
PHAEOPHYTA						
ECTOCARPUS SP	ND				.707	0.
FUCUS DISTICHUS	ND	FRTL			85.940	19.150
FUCUS DISTICHUS	ND	STRL			59.300	13.670
RHODOPHYTA						
RHODOGLOSSUM CALIFORNICUM	ND				.007	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.084	0.
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND			12	.237	0.
ENCHYTRAEIDAE	ND			10	.005	0.
MOLLUSCA						
MYTILUS EDULIS	ND			7	.249	0.
COLLISELLA PELTA	ND			2	.112	0,
COLLISELLA DIGITALIS	ND			7	4.218	0.
LITTORINA SITKANA	ND			5	.045	o*
CRUSTACEA						
BALANUS GLANDULA	ND				2.481	0.

BI[illegible] DENSITIES OF INTERTIDAL ORGANISMS FROM THE [illegible]ESTERN GULF OF ALASKA
FALL 1974

STATION NBR: 1 YAKUTAT DATE: 10/[illegible]2/74
LATITUDE: 59 32 30 N LONGITUDE: 139 52 50 W
STATION INVESTIGATED FOR 2.5 HOURS BEGINNING AT 1[illegible]:00 [illegible] TIME ZONE: [illegible] 9
CATALOG NBR: AB740366 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010375 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 13:15 ARROW NBR: F02 GEAR: POINT SAMPLE
ELEVATION: 2.58 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.118	0.
FUCUS DISTICHUS	ND	FRTL			26.681	4.706
FUCUS DISTICHUS	ND	STRL			72.212	16.466
RHODOPHYTA						
ENDOCLADIA MURICATA	ND				.340	0.
MOLLUSCA						
PELECYPODA	ND			1	.047	0.
MYTILUS EDULIS	ND			60	.242	[illegible]
COLLISELLA PELTA	ND			2	.731	0.
LITTORINA SITKANA	ND			11	.370	0.
CRUSTACEA						
BALANUS GLANDULA	ND			9	.890	.520
GNORIMOSPHAEROMA OREGONENSIS	ND			1	.015	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 1 YAKUTAT DATE: 10/12/74
LATITUDE: 59 32 30 N LONGITUDE: 139 52 50 W
STATION INVESTIGATED FOR 2.5 HOURS BEGINNING AT 12:00 IN TIME ZONE: + 9
CATALOG NBR: AB740367 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 13:15 ARROW NBR: F03 GEAR: POINT SAMPLE
ELEVATION: METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
PHAEOPHYTA	ND				.038	o.
PYLAIELLA LITTORALIS	ND				4.175	.731
FUCUS DISTICHUS	ND	FRTL			48,103	9,688
FUCUS DISTICHUS	ND	STRL			73.860	15.491
RHODOPHYTA						
GIGARTINA LATISSIMA	ND				4.979	● 742
ODONTHALIA FLOCCOSA	ND				.708	0.
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND			1	● 001	0,
ENCHYTRAEIDAE	ND			4	● 001	0.
MOLLUSCA						
COLLISELLA PELTA	ND			5	..245	0.
LITTORINA SITKANA	ND			19	.760	0.
CRUSTACEA						
BALANUS GLANDULA	ND			1	0066	0,
INSECTA						
CHIRONOMIDAE	NO	IMTR		3	.015	0.

STUDIES OF INTERTIDAL ORGANISMS [illegible] THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 1 YAKUTAT DATE: 10/12/74
LATITUDE: 59 32 30 N LONGITUDE: 139 52 50 W
STATION INVESTIGATED FOR 2.5 HOURS BEGINNING AT 12:00 IN TIME ZONE: + 9
CATALOG NBR: AB740368 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010338 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 13:15 ARROW NBR: F05 GEAR: POINT SAMPLE
ELEVATION: METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
RHIZOCLONIUM RIPARIUM	ND				.003	0.
PHAEOPHYTA						
FUCUS DISTICHUS	ND	FRTL			65.650	14.820
FUCUS DISTICHUS	ND	STRL			48.960	10.610
RHODOPHYTA						
ENDOCLADIA MURICATA	ND				.115	0.
TURBELLARIA						
TURBELLARIA	ND			2	.009	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG			.263	0.
EMPLECTONEMA GRACILE	ND	FRAG		1	.066	0.
MOLLUSCA						
MYTILUS EDULIS	ND			22	.385	.385
MYTILUS EDULIS	ND			2	1.275	.470
LITTORINA SITKANA	ND			1	.045	0.
LACUNA MARMORATA	ND			1	.002	0.
CRUSTACEA						
BALANUS GLANDULA	ND			1	2.475	1.442
GNORIMOSPHAEROMA OREGONENSIS	ND			1	.003	0.

FALL 1974

STATION NBR:1 YAKUTAT DATE: 10/1[illegible]/74
LATITUDE: 59 3230N LONGITUDE: 139 52 50 W
STATION INVESTIGATE FOR 2.5 HOURS BEGINNING AT 1[illegible]00 IN TIME ZONE: + 9
CATALOG NBR:AB740369 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 13:15 ARROW NBR: Z01 GEAR: POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: o* LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
PYLATELLA LITTORALIS	No				2.351	.698
FUCUS DISTICHUS	ND				3.416	● 777
RHODOPHYTA						
GIGARTINA LATISSIMA	NO				.750	00
RHODYMENIA PALMATA	ND				.452	0.
PTEROSIPHONIA ARCTICA	ND				5.772	● 931
LAURENCIA SPECTABILIS	ND				27.705	4.131
ODONTHALIA FLOCCOSA	ND				1*118	.240
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	.385	0.
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND			1	,017	0.
ENCHYTRAEIDAE	ND			24	● 011	0.
MOLLUSCA						
MYTILUS EDULIS	ND			245	24.655	11.058
MYTILUS EDULIS	ND			24	21.250	9.702
MYTILUS EDULIS	NO			15	21.509	10.167
COLLISELLA PELTA	ND			1	.070	0.
LITTORINA SITKANA	ND			28	.448	0,
CRUSTACEA						
BALANUS GLANDULA	ND			106	130499	9.048
INSECTA						
INSECTA	ND			5	.017	0.
INSECTA	ND			5	.009	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 1 YAKUTAT DATE: 10/12/74
LATITUDE: 59 32 30 N LONGITUDE: 139 52 50 W
STATION INVESTIGATED FOR 2.5 HOURS BEGINNING AT 12:00 IN TIME ZONE: + 9
CATALOG NBR: AB740370 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010352 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 13:15 ARROW NBR: D01 GEAR: POINT SAMPLE
ELEVATION: 2.28 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
ENDOCLADIA MURICATA	ND				1.395	.294
RHODYMENIA PALMATA	ND				.065	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND				2.240	.285
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND				.492	0.
ENCHYTRAEIDAE	ND			616	.183	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1514	175.510	77.200
MYTILUS EDULIS	ND			482	353,000	16$.300
MYTILUS EDULIS	ND			282	520.690	251.000
COLLISELLA PELTA	ND			23	.417	0.
COLLISELLA DIGITALIS	ND			3	.208	0.
NOTOACMAEA SCUTUM	ND			1	.050	0.
LITTORINA SITKANA	ND			89	.934	0.
ARACHNIDA						
HALACARIDAE	ND			1	.002	0.
CRUSTACEA						
BALANUS GLANDULA	ND				20.936	14.153
INSECTA						
CHIRONOMIDAE	ND	IMTR		2	*010	0,

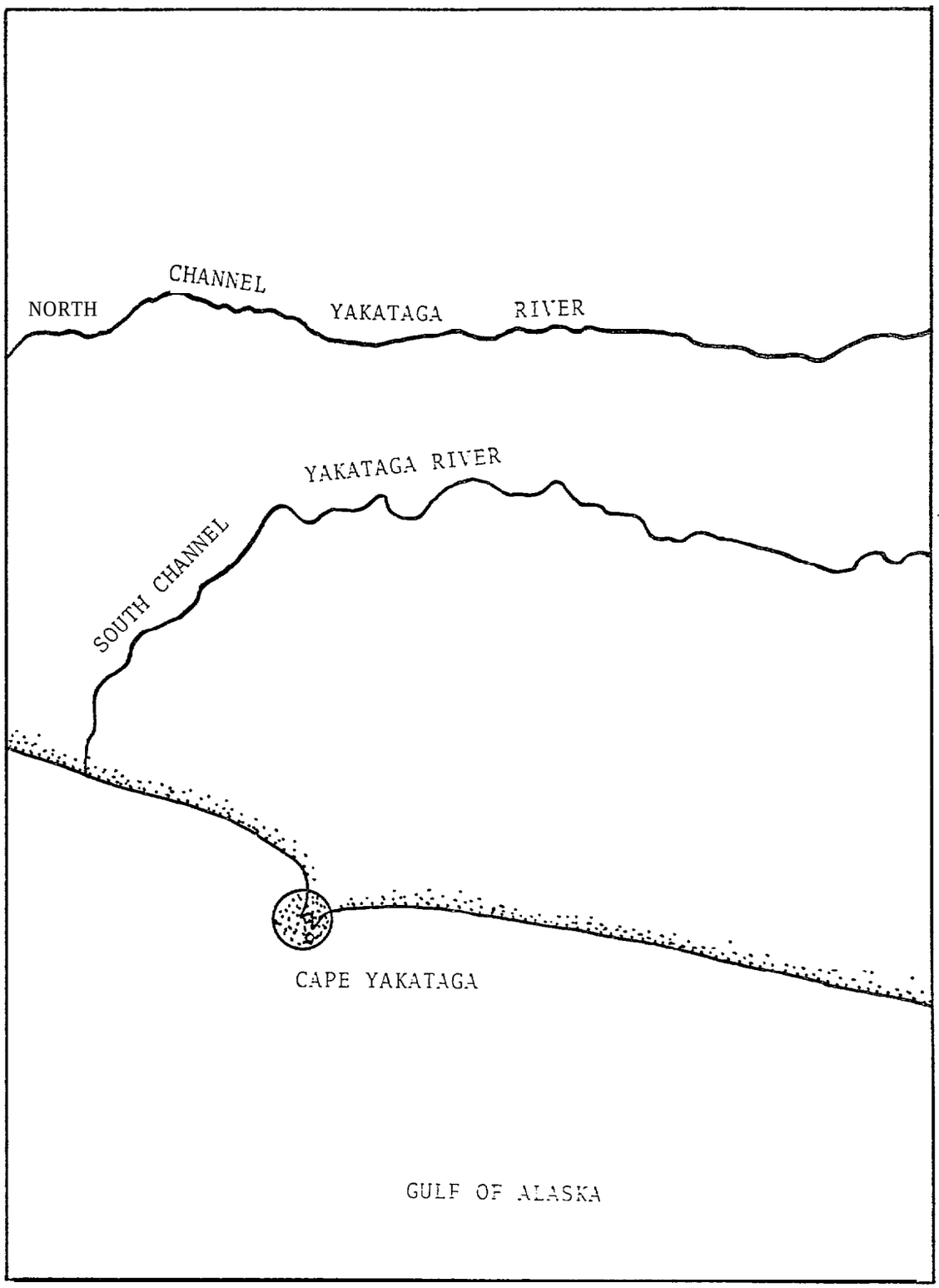

Figure A-3. Cape Yakataga sampling site.

CHLOROPHY TA
Ulothrix sp.
Ulothrix laetevirens
Enteromorpha linza
Ul va lactuca
Rhizocloni urn riparium
Urospira mirabilis
Chae tomorpha sp.
Codium fragile
PHAE OPHY TA
Phaeophyta
Ectocarpus parvus
Ectocarpus simulans
Pylaiella littorals
Ralfsia pacifica
Elachistea fucicola
Haplogloia andersonii
Soranthera ulvoidea
Scytosiphon lomentaria
Laminar ia sp.
Fucus distichus
RHODOPHY TA
Rhodophyta
C r yptosiphonia woodii
Litho thamnion sp.
Callophyllis flabellulata
Gigar tins papillata
Gigar tina latissima
Halos accion glandiforme
Rhod ymenia palmata
Pterosiphonia bipinnata
Odonthalia floccosa
CNIDARIA
Hydroidea
Sertularella tricuspidata
Anthrozoa
TURBE LLARIA
Turbellaria
RHYNCHOCOELA
Rhynchocoela
Emplectonema sp.
Emplectonema gracile
NE MA TODA
Nematoda
ANNE LIDA
Annelida

ANNE LIDA cont.

Polychaeta
Eteone **pacifica**
Eulalia **viridis**
Typos yllis **sp.**
Typos yllispulchra
Typos yllisfasciata
Typosyllis **a. adamantea**
Exogone verugera
Nereis sp.
Spionidae
Spio filicornis
Capitella captiata
Sabellidae
Chone **infundibuliformis**
Fabricia sabella
Enchytraeidae

MOLLUSCA

Mytilus edulis
Protothaca **s taminea**
Gastropoda
Collisella **sp.**
Collisella **pelta**
Littorina sitkana
Littorina scutulata
Lacuna sp.
Lacuna carininata
Lacuna marmorata
Nucella lamellosa

PYCNOGONIDA

Pycnogonid

CRUSTACEA

Harpacticoida
Balanus **sp.**
Balanus glandula
Pentidotea resects
Pentidotea wosensenskii
Gnoramosphaerorna sp.
Gnoramosphaeroma oregonensis
Amphipoda
Ampithoe sp.
Ampithoe rubricata
Ampithoe **rubricatoides**
Calliopiidae
Oligochinus **lighti**
Calliopiella **pratti**
Paramoera columbiana

CRUSTACEA cont.

Pontogeneia kondakovi

Anisogammarus subcarinatus

Hyale *sp.*

Parallorchestes *sp.*

INSECTA

Insecta

Chironomidae

BRYOZOA

Bryozoan

Microporina sp.

ASTEROIDEA

Leptasterias hexactis

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/12/7
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.0 HOURS BEGINNING AT 1:30 IN TIME ZONE: + 9
CATALOG NBR: AB740371 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402?010400 METER NBR: 0 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONOITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND				4.263	1,467
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				4.928	2.631
FUCUS DISTICHUS	ND	STRL			.329	0.
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				3.970	1.259
ANNELIDA						
POLYCHAETA	ND	FRAG		1	.003	0.
MOLLUSCA						
MYTILUS EDULIS	ND			110	.186	o.
COLLISELLA PELTA	ND			4	.032	0.
LACUNA MARMORATA	ND			271	.286	0.
CRUSTACEA						
BALANUS GLANDULA	ND			142	0.	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			13	.066	0.
AMPITHOE RUBRICATOIDES	ND			11	,046	0.
BRYOZOAN						
BRYOZOAN	ND			210	0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/12/74
LATITUDE 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.0 HOURS BEGINNING AT 1:30 IN TIME ZONE: + 9
CATALOG NBR: AB740372 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010396 METER NBR: 10 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.36 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				16.261	9.546
ENTEROMORPHA LINZA	ND				12.040	3.424
UROSPIRA MIRABILIS	ND				.013	0.
CLADOPHORA SP	ND				.442	0.
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				8.293	4.130
FUCUS DISTICHUS	ND	STRL			1.887	.994
TURBELLARIA						
TURBELLARIA	ND			1	.001	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.007	0.
EMPLECTONEMA GRACILE	ND	FRAG		1	.089	0.
ANNELIDA						
ETEONE PACIFICA	ND			8	.006	0.
NEREIS SP	ND			22	.032	0.
SPIONIDAE	ND			7	.002	0.
ENCHYTRAEIDAE	ND			117	.029	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1107	4.593	0.
LACUNA MARMORATA	ND			170	.245	0.
CRUSTACEA						
BALANUS GLANDULA	ND			466	12.325	7.751
GNOR MOSPHAEROMA SP	ND			48	.319	0.
AMPITHOE RUBRICATOIDES	ND			24	.136	0.
CHIONOECETES SP	ND			1	.003	0.
INSECTA						
INSECTA	ND			1	.001	0.
CHIRONOMIDAE	ND	MTA		51	.048	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 197

STATION NBR: 2 YAKATAGA DATE: 10/12/74
LATITUDE: 60 3 80 N LONGITUDE: 1472590 W
STATION INVESTIGATED FOR 2.0 HOURS BEGINNING AT 1:30 IN TIME ZONE: + 9
CATALOG NBR: AB740373 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010390 METER NBR: 20 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.67 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME! 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX SP	No				.068	o,
ULVA LACTUCA	ND				1,459	,321
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				116.233	47.138
FUCUS DISTICHUS	ND	STRL			2.590	.504
RHODOPHYTA						
GIGARTINA LATISSIMA	ND				40,297	6,107
ODONTHALIA FLOCCOSA	ND				4.880	1.470
TURBELLARIA						
TURBELLARIA	No			17	.037	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			2	.020	0,
EMPLECTONEMA GRACILE	ND			1	●001	0.
NEMATODA						
NEMATODA	ND			6	.001	0.
ANNELIOA						
ETEONE PACIFICA	ND			12	.007	0.
NEREIS SP	ND			2	.011	0.
ENCHYTRAEIDAE	ND			250	.219	0.
MOLLUSCA						
MYTILUS EDULIS	ND			406	1.161	.794
LITTORINA SITKANA	ND			1	●011	0s
LACUNA MARMORATA	ND			58	,271	o*
CRUSTACEA						
HARPACTICOIDA	ND			6	.001	00
BALANUS GLANDULA	ND			21	1*510	.513
GNORIMOSPHAEROMA OREGONENSIS	NO			1	.008	0,
AMPITHOE SP	ND			11	.013	0,
AMPITHOE RUBRICATOIDES	ND			123	10173	0,
INSECTA						
CHIRONOMIDAE	ND	IMTR		172	.220	0,

FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/12/74
LATITUDE: 60 3 80 N LONGITUDE: 147 23 90 W
STATION INVESTIGATED FOR 2.0 HOURS BEGINNING AT 1:30 IN TIME ZONE: + 9
CATALOG NBR: AB740374 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010396 METER NBR: 30 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR: GEAR: TRANSECT
ELEVATION: 2.28 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT GRAMS	DRY WEIGHT GRAMS)
CHLOROPHYTA						
ENTEROMORPHA LINZA	ND				2.080	.215
RHIZOCLONIUM RIPARIUM	ND				.004	0.
PHAEOPHYTA						
ELACHISTEA FUCICOLA	ND				.033	0.
SCYTOSIPHON LOMENTARIA	ND				.192	0.
FUCUS DISTICHUS	ND				.735	0.
RHODOPHYTA						
HALOSACCION GLANDIFORME	ND				2.020	.260
ODONTHALIA FLOCCOSA	ND				.040	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND			13	.021	0.
NEMATODA						
NEMATODA	ND			3	.001	0.
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND			4	.027	0.
NEREIS SP	ND			3	.001	0.
ENCHYTRAEIDAE	ND			90	0.	0.
ENCHYTRAEIDAE	ND			78	.036	0.
MOLLUSCA						
MYTILUS EDULIS	ND			447	1.380	.749
COLLISELLA PELTA	ND			3	.003	0.
LACUNA MARMORATA	ND			59	.105	0.
CRUSTACEA						
BALANUS GLANDULA	ND			516	7.227	4.535
AMPITHOE RUBRICATOIDES	ND			6	.038	0.
INSECTA						
INSECTA	ND			1	.001	0.
INSECTA	ND			4	.030	0.
INSECTA	ND			5	.002	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/12/74
LATITUDE: 60 3 80 N LONGITUDE: 14725 90 w
STATION INVESTIGATE) FOR 2.0 HOURS BEGINNING A T 1:30 IN TIME ZONE: + 9
CATALOG NBR:AB740375 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010388 METERNBR: 40 SURFACETOPOGRAPHY:NO INFORMATION
SAMPLING TIME: 2x30 ARROW NBR: GEAR: TRANSECT
Elevation 2.28 METERS QUADRAT SIZE: ● 0625 SQUAREMETERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA LINZA	ND				● 132	o*
ULVA LACTUCA	ND				● 497	0.
PHAEOPHYTA						
FUCUS DISTICHUS	ND				12.366	2.370
RHODOPHYTA						
RHODOPHYTA	ND				1● 945	● 611
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND	FRAG		1	.011	o.
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND			1	.004	0.
MOLLUSCA						
MYTILUS EDULIS	ND			27	● 050	0,
COLLISELLA SP	ND			1	.007	0.
LITTORINA SITKANA	ND			7	.033	0.
LACUNA MARMORATA	ND			1	.005	0.
CRUSTACEA						
BALANUS GLANDULA	ND			65	10051	,634
INSECTA						
CHIRONOMIDAE	IND	IMTR		1	,001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:2 YAKATAGA DATE: 10/12/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.0 HOURS BEGINNING AT 1:30 IN TIME ZONE: + 9
CATALOG NBR:AB740376 ZONE/TRANSECT: SUBSTRATE: BEDROCK
PHOTOGRAPH NBR: 7402010411 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR: D 3 GEAR: ARROW
ELEVATION: 1.67 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT' (GRAMSI
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		1	.510	0.
RHODOPHYTA						
CALLOPHYLLIS FLABELLULATA	ND				.972	0.
GIGARTINA PAPILLATA	ND				5.138	0.
RHODYMENIA PALMATA	ND				18.500	8.198
ODONTHALIA FLOCCOSA	ND				5.425	.910
TURBELLARIA						
TURBELLARIA	ND			2	.001	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	NO	FRAG		1	.007	O*
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND			1	.003	0.
ENCHYTRAEIDAE	ND			5	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			588	0.	0.
MYTILUS EDULIS	ND				3.823	2.070
COLLISELLA PELTA	ND			41	35.873	20.990
LACUNA MARMORATA	No			48	.130	O*
CRUSTACEA						
BALANUS GLANDULA	ND			34	2.733	1.786
AMPHIPODA	ND			23	.207	0.
INSECTA						
CHIRONOMIDAE	ND	IMTR		3	.002	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:2 YAKATAGA DATE: 10/1,2/74
LATITUDE: 60 3 80 N Longitude 14725 90 W
STATION INVESTIGATED FOR 2.0 HoURS BEGINNING AT 1:30 IN TIME ZONE: +9
CATALOG NBR:AB740377 ZONE/TRANSECT! SUBSTRATE: BEDROCK
PHOTOGRAPH" NBR:7402010419METERNBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR:D 9 GEAR: ARROW
ELEVATION: 1.67 METERS QUADRAT SIZE: ● 0625 SQUAREMETERS SEDIMENT VOLUME: o* LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA LINZA	ND				15.968	4.655
CLADOPHORA SP	ND				.026	0.
PHAEOPHYTA						
ECTOCARPUS PARVUS	ND				4.942	2.200
RHODOPHYTA						
RHODYMENIA PALMATA	ND				,933	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND	FRAG		1	.006	0.
ANNELIDA						
TYPOSYLLIS SP.	ND	FRAG		1	.001	o*
NEREIS SP	ND			5	.005	o.
ENCHYTRAEIDAE	ND			118	.036	0.
MOLLUSCA						
MYTILUS EDULIS	ND			3648	12.453	5.693
COLLISELLA PELTA	ND			11	4.241	2.449
LITTORINA SITKANA	ND			1	.014	o.
LACUNA MARMORATA	No			132	.142	0.
CRUSTACEA						
BALANUS GLANDULA	ND			472	3.462	1.851
PENTIDOTEA WOSENSENSKII	ND			1	● 109	0.
AMPITHOE RUBRICATOIDES	ND			77	● 599	0.
INSECTA						
CHIRONOMIDAE	ND	IMTR		91	.113	0.
UNKNOWN	ND				.048	0,

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/12/74
LATITUDE: 60 3 85 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.0 HOURS BEGINNING AT 1:30 IN TIME ZONE: + 9
CATALOG NBR:A8740378 ZONE/TRANSECT: SUBSTRATE: BEDROCK
PHOTOGRAPH NBR:7402010425 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR: 020 GEAR: ARROW
ELEVATION: 1036 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CLADOPHORA SP	ND				.731	o.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				.794	o*
ODONTHALIA FLOCCOSA	ND				.118	o,
TURBELLARIA						
TURBELLARIA	ND			5	.004	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND	FRAG		1	.023	0.
ANNELIDA						
ENCHYTRAEIDAE	ND			5	.002	o*
MOLLUSCA						
MYTILUS EDULIS	NO			102	.206	o,
COLLISELLA PELTA	ND				1.985	1.353
LITTORINA SITKANA	ND			1	.005	o,
LITTORINA SCUTULATA	ND			1	.012	0,
LACUNA MARMORATA	ND			6	.003	0.
CRUSTACEA						
BALANUS GLANDULA	ND			68	.602	0.
AMPITHOE RUBRICATOIDES	ND			3	.045	0.
INSECTA						
CHIRONOMIDAE	ND	IMTR		3	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:2 YAKATAGA DATE: 10/12/74
LATITUDE: 60 3 80 N LONGITUDE: 14'7 2590W
STATION INVESTIGATED FOR 2.0 HOURS BEGINNING AT 1:30 IN TIME ZONE: + 9
CATALOG NBR:AB740379 ZONE/TRANSECT: SUBSTRATE: BEDROCK
PHOTOGRAPH NBR: 7402010434 METERNBR: SURFACE TOPOGRAPHY:NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR: D43 GEAR: ARROW
Elevation .75 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS'
CHLOROPHYTA						
UROSPIRA MIRABILIS	ND				● 997	o*
CLADOPHORA SP	ND				● 147	0.
PHAEOPHYTA						
PHAEOPHYTA	ND			8	.025	0.
LAMINARIA SP	ND				.011	0.
RHODOPHYTA						
RHODYMENIA pALMATA	ND				200840	5.570
ODONTHALIA FLOCCOSA	ND				.539	00
CNIDARIA						
HYDROIDEA	ND				● 015	0.
TURBELLARIA						
TURBELLARIA	ND			15	.013	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.001	0,
ANNELIDA						
POLYCHAETA	ND			1	0001	0,
ETEONE PACIFICA	ND			4	.001	0.
TYPOSYLLIS FASCIATA	ND			1	.001	0.
SPIONIDAE	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			401	,952	00
GASTROPODA	ND			2	.029	0.
COLLISELLA PELTA	ND			5	1.588	.685
LACLINA MARMORATA	ND			826	1.818	0959
NUCELLA LAMELLOSA	ND			3	.054	0.
CRUSTACEA						
BALANUS GLANDULA	ND			48	● 828	● 511
PENTIDOTEA WOSENSENSKII	NO			1	.007	o,
AMPITHOE RUBRICATOIDES	ND			5	.087	0.
PONTOGENEIA KONDAKOVI	ND			2	● 037	0.
PARALLORCHESTES SP	ND			2	.022	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/12/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.0 HOURS BEGINNING AT 1:30 IN TIME ZONE: + 9
CATALOG NBR: AB740380 ZONE/TRANSECT: SUBSTRATE: BEDROCK
PHOTOGRAPH NBR: 7402010436 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR: D45 GEAR: ARROW
ELEVATION! 1.06 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: o* LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CLADOPHORA SP	ND				.552	0.
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				9.692	1.900
RHODOPHYTA						
RHODYMENIA PALMATA	ND				11.685	3.290
ODONTHALIA FLOCCOSA	ND				1.368	.215
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.002	0.
ANNELIDA						
ENCHYTRAEIDAE	ND			1	.001	0.
ENCHYTRAEIDAE	ND			4	.008	0.
MOLLUSCA						
MYTILUS EDULIS	ND			432	2.172	● 414
COLLISELLA pELTA	ND			24	6.611	3.591
LACUNA MARMORATA	ND			159	.330	0.
CRUSTACEA						
HARPACTICOIDA	ND			3	.001	0.
BALANUS GLANDULA	ND			118	2.898	1.380
PENTIDOTEA WOSENSENSKII	ND			1	.007	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			2	.020	0.
AMPITHOE RUBRICATOIDES	ND			58	.238	0.
INSECTA						
CHIRONOMIDAE	ND	IMTR		10	.008	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1 :74

STATION NBR: 2 YAKATAGA DATE: 10/12/74
LATITUDE: 60 3 80 N LONGITUDE: 14725 90 W
STATION INVESTIGATED FOR 2.0 HOURS BEGINNING AT 1:30 IN TIMF ZONE: + 9
CATALOG NBR: AB740381 ZONE/TRANSECT : SUBSTRATE: BEDROCK
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 2:30 ARROW NBR: D 49 GEAR: ARROW
Elevation METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME% 0, LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA LINZA	ND				.568	.111
CLADOPHORA SP	ND				3.218	0,
PHAEOPHYTA						
PYLAIELLA LITTORALIS	No				3.218	1.289
FUCUS DISTICHUS	ND	STRL			.003	o*
RHODOPHYTA						
RHODYMENIA PALMATA	ND				.168	0.
ODONTHALIA FLOCCOSA	ND				.194	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND	FRAG		1	● 112	0.
ANNELIDA						
ETEONE PACIFICA	ND			1	.003	o*
TYPOSYLLIS FASCIATA	NO				.001	o*
ENCHYTRAEIDAE	ND			31	.019	0“
MOLLUSCA						
MYTILUS EDULIS	ND			232	2.365	1.080
COLLISELLA PELTA	ND			20	2.991	1.785
LITTORINA SCUTULATA	ND			1	.016	0.
LACUNA MARMORATA	ND			22	.027	0.
CRUSTACEA						
BALANUS GLANDULA	ND			99”	10626	1.043
GNORIMOSPHAEROMA OREGONENSIS	ND			1	0005	0.
AMPITHOE RUBRICATOIDES	ND			21	.084	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740382 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: 0 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT GRAMS)
CHLOROPHYTA						
UROSPIRA MIRABILIS	ND				3.730	1.647
PHAEOPHYTA						
RALFSIA PACIFICA	ND			5	0.	0.
SORANTHERA ULVOIDEA	ND			2	.002	0.
FUCUS DISTICHUS	ND	STRL			24.079	7.069
RHODOPHYTA						
LITHOTHAMNION SP	ND			1	0.	0.
RHODYMENIA PALMATA	ND	FRAG		1	.014	0.
ODONTHALIA FLOCCOSA	ND				1.231	.227
TURBELLARIA						
TURBELLARIA	ND			5	.001	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.001	0.
ANNELIDA						
ANNELIDA	ND				.001	0.
ETEONE PACIFICA	ND			23	.019	0.
TYPOSYLLIS FASCIATA	ND			11	.002	0.
SPIONIDAE	ND			24	.009	0.
CHONE NFUNDIBULIFORMIS	ND			3	.003	0.
ENCHYTRAEIDAE	ND	FRAG		1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			303	.279	0.
COLLISELLA PELTA	ND			1	.001	0.
LACUNA CARIN NATA	ND			10	.056	0.
LACUNA MARMORATA	ND			49	.108	0.
CRUSTACEA						
HARPACTICOIDA	ND				0.	0.
BALANUS GLANDULA	ND			13	.093	0.
AMPHIPODA	ND			16	.269	0.
AMPITHOE RUBRICATOIDES	ND			8	.090	0.
INSECTA						
INSECTA	ND			1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740383 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7'402010389 METER NBR: 10 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
RHIZOCLONIUM RIPARIUM	ND	FRAG		1	o*	0.
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		4	1.082	.967
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND	FRAG		1	0.	0.
RHODYMENIA PALMATA	ND	FRAG		1	0.	0,
ODONTHALIA FLOCCOSA	ND				6.442	.920
TURBELLARIA						
TURBELLARIA	ND			2	.001	o.
NEMATODA						
NEMATODA	ND				0.	0.
ANNELIDA						
ETEONE PACIFICA	ND			19	.014	0.
TYPOSYLLIS PULCHRA	ND			14	0.	0.
TYPOSYLLIS FASCAATA	ND			8	.002	0.
SPIO FILICORNIS	ND			9	.001	O*
CAPITELLA CAPITATA	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			82	.243	0.
PROTOTHACA STAMINEA	ND			1	0004	0.
COLLISELLA PELTA	ND			3	.018	o*
LACUNA MARMORATA	ND			208	.185	0.
CRUSTACEA						
HARPACTICOIDA	ND				0.	0,
BALANUS GLANDULA	ND			83	.267	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			2	.008	0.
AMPHIPODA	ND			2	.012	0.
AMPITHOE RUBRICATOIDES	ND			12	.080	0.
OLIGOCHINUS LIGHTI	ND			1	.001	0.
UNKNOWN	ND				.005	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740384 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: 20 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				4.148	.574
TURBELLARIA						
TURBELLARIA	ND			2	.001	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	.001	0.
ANNELIDA						
ETEONE PACIFICA	ND			14	.015	0.
TYPOSYLLIS PULCHRA	ND	FRAG		1	0.	0.
TYPOSYLLIS FASCIATA	ND			12	.010	0.
NEREIS SP	ND			1	.025	0.
SPIO FILICORNIS	ND			4	.001	0.
CHONE INFUNDIBULIFORMIS	ND			2	.008	0.
MOLLUSCA						
MYTILUS EDULIS	ND			21	.052	0.
LACUNA MARMORATA	ND			101	.183	0.
CRUSTACEA						
BALANUS SP	ND			10	.001	0.
AMPITHOE RUBRICATOIDES	ND			4	.018	0.
CALLIOPIIDAE	ND			1	.001	0.
PONTOGENEIA KONDAKOVI	ND			2	.029	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/ 1 74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR:A8740385 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: 3 0 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME:14:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: ● 06i?5 SQUAREMETERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	cOUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				4.779	2.856
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL			21.327	4.856
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				1.611	.212
MOLLUSCA						
MYTILUS EDULIS	ND			39	.353	0.
LACUNA CARININATA	ND			14	*101	0.
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			1	● 033	0,
ANISOGAMMARUS SUBCARINATUS	ND			5	● 094	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740386 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010399 METER NBR: 40 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ALFSIA PACIFICA	ND			4	0.	0.
FUCUS DISTICHUS	ND	STRL			153.910	28.090
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				.061	0.
CNIDARIA						
SERTULARELLA TRICUSPIDATA	ND			1	.018	0.
TURBELLARIA						
TURBELLARIA	ND			2	.001	0.
ANNELIDA						
SP OF DAE	ND			17	.003	0.
MOLLUSCA						
MYTILUS EDULIS	ND			18	.220	0.
LACUNA MARMORATA	ND			15	.009	0.
CRUSTACEA						
AMP THOE RUBRICATOIDES	ND			1	.003	0.
OLIGOCHINUS LIGHTI	ND			1	.003	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740387 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010401 METER NBR: 50 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT GRAMS)
CHLOROPHYTA						
CODIUM FRAGILE	ND				3.021	.344
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL			4.269	1.066
MOLLUSCA						
MYTILUS EDULIS	ND			43	.150	0.
LACUNA CARININATA	ND			60	.219	0.
CRUSTACEA						
BALANUS GLANDULA	ND			3	.035	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740388 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010402 METER NBR: 60 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.36 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHAETOMORPHA SP	ND				.196	0.
PHAEOPHYTA						
RALFSIA PACIFICA	ND				.007	0.
FUCUS DISTICHUS	ND	STRL			198.530	41.150
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				1.283	.177
TURBELLARIA						
TURBELLARIA	ND			9	.010	0.
MOLLUSCA						
MYTILUS EDULIS	ND			53	.431	0.
COLL SELLA PELTA	ND			6	.563	0.
LACUNA MARMORATA	ND			110	.267	0.
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			2	.172	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			2	.005	0.
AMPITHOE RUBRICATOIDES	ND			7	.068	0.
PARALLORCHESTES SP	ND			2	.018	0.
~~BRYOZOAN~~						
BRYOZOAN	ND			2	0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF AL AS KA
FALL 1974

STATION NBR:2 YAKATAGA DATE: 10/13/74
LATITUDE% 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR:AB740389 ZONE/TRANSECT: 2 SUBSTRATE: AJO INFORMATION
PHOTOGRAPH NBR: 7402010403 METER NBR:70 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME:14:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	NO	STRL			12.207	2.468
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				4.297	4.297
CNIDARIA						
HYDROIDEA	ND				o*	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.001	0.
ANNELIDA						
ETEONE PACIFICA	ND			2	.001	0.
CHONE INFUNDIBULIFORMIS	ND			2	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			19	.150	0.
LACUNA CARININATA	ND			95	.236	o*
CRUSTACEA						
ANISOGAMMARUS SUBCARINATUS	ND			7	.150	o.
BRYOZOAN						
BRYOZOAN	ND				0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740390 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010408 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: A 1 GEAR: NESTED QUADRAT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA LINZA	ND				.641	0.
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				.120	0.
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				.175	0.
TURBELLARIA						
TURBELLARIA	ND			6	.004	0.
NEMATODA						
NEMATODA	NO			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			262	.170	0.
LACUNA MARMORATA	ND			127	.210	0.
CRUSTACEA						
BALANUS GLANDULA	ND			2	.019	0.
AMPITHOE RUBRICATA	ND			3	.003	0.
BRYOZOAN						
BRYOZOAN	ND				.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740391 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010408 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: B 1 GEAR: NESTED QUADRAT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND				.092	0.
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				.677	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				.810	0.
ODONTHALIA FLOCCOSA	ND				.619	0.
TURBELLARIA						
TURBELLARIA	ND			2	.005	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.001	0.
ANNELIDA						
ETEONE PACIFICA	ND			8	.005	0.
CHONE INFUNDIBULIFORMIS	ND			5	.010	0.
ENCHYTRAEIDAE	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			247	.295	0.
LACUNA MARMORATA	ND			139	.206	0.
PYCNOGONIDA						
PYCNOGONIDA	ND			3	.009	0.
CRUSTACEA						
BALANUS GLANDULA	ND			1	.004	0.
PENTIDOTEA WOSENSENSKII	ND			1	.066	0.
AMPITHOE RUBRICATA	ND			2	.008	0.
AMPITHOE RUBRICATOIDES	ND			1	.007	0.
CALLIOPIELLA PRATTI	ND			4	.001	0.
PONTOGENEIA KONDAKOVI	ND			2	.002	0.
PARALLORCHESTES SP	ND			1	.004	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740392 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010408 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: C 1 GEAR: NESTED QUADRAT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	=OVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				.998	0.
RALFSIA PACIFICA	ND				.001	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				2.178	.437
ODONTHALIA FLOCCOSA	ND				.487	0.
CNIDARIA						
ANTHROZOA	ND			2	.450	0.
TURBELLARIA						
TURBELLARIA	ND			13	.013	0.
NEMATODA						
NEMATODA	ND			2	.001	0.
ANNELIDA						
≤TEONE PACIFICA	ND			9	.002	0.
TYPOSYLLIS FASCIATA	ND			4	.001	0.
EXOGONE VERUGERA	ND			1	.001	0.
CHONE NFUNDIBULIFORMIS	ND			3	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			418	1.100	.370
MYTILUS EDULIS	ND			4	0.	0.
LACUNA MARMORATA	ND			229	.420	0.
NUCELLA LAMELLOSA	ND			1	.052	0.
PYCNOGONIDA						
PYCNOGONIDA	ND			2	.010	0.
CRUSTACEA						
HARPACTICOIDA	ND			4	.007	0.
BALANUS GLANDULA	ND			27	.167	0.
AMPITHOE RUBRICATA	ND			1	.001	0.
AMPITHOE RUBRICATOIDES	ND			3	.020	0.
PONTOGENEIA KONDAKOVI	ND			2	.036	0.
PARALLORCHESTES SP	ND			7	.093	0.
BRYOZOAN						
BRYOZOAN	ND				.001	0.

BASIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 1472590W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR:AB740393 ZONE/TRANSECT: SUBSTRATE:NO INFORMATION
PHOTOGRAPH NBR: 7402010408 METERNBR: SURFACE TOPOGRAPHY% NO INFORMATION
SAMPLING TIME:14:23 ARROW NBR:D1 GEAR: NESTED QUADRAT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME! 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMSI	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				.209	o.
ULVA LACTUCA	ND				.023	0.
PHAEOPHYTA						
RALFSIA PACIFICA	ND			7	0.	o*
RHODOPHYTA						
RHODYMENIA PALMATA	ND				5.503	1.366
ODONTHALIA FLOCCOSA	ND				1.342	.281
CNIDARIA						
SERTULARELLA TRICUSPIDATA	ND				.014	0.
TURBELLARIA						
TURBELLARIA	ND			14	.012	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.001	o*
NEMATODA						
NEMATODA	ND				0.	0.
ANNELIDA						
ETEONE PACIFICA	ND			5	.002	o*
EULALIA VIRIDIS	ND			1	.016	o.
TYPOSYLLIS FASCIATA	ND			4	.002	0.
NEREIS SP	ND			1	.001	0.
SPIONIDAE	ND			10	.001	0.
CHONE INFUNDIBULIFORMIS	ND			3	.004	0.
FABRICIA SABELLA	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			552	.789	0.
COLLISELLA PELTA	ND			1	.012	0.
LACUNA MARMORATA	ND			550	.994	0.
PYCNOGONIDA						
PYCNOGONIDA	ND			1	.002	0.
CRUSTACEA						
HARPACTICOIDA	ND			1	.001	0.
BALANUS GLANDULA	ND			11	.129	0.
PENTIDOTEA WOSENSENSKII	ND			9	.179	0.
AMPHIPODA	ND			1	.019	0.

AMPITHOE RUBRICATOIDES	ND	7	.031	0.
PARALLORCHESTES SP	ND	10	.105	0.
BRYOZOAN				
BRYOZOAN	ND		0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDES 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR:AB740394 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010414 METERNBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: A 6 GEAR: NESTED QUADRAT
ELEVATION: 1006 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				,389	00
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.017	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				.197	o*
ODONTHALIA FLOCCOSA	ND				.110	0.
TURBELLARIA						
TURBELLARIA	ND			2	.005	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND	FRAG		1	● 016	0.
ANNELIDA						
ETEONE PACIFICA	ND			12	● 006	0.
TYPOSYLLIS FASCIATA	ND			19	.004	0.
MOLLUSCA						
MYTILUS EDULIS	ND			752	.573	0.
LACUNA MARMORATA	ND			90	● 140	0.
CRUSTACEA						
BALANUS GLANDULA	ND			1	.003	0.
AMPITHOE RUBRICATOIDES	ND			1	● 009	0.
HYALE SP	ND			1	● 013	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740395 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010414 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: B 6 GEAR: NESTED QUADRAT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				.001	0.
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				.001	0.
RALFSIA PACIFICA	ND			7	0.	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				1.324	.441
TURBELLARIA						
TURBELLARIA	ND			16	.017	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND			1	.003	0.
ANNELIDA						
ETEONE PACIFICA	ND			2	.004	0.
SPIONIDAE	ND			5	.001	0.
SABELLIDAE	ND	FRAG		1	.003	0.
MOLLUSCA						
MYT LUS EDULIS	ND			309	.409	0.
LACUNA SP	ND			373	.608	0.
CRUSTACEA						
BALANUS GLANDULA	ND			1	.140	0.
AMPHIPODA	ND			1	.001	0.
AMPITHOE RUBRICATOIDES	ND				.001	0.
HYALE SP	ND			1	.008	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/'13/74
LATITUDE: 60 3 8 0 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 H O U R S BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740396 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010414 METER NBR: SURFACE TOPOGRAPHY: No INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: C 6 GEAR: NESTED QUADRAT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				.707	o.
PHAEOPHYTA						
RALFSIA PACIFICA	ND			1	0.	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				.807	0.
PTEROSIPHONIA BIPINNATA	ND				.001	o*
TURBELLARIA						
TURBELLARIA	ND			12	.007	o.
NEMATODA						
NEMATODA	ND				0.	0.
ANNELIDA						
ANNELIDA	ND	FRAG		1	.001	0,
ETEONE PACIFICA	ND			24	.017	0.
TYPOSYLLIS FASCIATA	ND			3	.001	0.
SPIONIDAE	ND			1	cool	0,
CHONE INFUNDIBULIFORMIS	ND			1	● 001	00
MOLLUSCA						
MYTILUS EDULIS	ND			726	.519	0,
LACUNA MARMORATA	ND			383	.602	0.
PYCNOGONIDA						
PYCNOGONIDA	ND			4	● 001	0.
CRUSTACEA						
BALANUS GLANDULA	ND			1	0.	0.
AMPHIPODA	ND			2	● 026	0,
AMPITHOE RUBRICATOIDES	ND			1	.009	0.
HYALE SP	ND			1	.022	o*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740397 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010414 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: D 6 GEAR: NESTED QUADRAT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				.808	.271
RHODOPHYTA						
RHODYMENIA PALMATA	ND				3.930	.853
ODONTHALIA FLOCCOSA	ND				.037	0.
TURBELLARIA						
TURBELLARIA	ND			49	.042	0.
NEMATODA						
NEMATODA	ND			2	.001	0.
ANNELIDA						
ETEONE PACIFICA	ND			2	.003	0.
TYPOSYLLIS FASCIATA	ND			24	.005	0.
MOLLUSCA						
MYTILUS EDULIS	ND			417	.466	0.
LACUNA MARMORATA	ND			852	1.413	.658
CRUSTACEA						
BALANUS GLANDULA	ND			4	.001	0.
PENTIDOTEA WOSENSENSKII	ND			2	.031	0.
AMPHIPODA	ND			1	.010	0.
AMPHIPODA	ND			1	.001	0.
HYALE SP	ND			5	.042	0.
BRYOZOAN						
BRYOZOAN	ND			3	0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: [illegible] 3/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: * 9
CATALOG NBR: AB740398 ZONE/TRANSECT: SUBSTRATE: BEDROCK
PHOTOGRAPH NBR: 7402010417 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: D 8 GEAR: ARROW
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				.001	00
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				.001	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				17.130	4.036
CNIDARIA						
SERTULARELLA TRICUSPIDATA	ND				0001	0.
ANNELIDA						
SPIONIDAE	ND			2	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			323	1.311	.562
COLLISELLA PELTA	ND			1	.424	0,
LACUNA SP	ND			740	10469	.581
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			1	.001	0.
AMPITHOE RUBRICATOIDES	ND			5	.226	0.
OLIGOCHINUS LIGHTI	ND			1	.001	0.
HYALE SP	ND			2	boos	0.
BRYOZOAN						
BRYOZOAN	ND				0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: +9
CATALOG NBR: AB740399 ZONE/TRANSECT: SUBSTRATE: BEDROCK
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: D20 GEAR: ARROW
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	NO				.580	0.
PHAEOPHYTA						
ECTOCARPUS SIMULANS	NO				.080	0.
RALFSIA PACIFICA	ND			34	.001	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				21.640	3.899
TURBELLARIA						
TURBELLARIA	ND			76	lo-?	0.
NEMATODA						
NEMATODA	NO			3	cool	0.
ANNELIDA						
ETEONE PACIFICA	ND			14	.010	0.
TYPOSYLLIS FASCIATA	ND			21	.010	0.
CHONE INFUNDIBULIFORMIS	ND			38	.098	0.
ENCHYTRAEIDAE	ND			1	.002	0.
MOLLUSCA						
MYTILUS EDULIS	ND			749	1.949	.933
COLLISELLA PELTA	ND			1	.002	0.
LACUNA MARMORATA	ND			2429	5.330	1.990
PYCNOGONIDA						
PYCNOGONIDA	ND			2	,003	0.
CRUSTACEA						
HARPACTICOIDA	ND			1	.001	0.
BALANUS GLANDULA	ND			71	.127	0.
PENTIDOTEA WOSENSENSKII	ND			16	.440	0.
AMPHIPODA	ND			1	.001	0.
AMPITHOE RUBRICATOIDES	ND			1	.008	0.
CALLIOPIELLA PRATTI	ND			15	.010	0.
PONTOGENEIA KONDAKOVI	ND			1	.007	0.
PARALLORCHESTES SP	ND			3	.035	0.
BRYOZOAN						
BRYOZOAN	ND				.001	0.

ECHINODERMATA LEPTASTERIAS HEXACTIS	NO	2	.0 9	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740400 ZONE/TRANSECT: SUBSTRATE: BEDROCK
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: D43 GEAR: ARROW
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
RHODYMENIA PALMATA	ND				.260	0.
ODONTHALIA FLOCCOSA	ND				.046	0.
TURBELLARIA						
TURBELLARIA	ND			26	.011	0.
MOLLUSCA						
MYTILUS EDULIS	ND			54	.118	0.
LACUNA MARMORATA	ND			741	.699	0.
CRUSTACEA						
PARALLORCHESTES SP	ND			1	.010	0.
BRYOZOAN						
BRYOZOAN	ND			3	.003	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740401 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: F 1 GEAR: POINT SAMPLE
ELEVATION: 1.67 METERS QUADRAT SIZE: ● 0625 SQUAREMETERS SEDIMENT VOLUME: o* LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT [GRAMS]
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		49	6660950	152.550
CNIDARIA						
HYDROIDEA	ND	FRAG		1	.064	o.
TURBELLARIA						
TURBELLARIA	ND			5	.008	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			3	.004	0.
EMPLECTONEMA GRACILE	ND			4	,050	0.
ANNELIDA						
NEREIS SP	ND			1	.002	0.
MOLLUSCA						
MYTILUS EDULIS	ND			92	2,444	1.312
COLLISELLA PELTA	ND			16	3*595	2.034
LACUNA MARMORATA	ND			631	1.580	● 888
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			4	,708	00
AMPITHOE RUBRICATOIDES	ND			2	.013	o*
PARAMOERA COLUMBIANA	NO			116	● 486	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 14725 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR:AB740402 ZONE/TRANSECT : SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACETOPOGRAPHY:NO INFORMATION
SAMPLING TIME:14:23 ARROW NBR: F 2 GEAR: POINT SAMPLE
ELEVATION: 1.67 METERS QUADRAT SIZE: 00625 SQUAREMETERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ELACHISTEA FUCICOLA	NO				3.457	.396
FUCUS DISTICHUS	ND	STRL			631.990	130,690
MOLLUSCA						
MYTILUS EDULIS	ND			11	.239	0.
LACUNA CARININATA	ND			61	.407	0.
CRUSTACEA						
BALANUS GLANDULA	ND			3	.001	0.
PENTIDOTEA RESECTA	ND			4	.613	0.
ANISOGAMMARUS SUBCARINATUS	ND			78	.481	0,

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:2 YAKATAGA DATE: 10/13/'74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR:AB740403 ZONE/TRANSECT: SUBSTRATE:NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: F 3 GEAR:POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND	FRAG		1	.093	o*
PHAEOPHYTA						
HAPLOGLOIA ANDERSONII	ND				.044	o.
FUCUS DISTICHUS	ND	STRL		36	478.800	104.200
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				.045	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			3	.037	0.
EMPLECTONEMA GRACILE	ND			25	.593	0.
MOLLUSCA						
MYTILUS EDULIS	NO			143	3.415	1.576
COLLISELLA PELTA	ND			10	.862	o.
LACUNA MARMORATA	NO			364	,924	0.
CRUSTACEA						
BALANUS GLANDULA	ND			15	.252	0.
PENTIDOTEA WOSENSENSKII	ND			3	.561	0.
AMPITHOE RUBRICATOIDES	ND			1	.003	0.
PARAMOERA COLUMBIANA	ND			4	.015	0.
BRYOZOAN						
MICROPORINA SP	ND				.073	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740404 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010387 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: F 4 GEAR: POINT SAMPLE
ELEVATION: 1.67 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ELACHISTEA FUCICOLA	ND	FRAG		1	.002	0.
FUCUS DISTICHUS	ND	STRL		22	373.800	106.500
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND	FRAG		1	.002	0.
TURBELLARIA						
TURBELLARIA	ND			4	.005	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			2	.003	0.
EMPLECTONEMA GRACILE	ND			1	.007	0.
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND			1	.002	0.
MOLLUSCA						
MYTILUS EDULIS	ND			173	2.697	1.168
MYTILUS EDULIS	ND			3	1.831	.797
MYTILUS EDULIS	ND			1	1.788	.696
COLLISELLA PELTA	ND			14	3.700	1.847
LITTORINA SITKANA	ND			30	.150	0.
AMPITHOE RUBRICATOIDES	ND			7	.053	0.
AMPITHOE RUBRICATOIDES	ND			7	.053	0.
PARAMOERA COLUMBIANA	ND			29	.114	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1 '4

STATION NBR:2 YAKATAGA DATE:]0/13/74
LATITUDE: 60 3 80 N LONGITUDE: 147 2590 w
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00IN TIMEZONE:+ 9
CATALOG NBR:AB740431 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010405 METEI? NBR: SURFACE Topography NO INFORMATION
SAMPLING TIME:14:23 ARROW NBR: Z 1 GEAR: ARROW
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	wET WEIGHT (GRAMS)	DRY wEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				,209	o.
ENTEROMORPHA LINZA	ND				.641	0.
ULVA LACTUCA	ND				.115	0.
PHAEOPHYTA						
ECTOCARPUS SIMULANS	ND				1.788	0.
RALFSIA PACIFICA	ND				● 001	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				80491	0.
ODONTHALIA FLOCCOSA	ND				2.623	o*
CNIDARIA						
SERTULARELLA TRICUSPIDATA	ND				,014	o*
ANTHROZOA	ND			2	.450	0.
TURBELLARIA						
TURBELLARIA	N[)			6	.004	0.
TURBELLARIA	ND			2	,005	0.
TURBELLARIA	ND			13	.013	00
TURBELLARIA	ND			14	.012	o *
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	● 001	0.
RHYNCHOCOELA	ND			1	● 001	0.
NEMATODA						
NEMATODA	ND			1	● 001	0.
NEMATODA	ND			2	.001	o*
ANNELIDA						
ETEONE PACIFICA	ND			19	.009	0.
EULALIA VIRIDIS	ND			1	● 016	o*
TYPOSYLLIS FASCIATA	ND			4	.001	o.
TYPOSYLLIS FASCIATA	ND			4	.002	0.
EXOGONE VERUGERA	ND				.001	0.
NEREIS SP	ND			1	.001	0.
CHONE INFUNDIBULIFORMIS	ND			8	.015	0.
FABRICIA SABELLA	ND			1	.001	0"
ENCHYTRAEIDAE	ND			1	.001	0.

MOLLUSCA				
MYTILUS EDULIS	ND	1490	2.483	0.
COLLISELLA PELTA	ND	1	.012	0.
LACUNA MARMORATA	ND	1045	1.830	0.
NUCELLA LAMELLOSA	ND	1	.052	0.
PYCNOGONIDA				
PYCNOGONIDA	ND	3	.009	0.
PYCNOGONIDA	ND	2	.010	0.
PYCNOGONIDA	ND	1	.002	0.
CRUSTACEA				
HARPACTICOIDA	ND	4	.007	0.
HARPACTICOIDA	ND	1	.001	0.
BALANUS GLANDULA	ND		.196	0.
PENTIDOTEA WOSENSENSKII	ND	10	.245	0.
AMPHIPODA	ND	1	.019	0.
AMPITHOE RUBRICATA	ND	6	.012	0.
AMPITHOE RUBRICATOIDES	ND	11	.058	0.
CALLIOPIELLA PRATTI	ND	4	.001	0.
PONTOGENEIA KONDAKOVI	ND	4	.038	0.
PARALLORCHESTES SP	ND	18	.202	0.
BRYOZOAN				
BRYOZOAN	ND		.001	0.
BRYOZOAN	ND		.001	0.
BRYOZOAN	ND		0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 2 YAKATAGA DATE: 10/13/74
LATITUDE: 6(J 3 80 N LONGITUDE: 147 25 90 W
STATION INVESTIGATED FOR 2.8 HOURS BEGINNING AT 13:00 IN TIME ZONE: + 9
CATALOG NBR: AB740432 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010414 METER NBR: SUNFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 14:23 ARROW NBR: Z 6 GEAR: ARROW
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	QJET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				1.097	0.
PHAEOPHYTA						
ECTOCARPUS SIMULANS	NO				.809	0.
PYLAIELLA LITTORALIS	ND				● 017	0.
RALFSIA PACIFICA	ND				0.	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND				6.258	0.
PTEROSIPHONIA BIPINNATA	ND				● 001	0.
ODONTHALIA FLOCCOSA	ND				.147	0.
TURBELLARIA						
TURBELLARIA	ND			2	.005	0.
TURBELLARIA	ND			16	.017	0.
TURBELLARIA	ND			12	.007	0.
TURBELLARIA	ND			49	.042	0.
RHYNCHOCOELA						
EMPLECTONEMA	ND			4	.019	0,
NEMATODA						
NEMATODA	ND				0.	o*
NEMATODA	ND			2	.001	o.
ANNELIDA						
ANNELIDA	ND			1	.001	00
ETEONE PACIFICA	ND			40	0013	0.
TYPOSYLLIS FASCIATA	ND			46	.027	0.
SPIONIDAE	ND			5	● 001	0.
SPIONIDAE	ND			1	.001	0.
SABELLIDAE	ND			1	● 003	0.
CHONE INFUNDIBULIFORMIS	ND			1	● 001	00
MOLLUSCA						
MYTILUS EDULIS	ND			2204	1.867	0.
LACUNA SP	ND			373	.608	0,
LACUNA MARMORATA	ND			1325	2.155	0.

PYCNOGONIDA				
PYCNOGONIDA	ND	4	.001	0.
CRUSTACEA				
BALANUS GLANDULA	ND	7	.145	0.
PENTIDOTEA WOSENSENSKII	ND	2	.031	0.
AMPHIPODA	ND	1	.001	0.
AMPHIPODA	ND	2	.026	0.
AMPHIPODA	ND	1	.010	0.
AMPHIPODA	ND	1	.001	0.
AMPITHOE RUBRICATOIDES	ND	3	.019	0.
HYALE SP	ND	5	.085	0.
BRYOZOAN				
BRYOZOAN	ND	3	0.	0.

SPECIES OF KATALLA BAY

CHLOROPHYTA
- Chlorophyta
- Ulvalactuca
- Codium fragile

PHAEOPHYTA
- Fucus distichus

RHODOPHYTA
- Bossiella chiloensis
- Pterosiphonia bipinnata
- Odonthalia floccosa

CNIDARIA
- Anthrozoa

RHYNCHOCOELA
- Rhynchocoela

NEMATODA
- Nematoda

ANNELIDA
- Harmothoe imbricata
- Eteone pacifica
- Typosyllis fasciata
- Nereis sp.
- Polydora sp.
- Spio filicornis
- Rhynchospio sp.
- Enchytraeidae

MOLLUSCA
- Mytilus edulis
- Protothaca staminea
- Macoma balthica
- Mya arenaria
- Gastropoda
- Collisella pelts
- Margaritas sp.
- Margaritas helicinus
- Littorina sitkana
- Littorina scutulata
- Lacuna carininata
- Lacuna marmorata
- Cerithiopsis sp.
- Nucella lamellosa
- Odostomia sp.

CRUSTACEA
- Thoracica
- Balanus balanoides
- Balanus glandula
- Balanus rostratus
- Campylaspis verrucosa
- Tanidacea

CRUS TACEA **cont.**

Pentidotea **wosensenskii**

Gnora.mosphaeroma oregonensis

Amphipoda

Ampithoe **rubricata**

Ampithoe rubricatoides

Corophiidae

Anisogammarus subcarinatus

BRYOZOA

Bryozoan

AS TEROIDEA

Leptasterias **sp.**

Leptasterias hexactis

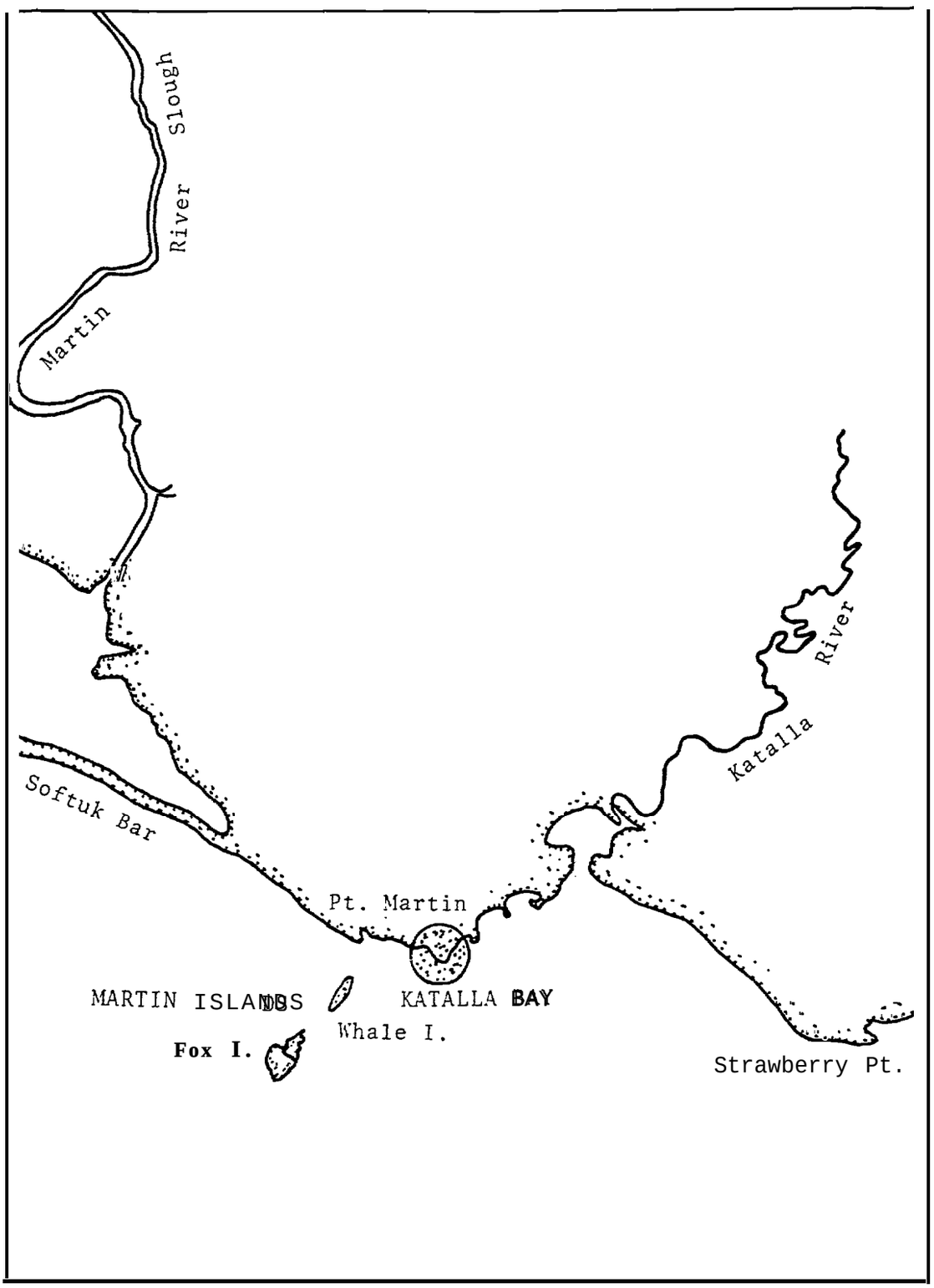

Figure A-4. Katalla **sampling site.**

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

DATE: 10/15/74

STATION NBR: 3 KATELLA
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR: AB740415 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: F 1 GEAR: POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRA			4.354	1.156
MOLLUSCA						
LITTORINA SITKANA	ND			1	.236	0.
LITTORINA SITKANA	ND	DEAD		1	0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 6016 50 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR: AB740416 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: F 2 GEAR: POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	No	STRL			11.082	30110
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			1	.002	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR: AB740417 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: F 4 GEAR: POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		10	31.996	7.413
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				.759	0.
MOLLUSCA						
COLLISELLA PELTA	ND			2	.219	0.
LITTORINA SITKANA	ND			1	.043	0.
LITTORINA SCUTULATA	ND			1	.080	0.
LACUNA MARMORATA	ND			1	.005	0.
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			2	.190	0.

BIOTICDENSITIESOFINTERTIDALORGANISMSFROM THE EASTERN GULF OF ALASKA
FALL 19"74

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N Longitude 144 36 50 W
STATION INVESTIGATE(I FuR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR: AB740418 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: No INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: F 6 GEAR: POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	cOUNT	WET wEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		7	32,000	7.600
MOLLUSCA						
LITTORINA SITKANA	ND			2	● 165	00

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 N TIME ZONE: +10
CATALOG NBR: AB740419 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR = 7 GEAR: POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES DENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	NO	STRL		2	.163	0.
RHODOPHYTA						
BOSSIELLA CHILOENSIS	ND				.070	0.
ODONTHALIA FLOCCOSA	ND				.834	0.
MOLLUSCA						
MYTILUS EDULIS	ND			2	.052	0.
MYTILUS EDULIS	ND				119.300	64.900
CRUSTACEA						
AMPITHOE RUBRICATOIDES	ND			M	.008	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:3KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5HOURS HEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR:AB740420 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010482 METER NBR: SURFACE TOPOGRAPHY; NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR:F 8 GEAR:POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL			42.140	8.919
MOLLUSCA						
MYTILUS EDULIS	ND			1	.152	0.
COLLISELLA PELTA	ND			6	.239	0.
LITTORINA SITKANA	ND			2	.248	0.
LITTORINA SCUTULATA	ND			5	● 353	0.
LACUNA CARININATA	ND			19	.235	0.
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			7	.417	0*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR: AB740422 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010484 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: F10 GEAR: POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		11	48.200	11.200
MOLLUSCA						
MYTILUS EDULIS	ND			1	5.100	2.176
COLLISELLA PELTA	ND			12	4.500	4.500
MARGARITES HELICINUS	ND			2	.001	0.
LITTORINA SITKANA	ND			2	.154	0.
LITTORINA SCUTULATA	ND			5	.201	0.
LACUNA CARININATA	ND			19	.422	0.
CRUSTACEA						
BALANUS GLANDULA	ND			7	.508	0.
PENTIDOTEA WOSENSENSKII	ND			3	.758	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			1	.001	0.
AMPITHOE RUBRICATOIDES	ND			1	.001	0.
COROPHIIDAE SP	ND			1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
ALL [illegible]

STATION NBR R: 3 KATALLA DATE: 10/15/74
LATITUDE, 601650 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR:AB740423 ZONE/TRANSECT: SUBSTRATE:NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACETOPOGRAPHY:NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: F11 GEAR: POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE: ● 0625 SQUAREMETERS SEDIMENT VOLUMEI 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS]	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		10	33.945	8.111
MOLLUSCA						
MYTILUS EDULIS	ND			4	16.471	7.130
MYTILUS EDULIS	ND			1	.001	0.
BALANUS GLANDULA	No			10	.959	0.
BALANUS GLANDULA	ND			10	.959	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			1	,014	0.
AMPITHOE RUBRICATOIDES	ND			1	,004	0.
COROPHIIDAE SP	NO			1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR: AB740424 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010485 METER NBR SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR F12 GEAR: POINT SAMPLE
ELEVATION: 1.97 METERS QUADRAT SIZE .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND			1	.004	0.
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		12	40.310	9.798
MOLLUSCA						
MYTILUS EDULIS	ND			2	.004	0.
GASTROPODA	ND			8	.039	0.
LITTORINA SCUTULATA	ND			1	.048	0.
CRUSTACEA						
THORACICA	ND			4	.024	0.
TANIDACEA	ND			1	.001	0.
PENTIDOTEA WOSENSENSKII	ND			6	.213	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDEI 144 36 50 w
STATION INVESTIGATED FOR 3,5 HOURS BEGINNING AT 3:00 IN TIMF ZONE: +10
CATALOG NBR:AB740425 ZONE/TRANSECT: SUBSTRATE: NO_INEORMATION
PHOTOGRAPHNBR: 7402010498 METER NBR: SURFACE TOPOGRAPHY: NO-INFORMATION
SAMPLING TIME: 0:00 ARROW NBR:14 GEAR: ARROW
ELEVATIONI METERS QUADRAT SIZE; .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	wET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CODIUM FRAGILE	ND				2.140	,448
RHODOPHYTA						
BOSSIELLA CHILOENSIS	ND				.235	0.
CNIDARIA						
ANTHROZOA	ND			3	2.720	● 420
ANNELIDA						
HARMOTHOE IMBRICATA	ND			1	.001	0.
NEREIS SP	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			12	36.897	15.757
MYTILUS EDULIS	ND			8	.451	0,
PROTOTHACA STAMINEA	ND			1	.003	0.
MYA ARENARIA	ND			1	.164	0.
COLLISELLA PELTA	ND			75	6.230	3.501
LITTORINA SITKANA	ND			11	.072	0.
LITTORINA SCUTULATA	ND			2	.053	0.
CRUSTACEA						
BALANUS BALANOIDES	ND			1	.072	0.
BALANUS GLANDULA	ND			14	.233	0.
BALANUS ROSTRATUS	ND			1	.407	0.
PENTIDOTEA WOSENSENSKII	ND			2	.103	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			21	,226	0.
AMPITHOE RUBRICATOIDES	NO			62	1.134	0,
COROPHIIDAE SP	ND			1	.001	0,
ANISOGAMMARUS SUBCARINATUS	ND			1	.001	0.
BRYOZOAN						
BRYOZOAN	ND			3	10995	0404
ECHINODERMATA						
LEPTASTERIAS HEXACTIS	ND			1	.423	0,

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50 W
STATION NVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR AB740426 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7402010500 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: 18 GEAR: ARROW
ELEVATION: METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		1	.120	0.
RHODOPHYTA						
BOSSIELLA CHILOENSIS	ND			3	.160	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.081	0.
NEMATODA						
NEMATODA	ND				.001	0.
ANNELIDA						
ETEONE PACIFICA	ND			3	.007	0.
ENCHYTRAEIDAE	ND			2	.002	0.
MOLLUSCA						
MYTILUS EDULIS	ND			347	31.228	14.253
MYTILUS EDULIS	ND			50	40.599	16.887
MYTILUS EDULIS	ND			157	548.550	235.050
MYTILUS EDULIS	ND	DEAD		14	0.	0.
MYTILUS EDULIS	ND	DEAD		1	0.	0.
MYTILUS EDULIS	ND	DEAD		8	0.	0.
COLLISELLA PELTA	ND			57	5.046	3.601
MARGARITES SP	ND	DEAD		1	0.	0.
MARGARITES HELICINUS	ND			6	.018	0.
LITTORINA SITKANA	ND			23	1.093	.819
LITTORINA SCUTULATA	ND			15	.406	0.
LACUNA CARINATA	ND			20	.278	0.
LACUNA MARMORATA	ND			12	.028	0.
NUCELLA LAMELLOSA	ND			2	.032	0.
ODOSTOMIA SP	ND			2	.012	0.
CRUSTACEA						
BALANUS GLANDULA	ND			104	3.456	2.161
BALANUS GLANDULA	ND			59	6.866	4.705
BALANUS GLANDULA	ND	DEAD		12	0.	0.
TANIDACEA	ND			5	.001	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			289	1.152	.231
AMPHIPODA	ND			2	.010	0.
AMPHIPODA	ND			1	.009	0.

OZOAN BRYOZOAN	ND	9	3.025	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR: AB740427 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: 39 GEAR: ARROW
ELEVATION: METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL			1.528	0.
RHODOPHYTA						
BOSSIELLA CHILOENSIS	ND				.118	0.
PTEROSIPHONIA BIPINNATA	ND				.038	0.
ODONTHALIA FLOCCOSA	ND				.370	0.
ANNELIDA						
TYPOSYLLIS FASCIATA	ND			2	.003	0.
RHYNCHOSPIO SP	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			45	7.096	3.070
MYTILUS EDULIS	ND			3	2.953	1.285
MYTILUS EDULIS	ND			28	83.100	36.100
PODOTHACA STAMINEA	ND			1	.002	0.
COLLISELLA PELTA	ND			32	2.611	1.817
MARGARITES HELICINUS	ND			1	.002	0.
LITTORINA SCUTULATA	ND	DEAD		1	0.	0.
LACUNA MARMORATA	ND			16	.118	0.
ODOSTOMIA SP	ND	DEAD		1	0.	0.
CRUSTACEA						
BALANUS GLANDULA	ND			5	2.097	1.200
CAMPYLASPIS VERRUCOSA	ND			1	.001	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			96	.752	0.
AMPITHOE RUBRICATOIDES	ND			1	.004	0.
COROPHIIDE SP	ND			4	.002	0.

BIOTICDENSITIES OF INTERTIDAL ORGANISMS FROM THEEASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50W
STATION INVESTIGATED FOR 305 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR:AB740428 ZONE/TRANSECT: SUBSTRATE: NOINFORMATION
PHOTOGRAPHNBR:7402010510 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: 4 3 GEAR: ARROW
ELEVATION: METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
	ND			5	,052	0.
CNIDARIA						
ANTHROZOA	ND			1	,060	0,
ANNELIDA						
ETEONE PACIFICA	ND			1	● 002	0.
TYPOSYLLIS FASCIATA	ND			2	.003	0.
ENCHYTRAEIDAE	ND			3	.00s	o*
MOLLUSCA						
MYTILUS EDULIS	ND			70	229.000	105*7OO
MYTILUS EDULIS	ND			14	6.400	3.843
MYTILUS EDULIS	ND			68	5.700	3.441
MACOMA BALTHICA	ND			1	.390	0.
COLLISELLA PELTA	ND			90	10530	● 802
MARGARITAS HELICINUS	ND			1	.007	o*
LITTORINA SITKANA	ND			1	.012	o.
LITTORINA SITKANA	ND	DEAD			0.	o*
LITTORINA SCUTULATA	ND	DEAD			0.	o*
LACUNA MARMORATA	ND			1	.001	0.
LACUNA MARMORATA	ND	DEAD			0.	0.
CERITHIOPSIS SP	ND			5	.052	0.
CRUSTACEA						
BALANUS GLANDULA	ND			8	● 350	0.
TANIDACEA	ND			1	.001	o*
GNORIMOSPHAEROMA OREGONENSIS	ND			268	1.120	.225
AMPHIPODA	ND			1	.002	0.
BRYOZOAN						
BRYOZOAN	ND			3	● 004	0.
ECHINODERMATA						
LEPTASTERIAS SP	ND			1	.010	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 3 KATALLA DATE: 10/15/74
LATITUDE: 60 16 50 N LONGITUDE: 144 36 50 W
STATION INVESTIGATED FOR 3.5 HOURS BEGINNING AT 3:00 IN TIME ZONE: +10
CATALOG NBR: AB740429 ZONE/TRANSECT : SUBSTRATE: NO INFORMATION
PHOTOGRAPH" NBR: 7402010509 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:45 ARROW NBR: 49 GEAR: ARROW
ELEVATION: METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND				2.069	● 404
PHAEOPHYTA						
FUCUS DISTICHUS	IUD	FRTL			7.902	2.231
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				6.720	3,906
CNIDARIA						
ANTHROZOA	ND			1	9.650	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	0003	0.
NEMATODA						
NEMATODA	ND			18	*004	0.
ANNELIDA						
ETEONE PACIFICA	ND			2	.008	o*
TYPOSYLLIS FASCIATA	ND			2	.001	o*
NEREIS SP	ND			1	.003	o.
POLYDORA SP	ND			2	.009	0.
SPIO FILICORNIS	ND			5	.005	0.
RHYNCHOSPIO SP	ND			12	.020	0.
ENCHYTRAEIDAE	ND			4	.010	0 ,
MOLLUSCA						
MYTILUS EDULIS	ND				2.117	.863
MYTILUS EDULIS	ND				.631	.224
MYTILUS EDULIS	NO				3.906	1.498
PROTOTHACA STAMINEA	ND			1	0001	0.
COLLISELLA pELTA	NO				50944	3.221
LACUNA CARININATA	ND				2.273	.958
NUCELLA LAMELLOSA	ND				.188	0145
CRUSTACEA						
BALANUS GLANDULA	ND				1.562	.710
TANIDACEA	ND			22	.030	o,
PENTIDOTEA WOSENSENSKII	ND			5	.207	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			1	Q055	0.
AMPITHOE RUBRICATA	NO			3	.002	0.
[illegible]	[illegible]			17	.095	0.

BRYOZOAN	ND	1	.795	0.
BRYOZOAN	ND	2	1.180	0.

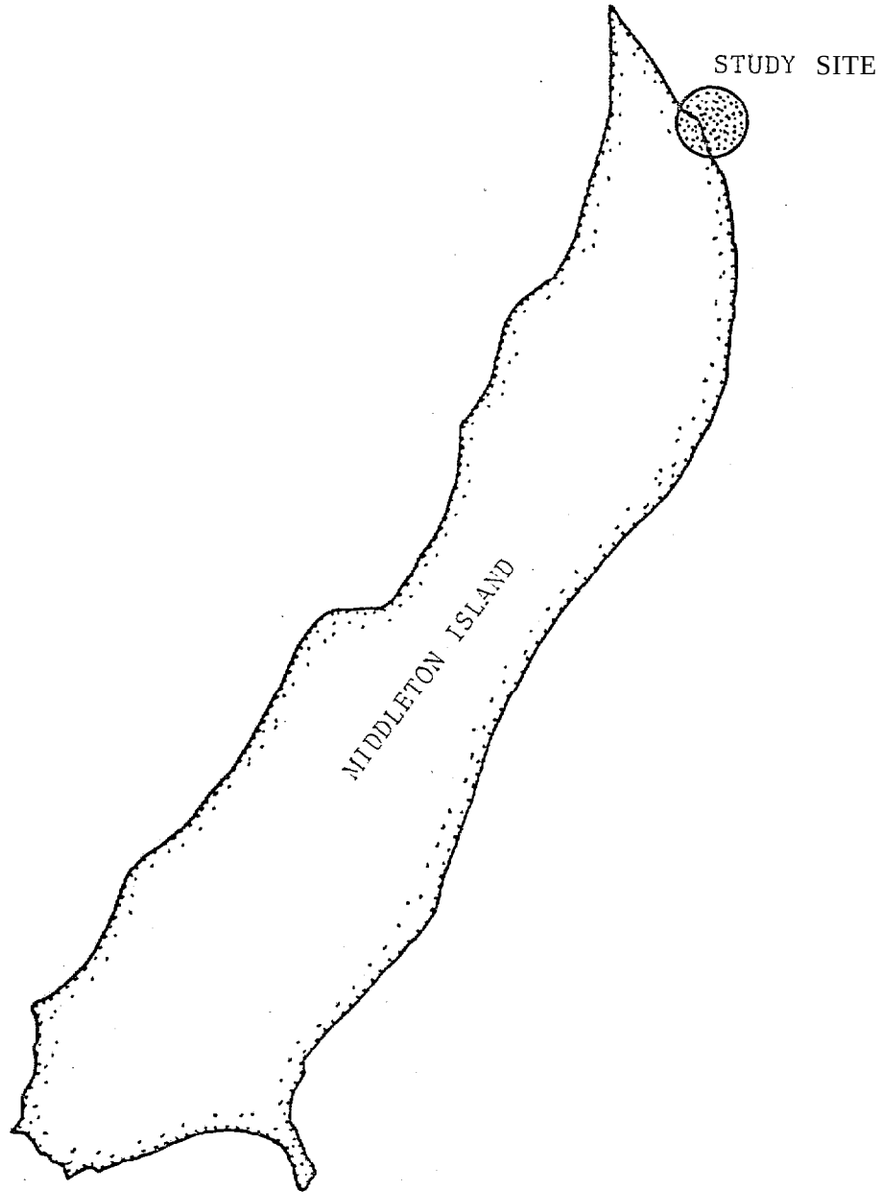

Figure A-5. Middleton Island sampling site.

SPECIES OF MIDDLETON ISLAND

CHLOROPHYTA
- Chlorophyta
- Ulva sp.
- Ulva lactuca

PHAEOPHYTA
- Fucus distichus

RHODOPHYTA
- Bossiella plumosa
- Gigartina papillata
- Rhodymenia palmata
- Rhodymenia pertusa
- Odonthalia floccosa

RHYNCHOCOELA
- Rhynchocoela

NEMATODA
- Nematoda

ANNELIDA
- Annelida
- Polychaeta
- Polynodontidae
- Eteone pacifica
- Typosyllis fasciata
- Nereis procera
- Spio filicornis
- Spiophanes bombyx
- Rhynchospio sp.
- Pygospio californica
- Capitella capitata
- Heteromastus filiformis
- Abarenicola pacifica
- Myriochele heeri
- Enchytraeidae

MOLLUSCA
- Mytilus edulis
- Littorina sitkana

CRUSTACEA
- Platycopa
- Harpacticoida
- Pentidotea wosensenskii
- Ampithoe rubracatoides
- Oligochinus lighti

INSECTA
- Insecta
- Chironomidae

BRYOZOA
- Bryozoan

BRACHIOPODA
- Brachiopoda

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10/14/74
LATITUDE: 59 25 20 N LONGITUDE: 146 22 50 W
STATION INVESTIGATED FOR 2.2 HOURS BEGINNING AT 1:20 IN TIME ZONE: +10
CATALOG NBR: AB740405 ZONE/TRANSECT: SUBSTRATE: M D
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 2:25 ARROW NBR: GEAR: CORE
ELEVATION: METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND				.044	00
ANNELIDA						
ANNELIDA	ND	DEAD		1	.037	0.
POLYCHAETA	ND	DEAD		1	.024	0.
ETEONE PACIFICA	ND			3	.004	0.
SPIO FILICORNIS	ND			11	.015	0.
SPIO FILICORNIS	ND			6	0006	o*
HETEROMASTUS FILIFORMIS	ND			43	.342	o.
ABARENICOLA PACIFICA	NO			12	2.345	● 385
ENCHYTRAEIDAE	NO			7	● 003	0.
INSECTA						
CHIRONOMIDAE	ND	IMTR		1	.010	0,
BRYOZOAN						
BRYOZOAN	ND				.018	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10/14/74
LATITUDE: 59 25 20 N LONGITUDE: 146 22 50 W
STATION INVESTIGATED FOR 2.2 HOURS BEGINNING AT 1:20 IN TIME ZONE: +10
CATALOG NBR: AB740406 ZONE/TRANSECT: SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY; SILT OR MUD
SAMPLING TIME: 0:00 ARROW NBR: GEAR: CORE
ELEVATIONI METERS QUADRAT SIZE; 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA SP	ND	FRAG		1	.058	00
RHODOPHYTA						
RHODOPHYTA	ND	FRAG		1	● 002	0.
GIGARTINA PAPILLATA	ND				.002	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.219	0.
NEMATODA						
NEMATODA	ND			15	.002	0.
ANNELIDA						
POLYCHAETA	ND	FRAG		1	● 005	0.
ETEONE PACIFICA	ND	FRAG		1	.013	0.
SPIOPHANES BOMBYX	ND			20	.017	0.
CAPITELLA CAPITATA	ND	FRAG		1	.047	0.
ABARENICOLA PACIFICA	ND				3.315	● 737
MOLLUSCA						
LITTORINA SITKANA	ND			2	,286	o.
LITTORINA SITKANA	ND	DEAD		7	● 318	0.
CRUSTACEA						
AMPITHOE RUBRICATOIDES	ND			1	● 003	0.
INSECTA						
CHIRONOMIDAE	ND	IMTR		1	.001	0.
BRYOZOAN						
BRYOZOAN	ND				● oo9	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10/14/74
LATITUDE: 59 2 5 20 N LONGITUDE: 146 22 50 W
STATION INVESTIGATED FOR 2.2 HOURS BEGINNING AT 1:20 IN TIME ZONE: +10
CATALOG NBR: AB740407 ZONE/TRANSECT: SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 0:00 ARROW NBR: GEAR: CORE
Elevation METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
NEMATODA						
NEMATODA	ND			3	.001	o*
ANNELIDA						
POLYCHAETA	ND	FRAG		1	.025	0.
ETEONE PACIFICA	ND			1	.001	0.
SPIO FILICORNIS	ND			27	.036	0.
SPIOPHANES BOMBYX	ND			23	.034	0.
PYGOSPIO CALIFORNIA	ND			24	.006	0,
HETEROMASTUS FILIFORMIS	ND			15	.156	0.
ABARENICOLA PACIFICA	ND			14	2.694	.645
ENCHYTRAEIDAE	ND			3	.005	0.
MOLLUSCA						
LITTORINA SITKANA	ND			1	.003	0.
CRUSTACEA						
CHIONOECETES SP	ND			1	.071	0,

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10/14/'74
LATITUDE: 59 25 20 N LONGITUDE: 146 22 50 W
STATION INVESTIGATED FOR 2.2 HOURS BEGINNING AT 1:20 IN TIME ZONE: +10
CATALOG NBR: AB740408 ZONE/TRANSECT: SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 0:00 ARROW NBR: GEAR: CORE
Elevation METERS QUADRAT SIZE:0. SQUARE METERS SEDIMENT VOLUME: 1,000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL			9.210	3,690
RHODOPHYTA						
RHODOPHYTA	ND			1	● 009	0.
RHODYMENIA PERTUSA	ND				.673	0,
NEMATODA						
NEMATODA	ND			16	● 002	0.
ANNELIDA						
NEREIS PROCERA	ND			4	● 070	0.
SPIO FILICORNIS	ND			32	.010	0,
SPIOPHANES BOMBYX	ND			43	.034	0.
CAPITELLA CAPITATA	ND			8	.092	0.
ABARENICOLA PACIFICA	NO			5	4,347	● 637
ENCHYTRAEIDAE	ND			19	,023	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1	● 001	0.
CRUSTACEA						
OLIGOCHINUS LIGHTI	ND			2	*002	0.
BRYOZOAN						
BRYOZOAN	ND				● 001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10/14/74
LATITUDE: 59 25 20 N LONGITUDE: 146 22 50 W
STATION INVESTIGATED FOR 2,2 HOURS BEGINNING AT 1:20 IN TIME ZONE: +10
CATALOG NBR: AB740409 ZONE/TRANSECT : SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 0:00 ARROW NBR: GEAR: CORE .
ELEVATION: METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMSI
ANNELIDA						
POLYCHAETA	ND	FRAG		1	.020	0.
ETEONE PACIFICA	ND			1	*001	0.
NEREIS PROCERA	ND			1	.009	0.
RHYNCHOSPIO SP	NO			8	● 011	0.
PYGOSPIO CALIFORNIA	ND			47	.058	0.
CAPITELLA CAPITATA	ND			38	.147	0.
ABARENICOLA PACIFICA	ND			7	1.844	.441
INSECTA						
CHIRONOMIDAE	ND	IMTR		1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10/'14/74
LATITUDE: 59 25 20 N LONGITUDE:146 22 50 W
STATION INVESTIGATED FOR 2.2 HOURS BEGINNING AT 1:20 IN TIME ZONE: +10
CATALOG NBR: AB74041O ZONE/TRANSECT: SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: SURFACETOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 0:00 ARROW NBR: GEAR: CORE
ELEVATION: METERS QUADRAT SIZE:0. SQUARE METERS SEDIMENT VOLUMEI 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMSI	DRY WEIGHT (GRAMS)
NEMATODA						
NEMATODA	ND			264	● 007	o.
ANNELIDA						
ETEONE PACIFICA	ND			1	● 003	0.
NEREIS PROCERA	NO			4	.037	0.
SPIO FILICORNIS	ND			61	,061	0,
SPIOPHANES BOMBYX	ND			37	.022	0.
RHYNCHOSPIO SP	ND			148	•228	0.
CAPITELLA CAPITATA	ND			25	.165	0.
ABARENICOLA PACIFICA	ND			a	4.383	● 635
MOLLUSCA						
MYTILUS EDULIS	ND	DEAD		2	0.	o*
INSECTA						
CHIRONOMIDAE	ND	IMTR		2	.001	0.
CHIRONOMIDAE	ND	IMTR		3	.003	0,
BRYOZOAN						
BRYOZOAN	NO				.005	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10/14/74
LATITUDE: 59 25 20 N LONGITUDE: 1462250W
STATION INVESTIGATE FOR 2.2 HOURS BEGINNING AT 1:20 IN TIME ZONE: +10
CATALOG NBR: A8740411 ZONE/TRANSECT: SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 0:00 ARROW NBR: GEAR: CORE
ELEVATION: METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND	FRAG		1	.014	0.
RHODOPHYTA						
BOSSIELLA PLUMOSA	ND			1	.120	0.
ODONTHALIA FLOCCOSA	ND	FRAG		1	.007	o.
NEMATODA						
NEMATODA	ND			15	.001	O*
ANNELIDA						
POLYCHAETA	ND	FRAG		1	.005	o,
NEREIS PROCERA	ND			5	.062	0.
RHYNCHOSPIO SP	ND			5	.010	0,
PYGOSPIO CALIFORNICA	NO			24	.012	0.
HETEROMASTUS FILIFORMIS	ND			38	,324	o*
ABARENICOLA PACIFICA	ND			22	4.365	.507
ENCHYTRAEIDAE	ND				8.008	0.
CRUSTACEA						
HARPACTICOIDA	ND			1	.001	0.
PENTIDOTEA WOSENSENSKII	ND	FRAG		1	.020	0.
INSECTA						
CHIRONOMIDAE	ND	IMTR		2	.006	0.
BRYOZOAN						
BRYOZOAN	ND			1	.007	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10/14/"?4
LATITUDE: 592520N LONGITUDE: 146 22 50 W
STATION INVESTIGATED FOR 2.2HOURS HEGINNING AT 1:20 IN TIMF ZONE: +10
CATALOG NBR:AB740412 ZONE/TRANSECT: SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 0:00 ARROW NBR: GEAR: CORE
ELEVATION: METERS QUADRAT SIZE: O. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
NEMATODA						
NEMATODA	ND			78	● 002	o*
ANNELIDA						
ETEONE PACIFICA	ND			1	.002	0.
NEREIS PROCERA	ND			2	.034	0.
SPIO FILICORNIS	ND			24	.013	0.
RHYNCHOSPIO SP	ND			57	● 081	0.
CAPITELLA CAPITATA	ND			40	● 40S	o*
ABARENICOLA PACIFICA	ND			1	2.148	.450
ENCHYTRAEIDAE	ND			11	● 003	0.
MOLLUSCA						
LITTORINA SITKANA	ND	DEAD		2	0,	0.
CRUSTACEA						
PLATYCOPA	ND			9	.001	o*
INSECTA						
INSECTA	ND			1	.001	0.
BRYOZOAN						
BRYOZOAN	ND				● 004	O*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10114/'74
LATITUDE:59 25 2(I N LONGITUDE: 146 22 50 W
STATION INVESTIGATED FOR 2.2HOURS BEGINNING AT 1:20 IN TIME ZONE: +10
CATALOG NBR:AB740413 ZONE/TRANSECT: SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: SILT ORMUD
SAMPLING TIME: 0:00 ARROW NBR: GEAR: CORE
ELEVATION: METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME; 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET wEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	N D	FRAG		1	.009	0.
RHODOPHYTA						
RHODYMENIA PALMATA	ND	FRAG		1	.003	00
ODONTHALIA FLOCCOSA	ND	FRAG		1	*002	0.
ANNELIDA						
POLYCHAETA	ND	FRAG		1	.040	0.
TYPOSYLLIS FASCIATA	ND			1	*001	0.
SPIO FILICORNIS	ND			11	.007	00
RHYNCHOSPIO SP	ND			30	● 044	0.
PYGOSPIO CALIFORNIA	ND			18	0037	00
CAPITELLA CAPITATA	ND			47	0703	0.
ABARENICOLA PACIFICA	ND			16	5.293	.850
MOLLUSCA						
LITTORINA SITKANA	ND			4	.123	00
BRYOZOAN						
BRYOZOAN	ND				002s	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 5 MIDDLETON ISLAND DATE: 10/14/74
LATITUDE; 59 25 20 N LONGITUDE: 146 22 50 W
STATION INVESTIGATED FOR 2.2 HOURS BEGINNING AT 1:20 IN TIME ZONE: +10
CATALOG NBR: AB740414 ZONE/TRANSECT : SUBSTRATE: MUD
PHOTOGRAPH" NBR: METER NBR: SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 0:00 ARROW NBR: GEAR: CORE
ELEVATION: METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND			52	● 001	o*
ANNELIDA						
POLYNODONTIDAE	ND			5	.001	0.
NEREIS PROCERA	ND			2	● 009	0.
SPIO FILICORNIS	ND			16	.004	0.
RHYNCHOSPIO SP	ND			58	.079	0,
CAPITELLA CAPITATA	No			18	.152	0.
MYRIOCHELE HEERI	ND			6	1.813	● 281
CRUSTACEA						
PLATYCOPA	ND	DEAD			o*	0.
BRYOZOAN						
BRYOZOAN	ND				.001	0,
BRACHIOPODA						
BRACHIOPODA	ND	DEAD			0.	0,

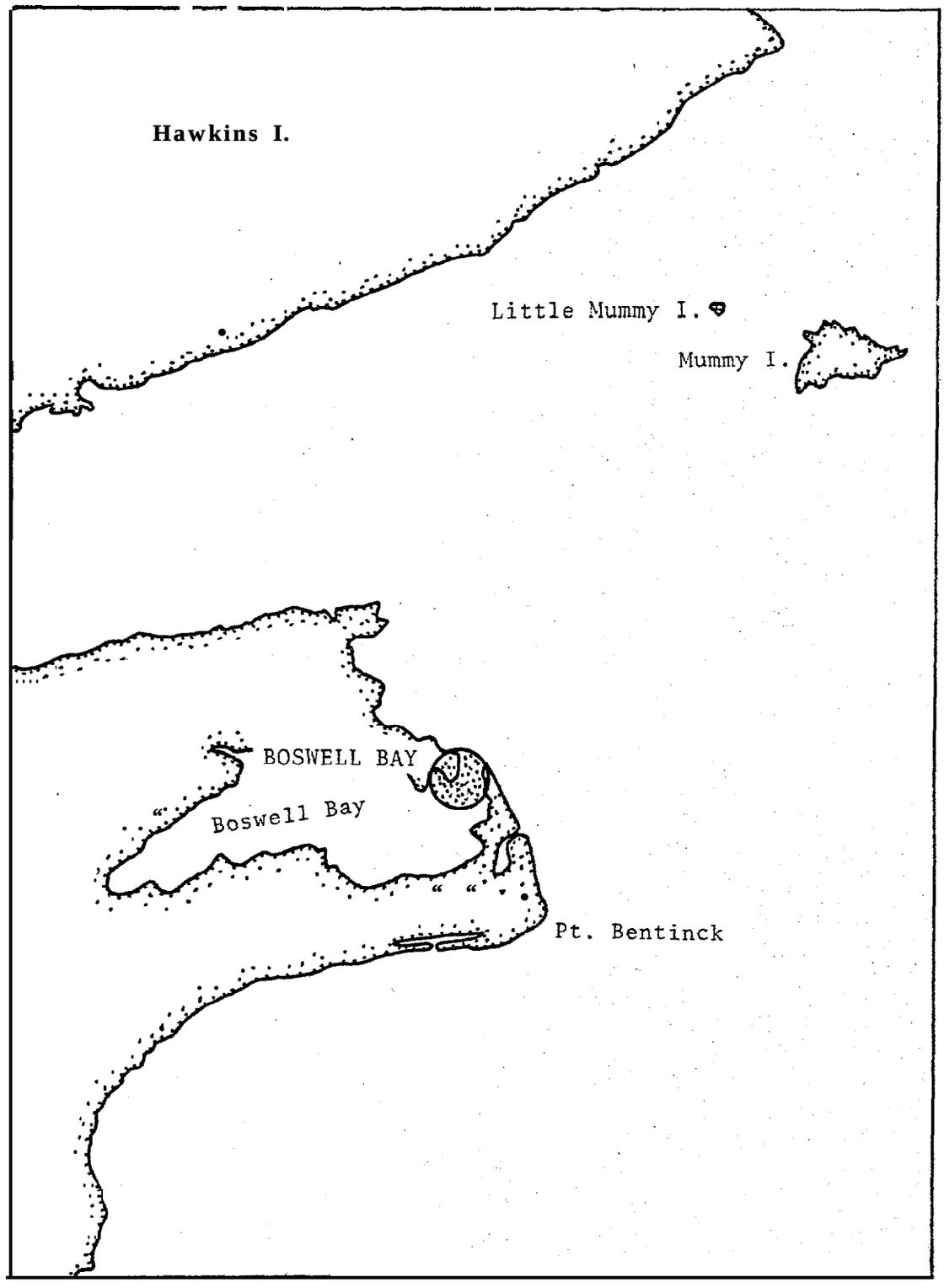

Figure A-6. Boswell Bay sampling site.

CHLOROPHYTA
- Chlorophyta
- Enteromorpha intestinalis
- Cladophora sp.

PHAEOPHYTA
- Phaeophyta
- Scytosiphon lomentaria
- Fucus distichus

RHODOPHYTA
- Rhodophyta
- Cryptosiphonia woodii
- Pterosiphonia bipinnata
- Odonthalia floccosa

ANTHOPHYTA
- Potamogetonaceae

PROTOZOA
- Protozoa

CNIDARIA
- Eudendrium sp.

TURBELLARIA
- Turbellaria

RHYNCHOCOELA
- Rhynchocoela
- Emplectonema gracile

NEMATODA
- Nematoda

ANNELIDA
- Annelida
- Polychaeta
- Gattyana treadwelli
- Harmothoe imbricata
- Phloe minuta
- Phyllodocidae
- Anaitides maculata
- Eteone pacifica
- Eulalia viridis
- Mysta barbata
- Typosyllis alternata
- Typosyllis elongata
- Typosyllis pulchra
- Exogone molesta
- Exogone verugera
- Nereis sp.
- Nephtys ciliata
- Nephtys schmitti
- Glycinde picta
- Haploscoloplos elongatus

ANNE LIDA cont.

Paraonis gracilis
Polydora **sp.**
Polydora caeca
Polydora ciliata
Spio filicornis
Spio phanes bombyx
Rhynchospio sp.
Caulleriella **sp.**
Tharyx multifilis
Tharyx parvus
Chaetozone setosa
Dodecaceria **sp.**
Capitella **capitata**
Heteromastus filiformis
Abarenicola pacifica
Cis tenides brevicoma
Pectinaria belgica
Ampharete arctica
Glyphanostomum **panes tens**
Sabellidae
Choneinfundib **ulif** ormis
Fabricia sabella
Fabricia minuta
Laonome sp.
Pseudo sabellides littoralis
Enchytraeidae

MO LLUSCA

Mytilus edulis
Clinocardium ciliatum
Clinocardium nuttallii
Saxidomus gigantea
Protothaca staminea
Macoma **sp.**
Macoma obliqua
Macoma balthica
Mya arenaria
Hiatella **arctics**
Gastropoda
Collisella **pelta**
Collisella ochracea
Margaritas helicinus
Littorina sitkana
Littorina **ale** utica
Littorina scutulata
Lacuna carininata
Lacuna marmorata

MOLLUSCA cont.

Cerithiopsis sp.
Nucella sp.
Nucella lamellosa
Odostomia sp.
Aglaja diomedeum

ARACHNIDA

Halacaridae

CRUSTACEA

Crustacea
Platycopa
Harpacticoida
Balanus balanoides
Balanus glandula
Campylaspis sp.
Campylaspis verrucosa
Tanidacea
Gnorimosphaeroma oregonensis
Amphipoda
Calliopiidae
Oligochinus lighti
Corophiidae
Paramoera columbiana
Anisogammarus locus toides
Parallorchestes sp.
Parapleustes nautilus
Talitrus sp.
Callianassa sp.

INSECTA

Insects
Chironomidae

ECHIUROIDEA

Echiuroidea

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 602460N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS HEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740321 ZONE/TRANSECT: 1 SUBSTRATE; MUD
PHOTOGRAPH NBR: 7401010300 METER NBR: 3A SURFACE TOPOGRAPHY! SILT OR MUO
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 2.89 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.002	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1	.001	0.
COLLISELLA PELTA	NO	OEAD		7	0.	0.
LITTORINA SITKANA	NO	OEAD		42	0.	0.
LITTORINA SCUTULATA	ND	D E A D		22	0.	0,
LACUNA MARMORATA	ND	OEAO		5 6	0.	0,
CRUSTACEA						
PARAMOERA COLUMBIANA	ND			3	.029	0,

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE? 60 2460 N LONGITUDE: 146 630 W
STATION INVESTIGATED FOR 2.3HOURS BEGINNING AT 4:15INTIMEZONE: +10
CATALOG NBR:AB740322 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: 7401010300 METER NBR:3B SURFACE TOPOGRAPHY SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 2.89 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
MOLLUSCA						
CLINOCARDIUM CILIATUM	ND	DEAD			0.	o*
MYA ARENARIA	ND	DEAD			0.	o.
LITTORINA SITKANA	ND	DEAD			0.	0.
LITTORINA ALEUTICA	ND	DEAD			o*	0.
CRUSTACEA						
AMPHIPODA	ND				● 015	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE? 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740323 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: 7401010303 METER NBR: 7A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION! 2.41 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND			5	.068	o.
ANNELIDA						
TYPOSYLLIS ELONGATA	ND			1	.001	0.
ENCHYTRAEIDAE	ND			14	● 006	o*
MOLLUSCA						
LITTORINA SITKANA	ND			55	1.733	1.212
LITTORINA SITKANA	ND	DEAD		62	0.	0,
LITTORINA ALEUTICA	ND	DEAD		4	0.	0.
LITTORINA SCUTULATA	ND			1	● 006	0.
NUCELLA LAMELLOSA	NO	DEAD		1	o*	o*
ODOSTOMIA SP	ND	DEAD		1	0.	0.
CRUSTACEA						
BALANUS GLANDULA	ND			25	,937	.609
PARAMOERA COLUMBIANA	ND			15	.242	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATE FOR 2.3 HOURS BEGINNING AT 4:15 IN TIMF ZONE: +10
CATALOG NBR: AB740324 ZONE/TRANSECT: 1 SUBSTRATE: MUO
PHOTOGRAPH NBR: 7401010303 METER NBR: 7B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 2.41 METERS QUADRAT SIZE: O. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WFT WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				.001	0.
PROTOZOA						
PROTOZOA	ND			4	.001	0.
ANNELIDA						
ETEONE PACIFICA	ND			1	● 002	o*
NEPHTYS SCHMITTI	ND			1	.001	o,
ENCHYTRAEIDAE	ND			51	● 016	0.
MOLLUSCA						
MYTILUS EDULIS	ND			3	● 001	0.
MACOMA SP	ND			4	.001	0.
COLLISELLA pELTA	ND			1	o*	0.
LITTORINA SITKANA	ND			12	.112	0,
LITTORINA SITKANA	ND	DEAD		67	0.	00
LITTORINA SCUTULATA	ND			14	00	o*
CRUSTACEA						
CRUSTACEA	ND			1	.007	o.
BALANUS GLANDULA	ND			3	.083	0,
PARAMOERA COLUMBIANA	ND			13	● 215	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740325 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: 7401010307 METER NBR: 11A SURFACE TOPOGRAPHY: SILT ON MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.95 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
MOLLUSCA						
COLLISELLA PELTA	ND	DEAD			0.	0.
LITTORINA SITKANA	ND	DEAD			0.	0.
LACUNA CARININATA	ND	DEAD			0.	0.
LACUNA MARMORATA	ND	DEAD			0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR:AB740326 ZONE/TRANSECT: A SUBSTRATE: MUD
PHOTOGRAPH NBR: 7401010307 METER NBR: 118 SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1095 METERS QUADRAT SIZE: O. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
ODONTHALIA FLOCCOSA	ND	FRAG		1	.001	o.
NEMATODA						
NEMATODA	ND			1	.001	0.
ANNELIDA						
EULALIA VIRIDIS	ND			1	.010	o*
SPIO FILICORNIS	ND			1	.001	o.
CAPITELLA CAPITATA	ND			5	.001	0.
HETEROMASTUS FILIFORMIS	ND			11	*003	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1	.132	o.
COLLISELLA PELTA	ND	DEAD		3	o*	0.
LITTORINA SITKANA	ND			7	.202	0.
LITTORINA SITKANA	ND	DEAO		48	0.	00
LACUNA CARININATA	ND	DEAD		5	0.	0.
LACUNA MARMORATA	ND	DEAD		1	0.	0.
NUCELLA LAMELLOSA	ND	DEAD		1	0.	0.
CRUSTACEA						
BALANUS GLANDULA	ND			24	2*000	1.198
PARAMOERA COLUMBIANA	ND			1	● 001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740327 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 15A SURFACE TOPOGRAPHY SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.55 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND	FRAG		1	.001	o.
ANNELIDA						
ETEONE PACIFICA	ND			7	● 122	0.
SPIO FILICORNIS	ND			3	.001	0.
CAULLERIELLA SF	ND			1	● 001	0.
CAPITELLA CAPITATA	ND	FRAG		1	.002	0.
ABARENICOLA PACIFICA	ND			1	● 075	0.
MOLLUSCA						
MYTILUS EDULIS	ND			5	.695	0.
MACOMA BALTHICA	ND			26	5.192	2,882
COLLISELLA PELTA	ND			2	.003	0.
LITTORINA SITKANA	ND			5	.171	0.
LACUNA MARMORATA	ND			1	.002	0.
CRUSTACEA						
HARPACTICOIDA	ND			1	*001	0.
CAMPYLASPIS SP	ND			5	,003	0.
CALLIOPIIDAE	ND			2	0001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:6 BUSWELL BAY DATE: 9/18/74
LATITUDE:60 24 60 N LONGITUDE! 146 6 30 W
STATION INVESTIGATED FOR 2.3HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR:AB740328 ZONE/TRANSECT: 1 SUBSTRATE! MUD
PHOTOGRAPH NBR: METER NBR: 15B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATIONS 1.55 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1000O LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND	FRAG			.012	0.
ENTEROMORPHA INTESTINALIS	ND				0.	0.
CLADOPHORA SP	ND				0.	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	00	0,
ANNELIDA						
POLYCHAETA	ND	FRAG		1	● 004	0,
ETEONE PACIFICA	ND			12	.085	o*
SPIO FILICORNIS	ND			2	.003	0.
CAULLERIELLA SP	ND			1	.004	0.
CAPITELLA CAPITATA	ND	FRAG		1	● 010	0,
HETEROMASTUS FILIFORMIS	ND			1	.062	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1	● 006	0.
MACOMA BALTHICA	ND			13	3.495	1.669
LITTORINA SITKANA	ND	DEAD		24	0.	0.
LITTORINA SCUTULATA	ND	DEAD		1	0.	0.
LACUNA MARMORATA	ND			1	.002	0.
CRUSTACEA						
BALANUS GLANDULA	ND			5	● 246	0.
CAMPYLASPIS SP	ND			2	● 001	0,
COROPHIIDAE SP	ND			6	● 003	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION NVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE +10
CATALOG NBR: AB740329 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 19A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.36 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				.549	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.006	0.
ANNELIDA						
PHYLLODOCIDAE	ND	FRAG		1	.035	0.
ETEONE PACIFICA	ND			27	.024	0.
NEPHTYS CILIATA	ND			1	.010	0.
NEPHTYS SCHMITTI	ND			2	.001	0.
HAPLOSCOLOPLOS ELONGATUS	ND	FRAG		1	.006	0.
SPIO FILICORNIS	ND			1	.008	0.
CAPITELLA CAPITATA	ND			17	.093	0.
ABARENICOLA PACIFICA	ND			1	.047	0.
FABRICIA SABELLA	ND			5	.001	0.
ENCHYTRAEIDAE	ND			26	.003	0.
MOLLUSCA						
MYTILUS EDULIS	ND			4	.008	0.
MACOMA BALTHICA	ND			55	1.222	.482
GASTROPODA	ND	IMTR		40	.001	0.
LITTORINA SITKANA	ND			1	.003	0.
LITTORINA SITKANA	ND	DEAD		17	0.	0.
LITTORINA SCUTULATA	ND	DEAD		3	0.	0.
CRUSTACEA						
CAMPYLASPIS SP	ND			16	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/10/74
LATITUDE: 60 24 60 N Longitude 146 6 3 0 w
STATION INVESTIGATED FOR %.3 HOURS BEGINNING AT 4:15 IN TIMEZONE: +10
CATALOG NBR:AB740330 ZONE/TRANSECT! 1 SUBSTRATES MUD
PHOTOGRAPH NBR: METER NBR: 19B SURFACE TOPOGRAPHYI SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION 1.36 METERS QUADRAT SIZE:0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				.145	0.
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL			3.719	10461
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.002	0.
ANNELIDA						
ETEONE PACIFICA	ND			2	cool	0.
GLYCINDE PICTA	ND			1	.054	0.
SPIO FILICORNIS	ND			1	.001	0.
CAPITELLA CAPITATA	ND			18	.015	0.
HETEROMASTUS FILIFORMIS	NO			1	.143	0.
ENCHYTRAEIDAE	ND			38	.011	0.
MOLLUSCA						
MYTILUS EDULIS	ND			5	.123	0.
MACOMA BALTHICA	ND			44	1.467	1.105
MYA ARENARIA	ND			2	150712	9.746
GASTROPODA	ND	IMTR		7	.001	0.
COLLISELLA pELTA	ND			2	.018	0.
LITTORINA SITKANA	ND			2	.094	0.
LITTORINA SITKANA	ND	DEAD		21	0.	0.
ODOSTOMIA SP	ND			1	.009	0.
CRUSTACEA						
BALANUS GLANDULA	ND			1	.012	0.
CALLIANASSA SP	ND			1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740331 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 23A SURFACE Topography SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: .75 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	NO				.273	o.
PROTOZOA						
PROTOZOA	ND			4	● 001	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.012	0,
ANNELIDA						
GATTYANA TREADWELLI	ND			1	.047	0.
PHLOE MINUTA	ND	FRAG		1	.006	o.
ETEONE PACIFICA	ND			11	0040	0.
NEPHTYS SCHMITTI	ND			1	● oo2	0.
GLYCINDE PICTA	ND			2	.073	0.
HAPLOSCOLOPLOS ELONGATUS	ND			1	.004	o*
RHYNCHOSPIO SP	ND			2	● 001	0.
CAULLERIELLA SP	ND			2	● 002	0.
CAPITELLA CAPITATA	ND			33	.247	“,0.
ABARENICOLA PACIFICA	ND			1	1.026	.217
FABRICIA SABELLA	ND			2	● 001	00
ENCHYTRAEIDAE	ND			i?	.001	0 ,
MOLLUSCA						
MYTILUS EDULIS	ND	DEAD		5	0.	0.
MACOMA BALTHICA	ND			83	3.270	1,295
MACOMA BALTHICA	ND	DEAD		1	0.	0.
GASTROPODA	ND	IMTR		22	9001	o*
LITTORINA SITKANA	ND	DEAD		11	0.	0.
LACUNA MARMORATA	ND			2	● 001	0.
LACUNA MARMORATA	ND	DEAD		7	0.	0.
CERITHIOPSIS SP	NO	DEAD		1	0.	0.
ODOSTOMIA SP	ND	DEAD		2	00	0.
CRUSTACEA						
HARPACTICOIDA	ND				● 001	0.
CAMPYLASPIS SP	ND			1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 3 0 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIMEZONE: +10
CATALOG NBR: AB740332 ZONE/TRANSECT: 1 Substrate MUD
PHOTOGRAPH NBR: METER NBR: 23B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: ● 75 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				.939	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.024	0.
ANNELIDA						
ANNELIDA	ND				● 061	00
PHLOE MINUTA	ND			1	● 012	0.
ETEONE PACIFICA	ND			20	.034	0.
EXOGONE VERUGERA	ND			1	● 001	0.
NEPHTYS SCHMITTI	ND			2	.001	0.
HAPLOSCOLOPLOS ELONGATUS	ND			2	.021	0.
RHYNCHOSPIO S P	ND			1	.001	00
CAPITELLA CAPITATA	ND			44	● 081	0.
ABARENICOLA PACIFICA	ND			1	● 344	0,
FABRICIA MINUTA	ND			25	.002	o*
PSEUDOSABELLIDES LITTORALIS	ND			1	.001	o.
ENCHYTRAEIDAE	ND			42	.002	0.
MOLLUSCA						
MYTILUS EDULIS	ND			9	.493	0.
MACOMA BALTHICA	ND			60	1.755	● 72i?
MACOMA BALTHICA	ND	DEAD		1	0.	0.
HIATELLA ARCTICA	ND			1	.001	0.
GASTROPODA	ND	IMTR			.001	O*
COLLISELLA PELTA	ND			2	.067	0.
LITTORINA SITKANA	ND			73	1.638	1.231
LITTORINA SITKANA	ND	DEAD		19	0.	0,
LITTORINA SCUTULATA	ND			16	.560	0.
LITTORINA SCUTULATA	ND	DEAD		2	0.	0.
LACUNA MARMORATA	ND			9	.006	0.
LACUNA MARMORATA	ND	DEAD		2	0.	0.
ODOSTOMIA SP	ND	DEAD		1	0.	0.
AGLAJA DIOMEDEUM	ND			1	.001	o*

ARACHNIDA					
HALACARIDAE	NO		1	.001	0.
CRUSTACEA					
BALANUS GLANDULA	ND		116	30.102	19.618
BALANUS GLANDULA	NO	DEAD	4	0.	0.
CAMPYLASPIS SP	ND		1	0001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL f3AY DATE: 9/18/74
LATITUDE: 6024 60 N LONGITUDE; 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR:A8740333 ZONE/TRANSECT: 1 SUBSTRATEI MUD
PHOTOGRAPH NBR: METER NBR: 27A SURFACE TOPOGRAPHY SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: ,62 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY wEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				4.065	● 476
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.001	0.
ANNELIDA						
PHLOE MINUTA	ND			2	● 023	0,
ETEONE PACIFICA	ND			5	,178	o*
GLYCINDE PICTA	ND			1	.022	0.
HAPLOSCOLOPLOS ELONGATUS	ND			1	.039	0.
	ND			1	.001	0.
POLYDORA SP	NO			1	.001	0.
CAPITELLA CAPITATA	NO			4	,004	0.
HETEROMASTUS FILIFORMIS	ND			2	● 112	0.
ABARENICOLA PACIFICA	ND			1	.256	0.
ENCHYTRAEIDAE	ND			2	.001	0,
MOLLUSCA						
MYTILUS EDULIS	ND			1	.008	0.
MACOMA BALTHICA	ND			66	3.427	1.398
MYA ARENARIA	ND			1	3.011	1.200
LITTORINA SITKANA	ND	DEAD		6	o*	0.
CRUSTACEA						
CAMPYLASPIS VERRUCOSA	ND			2	● 001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE$ 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740334 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 27B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 062 METERS QUADRAT SIZE: 0 , SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION . COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA					
CHLOROPHYTA	ND	FRAG		1.376	.374
ENTEROMORPHA INTESTINALIS	ND	FRAG		0.	0.
PHAEOPHYTA					
SCYTOSIPHON LOMENTARIA	ND		3	.015	0.
RHYNCHOCOELA					
EMPLECTONEMA GRACILE	ND		1	.102	o.
ANNELIDA					
PHLOE MINUTA	ND		1	.016	0.
ETEONE PACIFICA	ND		8	.161	0,
HAPLOSCOLOPLOS ELONGATUS	ND		2	.070	0,
SPIOPHANES BOMBYX	ND		2	.009	0.
HETEROMASTUS FILIFORMIS	ND		4	.024	0.
MOLLUSCA					
MYTILUS EDULIS	ND		2	.077	0.
MACOMA BALTHICA	ND		62	2.289	*977
LITTORINA SITKANA	ND	DEAD	14	0.	0.
LACUNA CARININATA	ND	DEAD	1	0.	0.
NUCELLA LAMELLOSA	ND	DEAD	1	0.	0.
CRUSTACEA					
BALANUS GLANDULA	ND		4	.260	o*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE; 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740335 ZONE/TRANSECT: i SUBSTRATE: MUI)
PHOTOGRAPH NBR: METER NBR: 31A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: ,45 METERS QUADRAT SIZE: O , SQUARE METERS SEDIMENT VOLUME': 1000O LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
TURBELLARIA						
TURBELLARIA	ND			5	.005	0.
NEMATODA						
NEMATODA	ND			78	0.	0.
ANNELIDA						
PHLOE MINUTA	ND			2	● 005	0.
ETEONE PACIFICA	ND			23	,041	0.
NEPHTYS SCHMITTI	ND			3	● 005	0.
HAPLOSCOLOPLOS ELONGATUS	ND			4	.161	00
SPIO FILICORNIS	ND			1	● 001	0.
CAULLERIELLA SP	ND			1	.002	0,
CAPITELLA CAPITATA	NO			36	● 115	0,
HETEROMASTUS FILIFORMIS	NO			10	● 497	0.
SABELLIDAE	NO			1	,001	0,
LAONOME SP	ND			2	.033	0.
ENCHYTRAEIDAE	ND			44	● 011	0.
MOLLUSCA						
MYTILUS EDULIS	ND			8	0016	0.
MACOMA BALTHICA	ND			84	2.790	.830
AGLAJA DIOMEDEUM	ND			1	● 001	0.
CRUSTACEA						
HARPACTICOIDA	ND			5	● 001	0.
CAMPYLASPIS VERRUCOSA	ND			3	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740335 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 31A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: .45 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGH? (GRAMS)	DRY WEIGHT (GRAMS)
TURBELLARIA						
TURBELLARIA	ND			5	.005	o*
NEMATODA						
NEMATODA	ND			.7a	09	0.
ANNELIDA						
PHLOE MINUTA	ND			2	*005	0.
ETEONE PACIFICA	ND			23	.041	0.
NEPHTYS SCHMITTI	ND			3	.005	0.
HAPLOSCOLOPLOS ELONGATUS	ND			4	.161	0,
SPIO FILICORNIS	ND			1	.001	0.
CAULLERIELLA SP	ND			1	.002	0,
CAPITELLA CAPITATA	ND			36	.115	0.
HETEROMASTUS FILIFORMIS	ND			10	.497	0.
SABELLIDAE	ND			1	● 001	0.
LAONOME SP	ND			2	.033	0. ,
ENCHYTRAEIDAE	ND			44	.011	0.
MOLLUSCA						
MYTILUS EDULIS	NO			8	.016	0.
MACOMA BALTHICA	ND			84	2.790	.830
AGLAJA DIOMEDEUM	ND			1	.001	0.
CRUSTACEA						
HARPACTICOIDA	ND			5	cool	0.
CAMPYLASPIS VERRUCOSA	ND			3	0001	0.

BIOTIC DENSITIESOFINTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/1$/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATEDFOR 2.3 HOURS BEGINNING AT 4:15 IN TIMF ZONE: +10
CATALOG NBR:AB740336 ZONE/TRANSECT: 1 SUBSTRATE! MUD
PHOTOGRAPH NBR: METER NBR: 31B SURFACE Topography SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATIONI ● 45 METERS QUADRAT SIZE: O* SQUARE METERS SEDIMENT VOLUME: 1000O LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
TURBELLARIA						
TURBELLARIA	ND			3	.004	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.056	0.
NEMATODA						
NEMATODA	NO			95	0.	0.
ANNELIDA						
HARMOTHOE IMBRICATA	ND			1	0053	0.
PHLOE MINUTA	ND			6	● 029	o*
ETEONE PACIFICA	NO			20	.019	0.
NEPHTYS SCHMITTI	NO			1	● ooi?	o*
HAPLOSCOLOPLOS ELONGATUS	ND			3	● 106	0.
CAULLERIELLA SP	ND			2	.003	0.
HETEROMASTUS FILIFORMIS	NO			25	.225	0.
LAONOME SP	ND			3	● 239	0.
ENCHYTRAEIDAE	ND			27	.008	0,
MOLLUSCA						
MYTILUS EDULIS	ND			6	.016	0.
MACOMA BALTHICA	ND			90	1.613	.508
MYA ARENARIA	NO			2	2.104	.970
AGLAJA DIOMEDEUM	NO			2	0002	0.
CRUSTACEA						
CAMPYLASPIS VERRUCOSA	NO			1	.001	o*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

'STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740337 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 35A SURFACE TOPOGRAPHY SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: .45 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				1.048	.154
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND				.002	0.
ANTHOPHYTA						
POTAMOGETONACEAE	ND				.049	0.
RHYNCHOCOELA						
RHYNCHOCOELA	NO	FRAG		1	.029	0.
ANNELIDA						
ANNELIDA	ND	FRAG		1	.021	0.
HARMOTHOE IMBRICATA	ND			3	.031	O *
PHLOE MINUTA	ND			6	*039	0.
ETEONE PACIFICA	ND			16	.027	0,
TYPOSYLLIS ALTERNATA	ND			1	.001	0.
NEPHTYS SCHMITTI	ND			6	.001	0.
HAPLOSCOLOPLOS ELONGATUS	ND			5	.083	0.
	ND			1	.001	0.
POLYDORA SP	ND			29	.010	0.
RHYNCHOSPIO SP	ND			2	.001	0.
THARYX PARVUS	ND			83	.037	0,
HETEROMASTUS FILIFORMIS	ND			18	.354	0.
ABARENICOLA PACIFICA	ND			1	.144	0.
LAONOME SP	ND			10	.270	0.
MOLLUSCA						
MYTILUS EDULIS	ND			9	.028	0.
MACOMA BALTHICA	ND			213	1.470	.249
HIATELLA ARCTICA	ND			3	.001	0.
GASTROPODA	ND	IMTR			cool	0.
MARGARITES HELICINUS	ND			2	.001	0.
LACUNA MARMORATA	ND			3	.001	0.
AGLAJA DIOMEDEUM	ND				.009	0.
CRUSTACEA						
HARPACTICOIDA	ND				0.	0.
CAMPYLASPIS VERRUCOSA	ND			5	.001	0.

INSECTA CHIRONOMIDAE	ND	IMTR	1	.°01	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN' GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/1$/7'4
LATITUDE: 6024 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AI' 4:15 IN TIME ZONE: +10
CATALOG NBR:AB740338 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 35B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING' TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: .45 METERS QUADRAT SIZE:0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				.841	.110
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.069	0.
ANNELIDA						
HARMOTHOE IMBRICATA	ND			2	*012	0,
PHLOE MINUTA	ND			8	.057	0.
ANAITIDES MACULATA	ND			1	.001	0.
ETEONE PACIFICA	ND			15	.069	0.
NEPHTYS SCHMITTI	ND			7	.004	0.
GLYCINDE PICTA	ND			1	*137	0.
HAPLOSCOLOPLOS ELONGATUS	NO			9	.126	0.
	ND			3	.002	0.
RHYNCHOSPIO SP	ND			2	.001	0.
CAULLERIELLA SP	ND			3	9002	0.
CAPITELLA CAPITATA	ND			62	.039	0.
HETEROMASTUS FILIFORMIS	ND			10	.577	0.
ABARENICOLA PACIFICA	ND			1	.257	0.
LAONOME SP	ND			17	.173	0.
ENCHYTRAEIDAE	ND	FRAG		1	● 114	0.
ENCHYTRAEIDAE	ND			105	.067	0.
MOLLUSCA						
MACOMA BALTHICA	ND			104	1.396	.410
MYA ARENARIA	ND			2	10264	.449
AGLAJA DIOMEDEUM	NO			6	,007	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 3 0 W
STATION INVESTIGATED FOR 203 HOURS BEGINNING AT 4:15 IN TIMF ZONE: +10
CATALOG NBR:AB740339 ZONE/TRANSECT: 1 Substrate MUD
PHOTOGRAPH NBR: METER NBR: 39A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATIONI .15 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND			8	,014	o.
RHYNCHOCOELA	ND			2	.084	0.
ANNELIDA						
HARMOTHOE IMBRICATA	NO			1	.001	o,
PHLOE MINUTA	ND			3	,021	o*
ETEONE PACIFICA	ND			17	● 070	o*
NEPHTYS SCHMITTI	ND			4	● 004	o.
GLYCINDE PICTA	ND			3	.208	0.
HAPLOSCOLOPLOS ELONGATUS	ND			5	.193	00
	ND			3	● 002	0.
POLYDORA SP	ND			7	.007	0.
SPIO FILICORNIS	ND			4	.002	0.
RHYNCHOSPIO SP	ND			9	.003	0.
CAULLERIELLA SP	ND			3	0001	0.
CAPITELLA CAPITATA	ND			26	.031	0.
HETEROMASTUS FILIFORMIS	ND			18	● 448	0,
	ND			1	,036	o*
LAONOME SP	ND			13	,394	o*
ENCHYTRAEIDAE	ND			67	.021	o.
ENCHYTRAEIDAE	ND			1	● 010	00
MOLLUSCA						
MYTILUS EDULIS	ND			1	● 003	0,
MACOMA BALTHICA	ND			58	4.631	1.625
LITTORINA SITKANA	ND	DEAD		1	00	0.
LACUNA CARININATA	ND			1	,001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS HEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740340 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 39B SURFACE TOPOGRAPHY: SILTORMUD
SAMPLING TIME' 5:23 ARROW NBR: GEAR: CORE
ELEVATION: .15 METERS QUADRAT SIZE: 0 0 SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.010	0.
RHYNCHOCOELA	ND	FRAG		1	.004	0.
ANNELIDA						
HARMOTHOE IMBRICATA	NO			1	cool	o *
PHLOE MINUTA	NO			6	.037	0.
ETEONE PACIFICA	ND			23	0009	0.
NEPHTYS SCHMITTI	ND			8	.004	0.
GLYCINDE PICTA	ND			1	.038	0.
HAPLOSCOLOPLOS ELONGATUS	ND			3	*049	0.
	ND			3	.002	0.
SPIO FILICORNIS	ND			1	.001	0.
RHYNCHOSPIO SP	ND			8	.002	0.
CAULLERIELLA SP	ND			14	.032	0.
CAPITELLA CAPITATA	ND			20	.023	0.
HETEROMASTUS FILIFORMIS	ND			3	.159	0.
LAONOME SP	ND			15	.332	0.
ENCHYTRAEIDAE	ND			310	.085	0.
MOLLUSCA						
MYTILUS EDULIS	ND			3	.003	0.
MACOMA BALTHICA	ND			111	1.841	.551
MYA ARENARIA	ND			1	3.386	1.506
GASTROPODA	ND	IMTR			.001	0.
AGLAJA DIOMEDEUM	ND			8	.005	0.
CRUSTACEA						
CAMPYLASPIS VERRUCOSA	ND			3	.001	0.
OLIGOCHINUS LIGHTI	ND			2	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERNGULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE! 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATE FOR 203 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR:AB740341 ZONE/TRANSECT: 1 SUBSTRATE! MUD
PHOTOGRAPH NBR: METER NBR: 43A SURFACE TOPOGRAPHY SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: -0021 METERS QUADRAT SIZE:0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND			3	.001	0.
ANNELIDA						
HARMOTHOE IMBRICATA	ND			1	● 030	0.
PHLOE MINUTA	ND			7	.024	0.
ETEONE PACIFICA	ND			12	.012	0.
NEPHTYS CILIATA	ND			9	.660	0.
HAPLOSCOLOPLOS ELONGATUS	ND			5	.076	00
	ND			6	.001	0.
POLYDORA CAECA	ND			15	.009	0.
RHYNCHOSPIO SP	ND			10	● 004	0.
CAULLERIELLA SP	ND			13	.007	o*
CAPITELLA CAPITATA	ND			17	● 060	0.
HETEROMASTUS FILIFORMIS	ND			7	.260	0.
ABARENICOLA PACIFICA	NO			2	1.604	.281
LAONOME SP	ND			7	.106	0.
ENCHYTRAEIDAE	ND			2	● 005	0.
ENCHYTRAEIDAE	ND			3	.001	0.
MOLLUSCA						
PROTOTHACA STAMINEA	ND			1	1.087	● 454
MACOMA BALTHICA	ND			81	2.775	1.056
MYA ARENARIA	ND			1	1.289	● 479
AGLAJA DIOMEDEUM	ND			3	.002	o*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 6 0 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FoR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: A8740342 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 43B SURFACE TOPOGRAPHY: SILTORMUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION% -0.21 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME 8 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.088	0,
ANNELIDA						
POLYCHAETA	ND			1	.008	0.
PHLOE MINUTA	ND			13	.042	0.
ETEONE PACIFICA	ND			11	.016	0.
NEPHTYS SCHMITTI	ND			5	.003	0.
GLYCINDE PICTA	ND			2	.117	o,
HAPLOSCOLOPLOS ELONGATUS	ND			9	.313	0.
	ND			8	0003	0.
POLYDORA SP	ND			22	,007	0.
RHYNCHOSPIO SP	ND			13	.007	0.
DODECACERIA SP	ND			10	.015	0.
CAPITELLA CAPITATA	ND			100	.260	0.
LAONOME SP	ND			16	.263	0.
PSEUDOSABELLIDES LITTORALIS	NO			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND	DEAD		1	0.	0.
CLINOCARDIUM NUTTALLII	ND			2	5.095	3.596
MACOMA BALTHICA	ND			4 5	1.906	.576
MYA ARENARIA	ND			1	2.280	1.032
HIATELLA ARCTICA	NO			1	.001	0.
AGLAJA DIOMEDEUM	ND			3	.001	o*
ECHIUROIDEA						
ECHIUROIDEA	ND			1	.330	0.

FALL 1974

STATION NBR:6 HOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3HOURS BEGINNING AT 4:15INTIMEZONE: +10
CATALOG NBR:AB740343 ZONE/TRANSECT: 1 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 47A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUMES 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.012	0.
RHYNCHOCOELA	ND	FRAG		1	● 012	0.
ANNELIDA						
PHLOE MINUTA	ND			8	● 042	o*
ANAITIDES MACULATA	ND			1	.009	0.
ETEONE PACIFICA	ND			11	,007	0.
NEPHTYS SCHMITTI	ND			7	● 010	0.
GLYCINDE PICTA	ND			2	.125	0.
HAPLOSCOLOPLOS ELONGATUS	ND			12	● 255	0.
	ND			57	,034	00
SPIO FILICORNIS	ND			1	● 001	0.
RHYNCHOSPIO SP	ND			15	.004	0.
CAULLERIELLA SP	ND			24	● 008	0.
CHAETOZONE SETOSA	ND			1	● 001	0.
CAPITELLA CAPITATA	NC)			25	.020	0.
HETEROMASTUS FILIFORMIS	ND			11	.490	0.
	ND			1	.017	0,
PECTINARIA BELGICA	ND			1	.001	0.
AMPHARETE ARCTICA	ND			1	.001	o*
CHONE INFUNDIBULIFORMIS	ND			1	.020	o.
LAONOME SP	ND			14	.198	0.
ENCHYTRAEIDAE	ND			37	.010	0,
MOLLUSCA						
CLINOCARDIUM NUTTALLII	ND			1	100058	5.721
MACOMA BALTHICA	ND			102	1.791	● 583
GASTROPODA	ND	IMTR		1	● 001	0.
LITTORINA SITKANA	ND	DEAD			00	0.
LACUNA MARMORATA	ND			1	.002	0.
AGLAJA DIOMEDEUM	ND			8	● 009	0.
CRUSTACEA						
CAMPYLASPIS VERRUCOSA.	ND			6	● 001	0,
AMPHIPODA	ND			3	.001	0.
OLIGOCHINUS LIGHTI	ND			1	.001	0,
TALITRUS SP	ND			2	.002	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN T ME ZONE: +10
CATALOG NBR: AB740344 ZONE/TRANSECT: 1 SUBSTRATE: M
PHOTOGRAPH NBR: METER NBR: 47B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.012	0.
ANNELIDA						
PHLOE MINUTA	ND			16	.042	0.
ANAITIDES MACULATA	ND			1	.004	0.
ETEONE PACIFICA	ND			15	.016	0.
NEPHTYS SCHMITTI	ND			14	.009	0.
GLYCINDE PICTA	ND			1	.007	0.
HAPLOSCOLOPLOS ELONGATUS	ND			7	.129	0.
	ND			93	.054	0.
SPIO FILICORNIS	ND			1	.001	0.
RHYNCHOSPIO SP	ND			33	.012	0.
CAULLERIELLA SP	ND			18	.008	0.
CAPITELLA CAPITATA	ND			41	.037	0.
HETEROMASTUS FILIFORMIS	ND			5	.155	0.
CISTENIDES BREVICOMA	ND			1	.086	0.
AMPHARETE ARCTICA	ND			3	.002	0.
FABRICIA SABELLA	ND			1	.001	0.
LAONOME SP	ND			11	.204	0.
ENCHYTRAEIDAE	ND			29	.006	0.
ENCHYTRAEIDAE	ND			2	.029	0.
MOLLUSCA						
MYTILUS EDULIS	ND			4	.007	0.
MACOMA BALTHICA	ND			58	2.692	.939
LITTORINA SITKANA	ND			1	.001	0.
ODOSTOMIA SP	ND			1	.001	0.
AGLAJA DIOMEDEUM	ND			1	.001	0.
CRUSTACEA						
CAMPYLASPIS VERRUCOSA	ND			1	.001	0.
OLIGOCHINUS LIGHTI	ND			1	.001	0.
PARAMOERA COLUMBIANA	ND	FRAG		1	.001	0.

BIOTICDENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 602460N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR:AB740345 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 3A SURFACE TOPOGRAPHY! SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: cORE
ELEVATION: 2.89 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT [GRAMS)
ANNELIDA						
ENCHYTRAEIDAE	ND			5	.001	0.
MOLLUSCA						
COLLISELLA OCHRACEA	ND	DEAD		1	0.	0.
LITTORINA SITKANA	ND	DEAD		11	0.	0.
LITTORINA SCUTULATA	ND	DEAD		2	0.	0*
LACUNA MARMORATA	ND	DEAD		1	0.	0.
CRUSTACEA						
PARAMOERA COLUMBIANA	ND			1	.004	0.
PARALLORCHESTES SP	ND			3	.013	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 6 0 N LONGITUDE: 146 6 3 0 %
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740346 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 3B SURFACE TOPOGRAPHY; SILTORMUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION! 2.89 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
PTEROSIPHONIA BIPINNATA	ND	FRAG		1	.001	0.
ODONTHALIA FLOCCOSA	ND	FRAG		1	.007	0.
ANNELIDA						
ENCHYTRAEIDAE	ND			1	.003	0.
MOLLUSCA						
LITTORINA SITKANA	ND	DEAD		1	0.	o*
CRUSTACEA						
PARAMOERA COLUMBIANA	ND			4	.055	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 w
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740347 ZONE/TRANSECT! 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: 7401010313 METER NBR: 7 A SURFACE TOPOGRAPHY: SILT ORMUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
Elevation 2.58 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
ANNELIDA						
ENCHYTRAEIDAE	NO			10	● 002	0.
MOLLUSCA						
MACOMA BALTHICA	ND	DEAD			00	0.
LITTORINA SITKANA	ND	DEAD			o.	0.
LITTORINA SCUTULATA	NO	DEAD			0.	0.
CRUSTACEA						
BALANUS GLANDULA	ND			1	.066	0.
AMPHIPODA	ND			11	.142	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: . 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60, 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740348 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: 7401010313 METER NBR: 7B SURFACE TOPOGRAPHY SILT ORMUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 2.58 METERS QUADRAT SIZE: 011 SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
NEMATODA ,						
NEMATODA	ND			2	.001	o,
ANNELIDA						
ENCHYTRAEIDAE	ND			16	.003	0.
MOLLUSCA						
MACOMA BALTHICA	ND	DEAD			0,	0.
LITTORINA SITKANA	ND	DEAD			0.	0.
LITTORINA SCUTULATA	ND	DEAD			09	0.
CRUSTACEA						
AMPHIPODA	ND			4	.028	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THEFASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDEI 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIMF ZONE: +10
CATALOG NBR:AB740349 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: 7401010317 METER NBR: 11A SURFACE TOPOGRAPHY: SILT ORMUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.97 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				.007	0.
PHAEOPHYTA						
SCYTOSIPHON LOMENTARIA	ND				.002	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.005	00
EMPLECTONEMA GRACILE	NO	FRAG		1	.241	0.
ANNELIDA						
POLYCHAETA	ND	FRAG			.001	0.
ETEONE PACIFICA	ND			4	● 009	0.
RHYNCHOSPIO SP	ND			15	.004	0.
CHAETOZONE SETOSA	ND			1	.001	0.
CAPITELLA CAPITATA	ND			2	.006	0.
FABRICIA SABELLA	ND			1	0001	0.
LAONOME SP	ND	FRAG		1	0001	0.
ENCHYTRAEIDAE	ND			93	.028	0.
MOLLUSCA						
MYTILUS EDULIS	ND			5	.015	0.
SAXIDOMUS GIGANTEA	ND	OEAD		1	00	0.
MACOMA BALTHICA	ND			7	.145	0.
GASTROPODA	ND	IMTR		1	*001	0*
LITTORINA SITKANA	ND			15	.301	0.
LITTORINA SITKANA	ND	DEAD		46	0.	0.
LITTORINA SCUTULATA	ND	OEAO		7	0.	0.
LACUNA CARININATA	ND	OEAO		1	0.	0.
LACUNA MARMORATA	ND	OEAO		11	0.	0.
CRUSTACEA						
HARPACTICOIDA	ND			1	.001	0.
BALANUS GLANDULA	ND			3	.346	0,
CAMPYLASPIS VERRUCOSA	ND			2	.001	0*
COROPHIIDAE SP	ND			10	● 002	0,
PARAMOERA COLUMBIANA	NO			3	.004	0.
CALLIANASSA SP	ND			1	.005	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 197'4

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 2 4 60 N LONGITUDE: 146 6 30 W
"STATION" INVESTIGATED FOR 2.3 HOURS BEGINNING A T 4:15 IN TIMF ZONE: +10
CATALOG NBR: AB740350 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: 7401010317 METER NBR: 11B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.97 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	'WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.009	0.
EMPLECTONEMA GRACILE	ND			2	.037	0.
ANNELIDA						
ETEONE PACIFICA	ND			2	.013	0.
SPIO FILICORNIS	ND			1	.001	0.
MOLLUSCA						
MACOMA BALTHICA	ND			1	.020	0.
LITTORINA SITKANA	ND			2	.265	0.
LITTORINA SITKANA	ND	DEAD		6	0.	0.
CRUSTACEA						
BALANUS GLANDULA	ND			3	.638	0.
ANISOGAMMARUS LOCUSTOIDES	ND			3	.044	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE? 60 24 60 N LONGITUDE: 146 6 3 0 W
STATION INVESTIGATED For? 2.3 HoURS BEGINNING AT 4:15 IN TIMF ZONE: +10
CATALOG NBR: AB740351 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 15A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATIONI 1.67 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				.001	o,
PHAEOPHYTA						
SCYTOSIPHON LOMENTARIA	ND				.001	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND	FRAG		1	.050	0,
ANNELIDA						
ETEONE PACIFICA	ND			5	.014	0,
SPIO FILICORNIS	ND			8	.002	0.
CAPITELLA CAPITATA	NO			2	.003	0.
ENCHYTRAEIDAE	ND			37	.004	0.
MOLLUSCA						
MYTILUS EDULIS	ND			22	3.556	1● 456
MYTILUS EDULIS	ND			1	.001	o*
MACOMA BALTHICA	ND			13	.043	o.
HIATELLA ARCTICA	ND			2	.001	0.
LITTORINA SITKANA	ND			26	.180	0.
LITTORINA SITKANA	ND	DEAD		61	00	0.
LITTORINA SCUTULATA	ND			1	.026	0.
LITTORINA SCUTULATA	ND	DEAD		9	0.	0.
LACUNA MARMORATA	ND	DEAD		7	0.	0.
CRUSTACEA						
BALANUS GLANDULA	ND			23	2.440	1,863
PARAMOERA COLUMBIANA	ND			1	.025	o*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740352 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 15B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.67 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT GRAMS)	DRY WEIGHT GRAMS)
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND			1	7.545	1.017
ANNELIDA						
ETEONE PACIFICA	ND			1	.031	0.
MOLLUSCA						
MYTILUS EDULIS	ND			3	.238	0.
MACOMA BALTHICA	ND			2	.538	0.
	ND	DEAD			0.	0.
LITTORINA SITKANA	ND			9	1.946	1.194
CRUSTACEA						
BALANUS BALANOIDES	ND				0.	0.
	ND			2	.309	0.

BIOTICDENSITIESOF INTERTIDAL ORGANISMS FROMTHE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6BOSWELL B A Y DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 630 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIMEZONE: +10
CATALOG NBR:AB740352 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 15B SURFACE TOPOGRAPHYI SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION% 1.67 METERS QUADRAT SIZE: 00 SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND			1	7.545	1.017
ANNELIDA						
ETEONE PACIFICA	ND			1	.031	00
MOLLUSCA						
MYTILUS EDULIS	ND			3	,238	0,
MACOMA BALTHICA	ND			2	.538	0.
	ND	DEAD			0.	o,
LITTORINA SITKANA	ND			9	1,946	10194
CRUSTACEA						
BALANUS BALANOIDES	ND				0.	0.
	ND			2	.309	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740353 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 19A SURFACE Topography SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.36 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND	FRAG			.042	0.
ENTEROMORPHA INTESTINALIS	NO				0.	0.
PHAEOPHYTA						
SCYTOSIPHON LOMENTARIA	ND				.016	0.
RHODOPHYTA						
PTEROSIPHONIA BIPINNATA	ND				0.	0.
CNIDARIA						
EUDENDRIUM 5 P' '	ND			1	.001	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			3	.001	0.
ANNELIDA						
ETEONE PACIFICA	ND			8	.065	0.
TYPOSYLLIS PULCHRA	ND			1	.001	0.
PARAONIS GRACILIS	ND			12	.001	0.
RHYNCHOSPIO SP	ND			1	.001	0,
CAPITELLA CAPITATA	ND			9	.003	o*
ENCHYTRAEIDAE " ,	ND			3	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			5	.096	0.
MACOMA BALTHICA	ND			20	3.407	1.727
MYA ARENARIA	ND			2	1.475	.813
COLLISELLA PELTA	ND			1	.014	0.
LITTORINA SITKANA	ND			11	.873	0.
LITTORINA SITKANA	ND	DEAD		14	0.	0.
LITTORINA SCUTULATA	ND			1	.071	0.
CRUSTACEA						
HARPACTICOIDA	ND			2	.001	0.
BALANUS GLANDULA	ND			12	1.013	.592
CAMPYLASPIS VERRUCOSA	ND			7	.004	0.
GNORIMOSPHAEROMA OREGONENSIS	ND			1	.009	0.
AMPHIPODA	ND			97	.025	0.
PARAPLEUSTES NAUTILUS	ND			1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/?4
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR:AB740354 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 19B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.36 METERS QUADRAT SIZE:0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
RHODOPHYTA	ND				.034	0.
RHYNCHOCOELA						
RHYNCHOCOELA	NO			9	●017	0.
EMPLECTONEMA GRACILE	ND			5	.113	0.
ANNELIDA						
ETEONE PACIFICA	ND			3	●008	0.
SPIO FILICORNIS	NO			1	.001	0.
ENCHYTRAEIDAE	ND			13	.003	0.
MOLLUSCA						
MYTILUS EDULIS	ND			5	●498	0.
MACOMA BALTHICA	ND			13	2.608	1.330
MVA ARENARIA	ND			3	.768	0.
COLLISELLA PELTA	ND			3	.090	0.
LITTORINA SITKANA	ND			10	.286	0.
LITTORINA SCUTULATA	ND			3	.149	0.
CRUSTACEA						
BALANUS GLANDULA	ND			53	7.023	4.598
COROPHIIDAE SP	ND			71	.014	0,

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740355 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR 27A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.06 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
PHAEOPHYTA	ND	FRAG		1	0.	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			2	.001	0.
ANNELIDA						
HARMOTHOE IMBRICATA	ND			1	.009	0.
PHLOE MINUTA	ND			4	.012	0.
ETEONE PACIFICA	ND			26	.037	0.
NEPHTYS CILIATA	ND			1	.001	0.
NEPHTYS SCHMITTI	ND			7	.003	0.
GLYCINDE PICTA	ND			1	.156	0.
HAPLOSCOLOPLOS ELONGATUS	ND			22	.396	0.
RHYNCHOSPIO SP	ND			1	.001	0.
CAULLERIELLA SP	ND			20	.010	0.
CAPITELLA CAPITATA	ND			57	.105	0.
HETEROMASTUS FILIFORMIS	ND			5	.270	0.
	ND			3	.079	0.
LAONOME SP	ND			23	.573	0.
ENCHYTRAEIDAE	ND			108	.052	0.
MOLLUSCA						
MYTILUS EDULIS	ND			11	.021	0.
MACOMA BALTHICA	ND			113	3.286	1.010
CRUSTACEA						
CAMPYLASPIS VERRUCOSA	ND			1	.001	0.
COROPHIIDAE SP	ND			1	.001	0.

BIOTICDENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE% 6024 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3HOURS HEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR:AB740356 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 27B SURFACE Topography SILTORMUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION? 1.06 METERS QUADHAT SIZE: O. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				3.847	0.
RHYNCHOCOELA						
RHYNCHOCOELA	NC?	DEAD		1	.010	0.
ANNELIDA						
HARMoTHOE IMBRICATA	ND			4	.048	0.
PHLOE MINUTA	ND			6	.038	0.
ETEONE PACIFICA	ND			12	.079	0.
NEPHTYS SCHMITTI	ND			11	.006	0.
GLYCINDE PICTA	ND			3	.139	0.
HAPLOSCOLOPLOS ELONGATUS	ND			21	.247	0.
	ND			5	.002	0.
RHYNCHOSPIO SP	ND			10	0005	0.
CAULLERIELLA SP	ND			21	.043	0.
CAPITELLA CAPITATA	ND			134	.234	0.
HETEROMASTUS FILIFORMIS	NO			3	.132	0.
	ND			1	.001	0.
FABRICIA SABELLA	ND			2	.001	0.
LAONOME SP	NO			35	.452	0.
ENCHYTRAEIDAE	ND			408	.151	0.
MOLLUSCA						
MYTILUS EDULIS	ND			23	.086	0.
MACOMA OBLIQUA	ND			1	2.267	1.268
MACOMA BALTHICA	ND			98	2.498	.779
GASTROPODA	ND			2	.001	0.
AGLAJA DIOMEDEUM	ND			6	0004	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: A8740357 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 31A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: 1.06 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
TURBELLARIA						
TURBELLARIA	ND			13	.014	0.
NEMATODA						
NEMATODA	ND			67	0.	0.
ANNELIDA						
HARMOTHOE IMBRICATA	ND			1	.025	0.
PHLOE MINUTA	ND			2	.028	0.
ETEONE PACIFICA	ND			7	.037	0.
GLYCINDE PICTA	ND			4	.041	0.
HAPLOSCOLOPLOS ELONGATUS	ND			7	.017	0.
CAULLERIELLA SP	ND			9	.009	0.
CAPITELLA CAPITATA	ND			47	.057	0.
HETEROMASTUS FILIFORMIS	ND			6	.093	0.
LAONOME SP	ND			15	.342	0.
ENCHYTRAEIDAE	ND			434	.139	0.
MOLLUSCA						
MYTILUS EDULIS	ND			7	.032	0.
CLINOCARDIUM CILIATUM	ND			1	.311	0.
MACOMA BALTHICA	ND			103	.968	0.
LACUNA CARININATA	ND			2	.002	0.
AGLAJA DIOMEDEUM	ND			3	.001	0.
CRUSTACEA						
HARPACTICOIDA	ND			1	.001	0.
CAMPYLASPIS VERRUCOSA	ND			2	.001	0.

BIOTICDENSITIES OF INTERTIDAL ORGANISMSFROMTHEEASTERN GULF OF ALASKA
FALL 1974

STATION NBR:6 BOSWELL BAY DATE: 9/18/74
LATITUDES 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR:AB740358 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 31B SURFACE TOPOGRAPHY: SILTOR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATIONS 1006 METERS QUADRAT SIZE: O. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
TURBELLARIA						
TURBELLARIA	ND			5	.002	00
NEMATODA						
NEMATODA	ND			68	0.	0.
ANNELIDA						
PHLOE MINUTA	ND			12	.064	0,
ANAITIDES MACULATA	ND			1	.002	O*
ETEONE PACIFICA	ND			18	.010	0.
NEPHTYS SCHMITTI	ND			9	● 006	0.
HAPLOSCOLOPLOS ELONGATUS	ND			15	● 049	0,
	ND			8	● 006	0.
POLYDORA CAECA	ND			43	● 008	0.
RHYNCHOSPIO SP	No			6	● 002	0,
CAULLERIELLA SP	ND			14	.011	00
CAPITELLA CAPITATA	ND			71	.067	0,
HETEROMASTUS FILIFORMIS	ND			4	.057	0.
LAONOME SP	ND			15	,037	0.
ENCHYTRAEIDAE	ND			476	.139	0.
MOLLUSCA						
MYTILUS EDULIS	ND			8	,024	0.
MACOMA BALTHICA	ND			107	3.206	.841
MYA ARENARIA	ND			1	3.010	1.638
AGLAJA DIOMEDEUM	ND			5	.008	0.
CRUSTACEA						
HARPACTICOIDA	ND			1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740359 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 35A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: .75 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.005	0.
ANNELIDA						
HARMOTHOE IMBRICATA	ND			2	.005	0.
PHLOE MINUTA	ND			12	.043	0.
ETEONE PACIFICA	ND			14	.016	0.
NEPHTYS CILIATA	ND			4	.065	0.
NEPHTYS SCHMITTI	ND			22	.036	0.
HAPLOSCOLOPLOS ELONGATUS	ND			3	.009	0.
	ND			55	.066	0.
RHYNCHOSPIO SP	ND			16	.004	0.
CAULLERIELLA SP	ND			13	.008	0.
LAONOME SP	ND			22	.684	0.
ENCHYTRAEIDAE	ND			221	.063	0.
MOLLUSCA						
MYTILUS EDULIS	ND			6	.031	0.
LAONOME SP	ND			22	.684	0.
ENCHYTRAEIDAE	ND			221	.063	0.
MOLLUSCA						
MYTILUS EDULIS	ND			6	.031	0.
MACOMA BALTHICA	ND			70	5.547	1.974
LITTORINA SITKANA	ND			3	.013	0.
CRUSTACEA						
AMPHIPODA	ND			1	.001	0.
INSECTA						
INSECTA	ND			1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740360 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 35B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: .75 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.014	0.
ANNELIDA						
PHLOE MINUTA	ND			3	.011	0.
ETEONE PACIFICA	ND			18	.011	0.
MYSTA BARBATA	ND			2	.006	0.
NEPHTYS SCHMITTI	ND			4	.008	0.
GLYCINDE PICTA	ND			1	.042	0.
HAPLOSCOLOPLOS ELONGATUS	ND			1	.006	0.
	ND			39	.043	0.
SPIO FILICORNIS	ND			1	.001	0.
RHYNCHOSPIO SP	ND			11	.003	0.
CAULLERIELLA SP	ND			10	.007	0.
CAPITELLA CAPITATA	ND			4	.002	0.
HETEROMASTUS FILIFORMIS	ND			1	.002	0.
	ND			1	.016	0.
LAONOME SP	ND			14	.606	0.
ENCHYTRAEIDAE	ND			232	*139	0.
MOLLUSCA						
MYTILUS EDULIS	ND			13	.051	0.
CLINOCARDIUM NUTTALLII	ND			2	17.119	7.818
MACOMA BALTHICA	ND			56	2.396	.485
GASTROPODA	ND			1	.001	0.
NUCELLA SP	ND	IMTR		1	.033	0.
AGLAJA DIOMEDEUM	ND			7	.005	0.
CRUSTACEA						
CAMPYLASPIS VERRUCOSA	ND			1	.001	0.
TANIDACEA	ND			1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

'STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60, N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740362 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 39B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: .45 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				.162	0.
PROTOZOA						
PROTOZOA	ND			3	.001	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.099	0.
RHYNCHOCOELA	ND	FRAG		1	@053	0.
ANNELIDA						
HARMOTHOE IMBRICATA	ND			1	.001	0.
PHLOE MINUTA	ND			7	.031	0*
ETEONE PACIFICA	ND			12	.013	0.
NEPHTYS CILIATA	ND			1	.075	0.
NEPHTYS SCHMITTI	ND			22	.010	0.
GLYCINDE PICTA	NO			1	.026	0*
HAPLOSCOLOPLOS ELONGATUS	ND			3	.057	o.
	ND			27	.009	0.
POLYDORA CILIATA	ND			1	.001	0.
SPIO FILICORNIS	NO			5	,002	0*
RHYNCHOSPIO SP	ND			1	.005	0.
THARYX MULTIFILIS	ND			34	.018	0*
CAPITELLA CAPITATA	ND			54	.061	0.
HETEROMASTUS FILIFORMIS	ND			4	.179	0.
	ND			1	.027	0.
PECTINARIA BELGICA	ND			4	.073	0*
AMPHARETE ARCTICA	ND			1	.001	0*
GLYPHANOSTOMUM PALLESCENS	ND			1	.001	0.
LAONOME SP	ND			11	.372	0.
ENCHYTRAEIDAE	ND			34	,008	0.
MOLLUSCA						
MYTILUS EDULIS	ND			22	.100	0.
CLINOCARDIUM CILIATUM	ND			2	13.132	6.573
MACOMA BALTHICA	ND			81	3.469	1.230
MYA ARENARIA	ND			1	1.003	.546
GASTROPODA	ND	IMTR		9	.001	0.
MARGARITES HELICINUS	ND			1	.001	0.

AGLAJA DIOMEDEUM	N1)		9	.011	0.
CRUSTACEA					
PLATYCOPA	ND		6	.001	0.
HARPACTICOIDA	FEM	GRVD	1	.001	0.
CAMPYLASPIS VERRUCOSA	ND		4	● 001	0.
AMPHIPODA	N1)		2	.001	00
AMPHIPODA	ND	FRAG	1	.007	0.
PARAMOERA COLUMBIANA	NO		1	● 001	0,
CALLIANASSA SP	ND		1	.003	0.
INSECTA					
CHIRONOMIDAE	ND	IMTR	1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740363 ZONE/TRANSECT: 2 SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 43A SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: CORE
ELEVATION: .18 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.022	0.
ANNELIDA						
HARMOTHOE IMBRICATA	ND			1	.003	0.
PHLOE MINUTA	ND			13	.026	0.
NAITIDES MACULATA	ND			1	.003	0.
ETEONE PACIFICA	ND			6	.004	0.
EXOGONE MOLESTA	ND			1	.001	0.
NEPHTYS CILIATA	ND			2	.234	0.
NEPHTYS SCHMITTI	ND			16	.011	0.
GLYCINDE PICTA	ND			5	.174	0.
HAPLOSCOLOPLOS ELONGATUS	ND			6	.222	0.
	ND			144	.096	0.
SPIO FILICORNIS	ND			3	.044	0.
RHYNCHOSPIO SP	ND			45	.015	0.
CAULLERIELLA SP	ND			13	.007	0.
CAPITELLA CAPITATA	ND			12	.022	0.
HETEROMASTUS FILIFORMIS	ND			2	.074	0.
CISTENIDES BREVICOMA	ND			1	.001	0.
AMPHARETE ARCTICA	ND			6	.019	0.
FABRICIA SABELLA	ND			2	.001	0.
LAONOME SP	ND			11	.158	0.
ENCHYTRAEIDAE	ND			101	.021	0.
MOLLUSCA						
MYTILUS EDULIS	ND			21	.099	0.
CLINOCARDIUM CILIATUM	ND			1	18.923	9.263
MACOMA BALTHICA	ND			160	1.685	.544
GASTROPODA	ND	IMTR		3	.001	0.
LITTORINA SITKANA	ND			1	.005	0.
AGLAJA DIOMEDEUM	ND			11	.012	0.
ARACHNIDA						
HALACARIDAE	ND			2	.001	0.

CRUSTACEA				
HARPACTICOIDA	ND	10	0.	0.
CAMPYLASPIS VERRUCOSA	ND	22	.002	0.
AMPHIPODA	ND	4	.002	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 6 BOSWELL BAY DATE: 9/18/74
LATITUDE: 60 24 60 N LONGITUDE: 146 6 30 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 4:15 IN TIME ZONE: +10
CATALOG NBR: AB740364 ZONE/TRANSECT: SUBSTRATE: MUD
PHOTOGRAPH NBR: METER NBR: 43B SURFACE TOPOGRAPHY: SILT OR MUD
SAMPLING TIME: 5:23 ARROW NBR: GEAR: NO INFORMATION
ELEVATION: .18 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 1.000 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT GRAMS)
CHLOROPHYTA						
ENTEROMORPHA INTESTINALIS	ND				.111	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	.030	0.
ANNELIDA						
HARMOTHOE IMBRICATA	ND			3	.004	0.
PHLOE MINUTA	ND			23	.078	0.
ANNITIDES MACULATA	ND			4	.004	0.
ETEONE PACIFICA	ND			7	.020	0.
NEREIS SP	ND			1	.001	0.
NEPHTYS CILIATA	ND			5	.082	0.
NEPHTYS SCHMITTI	ND			18	.018	0.
GLYCINDE PICTA	ND			2	.051	0.
HAPLOSCOLOPLOS ELONGATUS	ND			3	.033	0.
	ND			100	.083	0.
POLYDORA CILIATA	ND			293	.157	0.
RHYNCHOSPIO SP	ND			38	.018	0.
CAULLERIELLA SP	ND			8	.015	0.
CAPITELLA CAPITATA	ND			16	.045	0.
HETEROMASTUS FILIFORMIS	ND			3	.021	0.
	ND			1	.015	0.
PECTINARIA BELGICA	ND			1	.010	0.
AMPHARETE ARCTICA	ND			6	.003	0.
GLYPHANOSTOMUM PALLESCENS	ND			1	.002	0.
LAONOME SP	ND			8	.354	0.
MOLLUSCA						
MYTILUS EDULIS	ND			5	.026	0.
MACOMA BALTHICA	ND			64	1.501	.356
HIATELLA ARCTICA	ND			4	.001	0.
MARGARITES HELICINUS	ND			2	.001	0.
AGLAJA DIOMEDEUM	ND			1	.001	0.
CRUSTACEA						
CAMPYLASPIS VERRUCOSA	ND			1	.001	0.
AMPHIPODA	ND			6	.010	0.

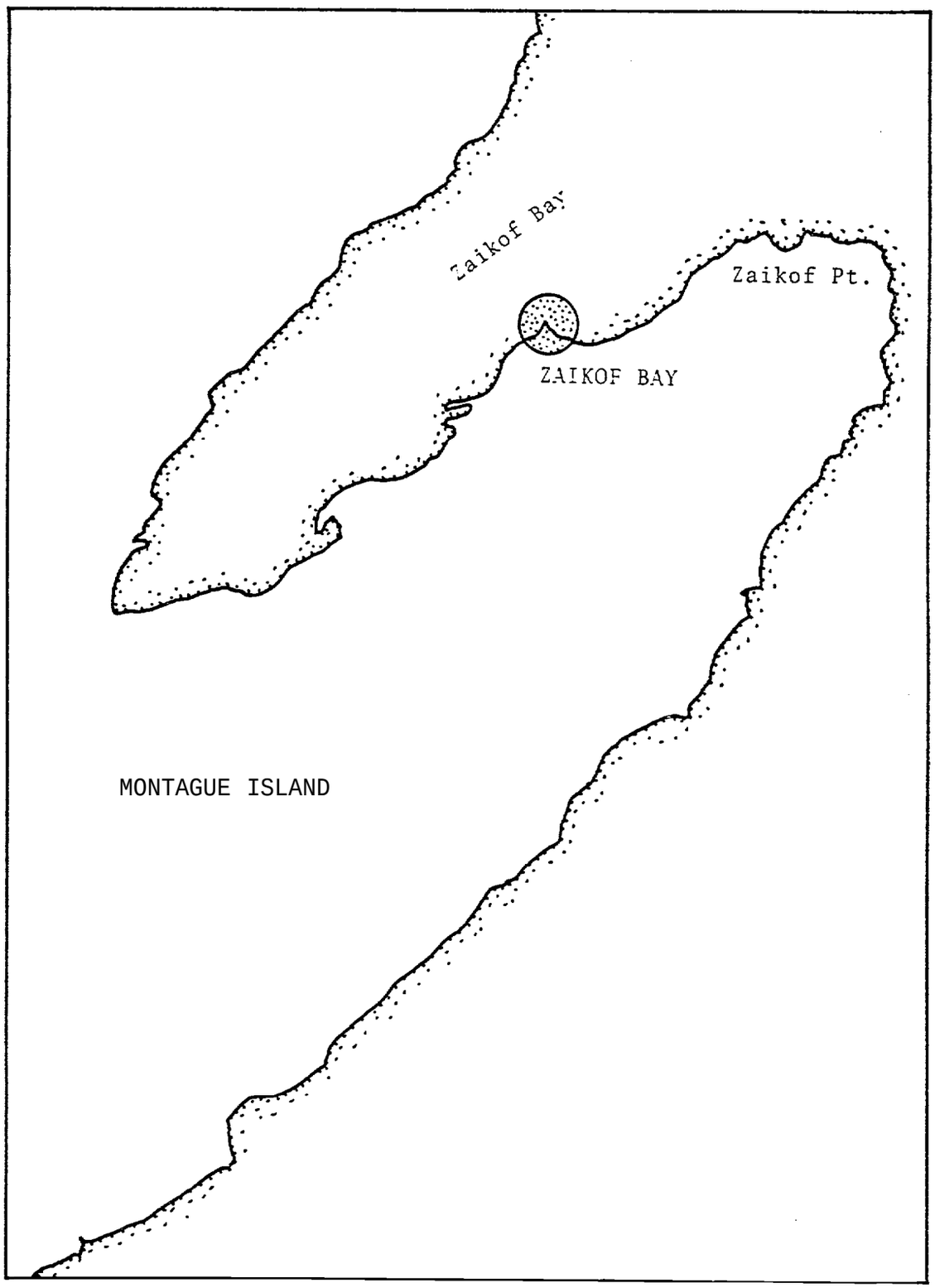

Figure A-7. Zaikof Gay sampling **site.**

SPECIES OF ZAIKOF BAY

CHLOROPHYTA
- Chlorophyta
- Ulothrix sp.
- Ulothrix flacca
- Monostroma sp.
- Monostroma fuscum
- Enteromorpha linza
- Ulva sp.
- Ulva lactuca
- Ulva rigida
- Rhizoclonium sp.
- Rhizoclonium riparium
- Urospira mirabilis
- Chaetomorpha sp.
- Cladophora seriacea

BACILLARIOPHYCEAE
- Bacillariophyceae

PHAEOPHYTA
- Phaeophyta
- Ectocarpus simulans
- Pylaiella littoralis
- Ralfsia fungiformis
- Sphacelaria subfusca
- Elachistea fucicola
- Leathesia difformis
- Soranthera ulvoidea
- Melanosiphon intestinale
- Laminaria yezoensis
- Alaria sp.
- Alaria marginata
- Alaria praelonga
- Fucus sp.
- Fucus distichus

RHODOPHYTA
- Rhodophyta
- Erythrotrichia carmea
- Acrochaetium pacificum
- Porphyra sp.
- Cryptosiphonia sp.
- Cryptosiphonia woodii
- Constantinea subulifera
- Gloiopeltis sp.
- Gloiopeltis furcata
- Tenarea dispar
- Bossiella Chiloensis

RHODOPHY TA cont.

Bossiella plumosa
Corallina frondescens
Callophyllis flabellulata
Ahnfeltia plicata
Gigartina sp.
Gigar tina agardhii
Iridaea sp.
Iridaea cornucopia
Iridaea heterocarpa
Halos accion glandiforme
Rhodymenia palmata
Antithamnion sp.
Anti thamnion kylinii
An tithamnion simulans
Scagelia occi dentale
Ptilota Sp.
Ptilota filicina
Ptilota tenuis
Neoptilota asplendioides
Neoptilota hypnoides
Tokidadendron bullata
Phycodrys sp.
Polysiphonia sp.
Polysiphonia hendryi
Polysiphonia pacifica
Pterosiphonia sp
Pterosiphoniabipinnata
Rhodome la larix
Odonthalia sp.
Odonthalia floccosa
Odonthalia kamschatica
Odonthalia washing toniensis

AN THOPHY TA

Zostera marina

PORIFERA

Porifera

TURBE LLARIA

Turbellaria

RHYNCHOCOE LA

Rhynchocoela
Emple c tone ma gracile

NE MA TODA

Nematoda

ANNE LIDA

Annelida

ANNE LIDA cont.

Polychaeta
Polynoidea
Harmothoe imbricata
Anaitides mac ulata
E teone pacifica
E ulalia viridis
Typos yllis alternata
Typos yllis pulchra
Exogone gemmifera
Exogone lourei
Sphaerosyllis hystrix
Nereis sp.
Nereis pelagica
Nereis vexillosa
Platynereis bicanaliculata
Nephtys sp.
Sphaerodoridium gracilis
Lumbrineridae
Lumbrineris zonata
Spionidae
Spio filicornis
Caulleriella sp.
Pherusa papillata
Opheliidae
Armandia brevis
Capitella capitata
Cistenides brevicoma
Ampharetidae
Pseudosabellides littorals
Spirorbis spirillum
Enchytraeidae

MOLLUSCA

Mollusca
Polyplacophora
Tonicella lineata
Katharina tunicata
Pelecypoda
Mytilus edulis
Musculus discors
Dacrydium sp.
Protothaca staminea
Hiatella arctica
Thracia sp.
Gastropoda

MOLLUSCA cont.

Collisella sp.
Collisella pelts
Notoacmaea persona
Margaritas sp.
Margaritas pupillus
Littorina sitkana
Littorina scutulata
Lacuna sp.
Lacuna carininata
Lacuna marmorata
Alvinia sp.
Alvinia compacta
Cingula sp.
Nucella sp.
Nucella canaliculata
Nucella lamellosa
Buccinum polare
Buccinum baeri
Searlisa dira
Mitrella sp.
Mitrella tuberosa
Mitrella gouldi
Odostomia sp.
Diaphana minuta

ARACHNIDA

Halacaridae
Pseudoscorpionida

PYCNOGONIDA

Phoxichilidium quadradentatum

CRUS TACEA

Crustacea
Platycopa
Harpacticoida
Balanus sp.
Balanus balanoides
Balanus cariosus
Balanus glandula
Eudorella emarginata
Campylaspis sp.
Campylaspis verrucosa
Campylaspis affinis
Cumella sp.
Pentidotea wosensenskii
Sphaeromatidae

CRUSTACEA cont.

Gnorimoaphaeroma oregonensis
Ianiropsis kincaidi kincaid i
Munna sp.
Amphipoda
Odius carinatus
Ampithoe sp.
Ampithoe rubricata
Ampithoe rubricatoides
Ampithoe simulans
Oligochinus lighti
Corophium sp.
Paramoera sp.
Paramoera columbiana
Paramoera carlottensis
Hyalidae
Hyale rubra frequens
Parallorches tes ochotensis
Photis brevipes
Ischyrocerus sp.
Parapleustes nautilus
Parapleustes pugettensis
Metopelloides sp.
Callianassa sp.
Cancer productus
Cancer oregonensis

INSECTA

Insects
Diptera
Chironomidae

BRYOZOA

Bryozoan

ASTEROIDEA

Asteroidea
Leptasterias sp.
Leptasterias hexactis
Pisaster ochraceus

ECHINOIDEA

Strongylocentrotus droebachiensis

OPHIUROIDEA

Ophiuroidea

TELEOSTEI

Clinocottus acuticeps
Pholis laeta

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/12/74
LATITUDE: 60 17 95 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 4.0 HOURS BEGINNING AT 23:30 IN TIME ZONE: +10
CATALOG NBR: AB740240 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010016 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR: E1O GEAR: ARROW
ELEVATION: 1.97 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	cOUNT	wET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL			259.100	65.170
RHODOPHYTA						
NEOPTILOTA ASPLENIOIDES	ND				2.432	0257
ODONTHALIA FLOCCOSA	ND				2.296	● 238
MOLLUSCA						
MYTILUS EDULIS	ND			15	24.475	9.656
MYTILUS EDULIS	ND			109	5*100	2.129
MYTILUS EDULIS	ND			7	13.050	5.640
COLLISELLA PELTA	ND			13	2.,035	.610
LITTORINA SITKANA	ND			1017	86.701	51.850
LITTORINA SCUTULATA	ND			28	.400	0.
CRUSTACEA						
BALANUS GLANDULA	ND			34	12.292	7.685
PENTIDOTEA WOSENSENSKII	ND			1	.(-)40	0.
	ND			99	8.009	1.200

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/12/74
LATITUDE: 60 17 95 N LONGITUDEI 147 0 0 W
STATION INVESTIGATE() FOR 4.0 HOURS BEGINNING AT 23:30 IN TIME ZONE: +10
CATALOG NBR:AB740241 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR:7401010016 METER NBR: SURFACE TOPOGRAPHY:NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR: W10 GEAR: ARROW
ELEVATION; 1.97 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
UROSPIRA MIRABILIS	ND				.004	0.
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND			2	.015	0.
ELACHISTEA FUCICOLA	ND			8	.240	0.
SORANTHERA ULVOIDEA	ND	-			.038	o*
FUCUS DISTICHUS	ND	STRL			215.000	53.500
RHODOPHYTA						
AHNFELTIA PLICATA	ND				.004	0.
PTEROSIPHONIA BIPINNATA	ND				.007	o*
ODONTHALIA WASHINGTONIENSIS	ND				.499	0.
TURBELLARIA						
TURBELLARIA	ND			8	.076	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			3	.065	0,
EMPLECTONEMA GRACILE	ND			2	.026	0.
ANNELIDA						
ENCHYTRAEIDAE	ND			7	.002	0.
MOLLUSCA						
MYTILUS EDULIS	ND				21.930	9.882
MYTILUS EDULIS	ND				16.150	12.859
MYTILUS EDULIS	ND				22.910	6.719
COLLISELLA PELTA	ND				.978	.503
COLLISELLA PELTA	ND			35	1.089	0.
LITTORINA SITKANA	ND			4	.889	0.
LITTORINA SCUTULATA	ND			1	.013	0.
CRUSTACEA						
BALANUS GLANDULA	ND				20.430	13.283
BALANUS GLANDULA	ND			77	22.399	0.
	ND			3	.162	0.

FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/12/74
LATITUDE:60 17 95 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 4.0 HOURS BEGINNING AT 23:30 IN TIME ZONE: +10
CATALOG NBR: AB740242 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR:7401010017 METER NBR: SURFACETOPOGRAPHY:NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR:D12 GEAR: ARROW
ELEVATION: 1.67 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
RHIZOCLONIUM RIPARIUM	ND	FRAG		1	.013	o.
CLADOPHORA SERIACEA	ND			1	● 011	0.
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND			14	2.033	0,
ELACHISTEA FUCICOLA	ND			5	.034	0.
FUCUS DISTICHUS	ND	STRL			337.030	82.130
RHODOPHYTA						
GLOIOPELTIS FURCATA	ND			1	.009	0.
BOSSIELLA PLUMOSA	ND				● 001	0.
CALLOPHYLLIS FLABELLULATA	ND	FRAG		1	.001	0.
TOKIDADENDRON BULLATA	ND				.004	0.
PTEROSIPHONIA BIPINNATA	ND				.004	o"
ODONTHALIA FLOCCOSA	ND				.166	0.
TURBELLARIA						
TURBELLARIA	ND			2	.032	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			9	.008	0.
RHYNCHOCOELA	ND			1	.015	0.
EMPLECTONEMA GRACILE	ND			3	,028	0.
ANNELIDA						
POLYNOIDEA	ND	FRAG		1	● 002	0.
NEREIS SP	ND			1	0001	0.
NEPHTYS	ND			1	.001	0.
ENCHYTRAEIDAE	ND			17	.003	0.
MOLLUSCA						
MYTILUS EDULIS	ND			116	17.588	7.543
MYTILUS EDULIS	ND			39	310990	13.700
MYTILUS EDULIS	ND			91	157.000	69.200
MYTILUS EDULIS	ND	DEAD		1	o*	0,
COLLISELLA PELTA	ND			85	● 960	.501
COLLISELLA PELTA	ND	DEAD		4	0.	0.
MARGARITAS HELICINUS	ND	DEAD		1	O*	0.
LITTORINA SITKANA	ND			22	5.520	3.508
LITTORINA SITKANA	ND	DEAD		38	09	0.

LITTORINA SCUTULATA	ND		3	.020	0.
LITTORINA SCUTULATA	ND	DEAD	25	0.	0.
LACUNA MARMORATA	ND		2	.003	0.
LACUNA MARMORATA	ND	DEAD	1	0.	0.
CRUSTACEA					
CRUSTACEA	ND	FRAG	1	.003	0.
HARPACTICOIDA	ND		2	.001	0.
BALANUS GLANDULA	ND		51	0.	0.
EUDORELLA EMARGINATA	ND		1	.002	0.
CAMPYLASPIS SP	ND		1	.001	0.
PENTIDOTEA WOSENSENSKII	ND		2	.010	0.
MUNNA SP	ND		8	.001	0.
AMPITHOE RUBRICATA	ND		4	.020	0.
PARAMOERA COLUMBIANA	ND		3	.009	0.
PARAMOERA CARLOTTENSIS	ND		57	.173	0.
	ND		37	3.198	.684
INSECTA					
CHIRONOMIDAE	ND	IMTR	1	.001	0.
CHIRONOMIDAE	ND	IMTR	1	.004	0.
ECHINODERMATA					
LEPTASTERIAS HEXACTIS	ND		2	.002	0.

[illegible] ON THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:8 ZAIKOF BAY DATE: 9/12/74
LATITUDE: 60 17 95 N LONGITUDE: 147 O o w
STATION INVESTIGATED FOR 4.0 HOURS BEGINNING AT 23:30 IN TIME ZONE: +10
CATALOG NBR:AB740243 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE 'TOPOGRAPHY NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR:D15 GEAR: ARROW
ELEVATION: 1.36 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0, LITERS

SPECIES IDENTIFICATION	SEX	cONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
RHIZOCLONIUM RIPARIUM	ND				1.658	● 178
PHAEOPHYTA						
PYLAIELLA LITTORALIS	NO				1● 527	.447
SORANTHERA ULVOIDEA	ND				17.171	1.102
FUCUS DISTICHUS	NO	STRL			91.850	18.650
FUCUS DISTICHUS	ND	FRTL			42.009	7.436
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND				.147	o*
RHODYMENIA PALMATA	ND				● 973	00
PTILOTA FILICINA	ND				.291	o*
PTEROSIPHONIA BIPINNATA	ND				.200	0.
RHODOMELA LARIX	ND				48.333	6,322
TURBELLARIA						
TURBELLARIA	ND			2	.327	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			3	,042	o*
ANNELIDA						
NEREIS SP	ND			6	0002	0.
CAPITELLA CAPITATA	ND			3	.085	00
MOLLUSCA						
MYTILUS EDULIS	ND			140	22.891	9.419
MYTILUS EDULIS	ND			58	42.922	16.818
MYTILUS EDULIS	ND	DEAD		13	0.	0.
PROTOTHACA STAMINEA	ND			3	.380	0.
COLLISELLA PELTA	ND			65	0595	0.
MYTILUS EDULIS	ND	DEAD		13	0.	0.
PROTOTHACA STAMINEA	ND			3	.380	0,
COLLISELLA pELTA	ND			65	.595	0,
MARGARITAS HELICINUS	ND			23	.113	0,
MARGARITAS PUPILLUS	ND			1	.022	0.
LITTORINA SITKANA	ND			221	1.325	.877
LITTORINA SITKANA	ND	DEAD		31	0.	o,
LITTORINA SCUTULATA	ND			83	1.197	.596
LACUNA MARMORATA	ND			63	.350	0.

ALVINIA COMPACTA	ND		2	.002	0.
BUCCINUM BAERI	ND		1	1.151	.515
ODOSTOMIA SP	ND		2	.021	0.
CRUSTACEA					
BALANUS GLANDULA	ND		6	1.779	.965
PENTIDOTEA WOSENSENSKII	ND		3	.872	0.
GNORIMOSPHAEROMA OREGONENSIS	N D		1	.004	0.
IANIROPSIS KINCAIDI KINCAIDI	ND		58	.050	0"
AMPITHOE SP	ND		1	.001	0.
AMPITHOE RUBRICATOIDES	ND		15	.112	0.
OLIGOCHINUS LIGHTI	ND		121	.062	o*
	NO		64	1 e344	o*
INSECTA					
CHIRONOMIDAE	ND	IMTR	9	.005	0.
ECHINODERMATA					
LEPTASTERIAS HEXACTIS	ND		2	2.697	1.178
TELEOSTEI					
CLINOCOTTUS ACUTICEPS	ND		1	.275	o*

[illegible] FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/12/74
LATITUDE: 60 17 95 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 4.0 HOURS BEGINNING AT 23:30 IN TIME ZONE: +10
CATALOG NBR: AB740244 ZONE/TRANSECT; SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010018 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR: D16 GEAR: ARROW
ELEVATION: 1.36 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: O* LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	cOUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND			2	.138	00
RHIZOCLONIUM RIPARIUM	ND			2	.004	o*
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND	FRAG		1	.043	00
ELACHISTEA FUCICOLA	ND			68	,224	00
FUCUS DISTICHUS	ND				210,300	40.740
RHODOPHYTA						
GLOIOPELTIS FURCATA	ND			1	,013	0.
HALOSACCION GLANDIFORME	NO			3	.165	0,
RHODYMENIA PALMATA	No			2	.149	0.
NEOPTILOTA ASPLENIOIDES	ND				.100	00
ODONTHALIA FLOCCOSA	ND				.196	.121
ODONTHALIA WASHINGTONIENSIS	No				.129	0.
CNIDARIA						
ANTHROZOA	ND	FRAG		1	.197	0,
RHYNCHOCOELA						
RHYNCHOCOELA	ND			17	.024	0.
EMPLECTONEMA GRACILE	ND			2	.391	0.
NEMATODA						
NEMATODA	ND			36	0001	0.
ANNELIDA						
TYPOSYLLIS ALTERNATA	No			2	.001	0.
NEREIS VEXILLOSA	ND			2	,032	0,
PSEUDOSABELLIDES LITTORALIS	ND			3	.011	0.
SPIRORBIS SPIRILLUM	NO			3	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			50	1.799	.823
MYTILUS EDULIS	ND			26	21.890	9.379
MYTILUS EDULIS	ND			229	457.000	185.960
MYTILUS EDULIS	NO	DEAD		b	00	0.
COLLISELLA PELTA	ND			39	.150	.129
COLLISELLA PELTA	ND	DEAD		19	0.	0.
MARGARITAS HELICINUS	ND			6	.001	0.
LITTORINA SITKANA	NO			2	.003	0.

ITTORINA SITKANA	ND	DEAD	20	0.	0.
LITTORINA SCUTULATA	ND	DEAD	6	0.	0.
CRUSTACEA					
HARPACTICOIDA	ND		38	.001	0.
BALANUS CARIOSUS	ND		1	.862	0.
BALANUS GLANDULA	ND		47	14.540	10.496
CAMPYLASPIS SP	ND		2	.001	0.
MUNNA SP	ND		10	.002	0.
AMPITHOE RUBRICATA	ND		27	.189	0.
OLIGOCHINUS LIGHTI	ND		5	.011	0.
PARAMOERA SP.	ND		5	.022	0.
	ND		2	.076	0.
INSECTA					
INSECTA	ND		198	.036	0.
ECHINODERMATA					
LEPTASTERIAS HEXACTIS	ND		3	2.293	.718

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/12/74
LATITUDE: 60 17 95 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 4.0 HOURS BEGINNING AT 23:30 IN TIME ZONE: +10
CATALOG NBR: AB740245 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR: D19 GEAR: ARROW
ELEVATION: .75 METERS QUADRAT SIZE: 0. SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND	FRAG		1	.001	0.
ULVA LACTUCA	ND				.183	0.
RHIZOCLONIUM RIPARIUM	ND				.042	0.
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND			5	.032	0.
ELACHISTEA FUCICOLA	ND			81	.371	0.
FUCUS DISTICHUS	ND	FRTL			111.439	22.259
FUCUS DISTICHUS	ND	STRL			112.377	24.290
RHODOPHYTA						
GLOIOPELTIS FURCATA	ND				.053	0.
GIGARTINA AGARDHII	ND				.104	0.
HALOSACCION GLANDIFORME	ND				.196	0.
ANTITHAMNION SIMULANS	ND			2	.001	0.
NEOPTILOTA ASPLENIOIDES	ND				.434	0.
PTEROSIPHONIA BIPINNATA	ND				.301	0.
ODONTHALIA FLOCCOSA	ND				.173	0.
ODONTHALIA WASHINGTONIENSIS	ND				.131	0.
TURBELLARIA						
TURBELLARIA	ND			8	1.345	.245
RHYNCHOCOELA						
RHYNCHOCOELA	ND			17	.072	0.
EMPLECTONEMA GRACILE	ND			5	.324	0.
ANNELIDA						
EULALIA VIRIDIS	ND			1	.001	0.
TYPOSYLLIS PULCHRA	ND			4	.007	0.
NEREIS VEXILLOSA	ND			11	.074	0.
PSEUDOSABELLIDES LITTORALIS	ND			2	.015	0.
ENCHYTRAEIDAE	ND			29	.004	0.
MOLLUSCA						
MYTILUS EDULIS	ND			145	15.415	6.681
MYTILUS EDULIS	ND			68	80.940	34.237
MYTILUS EDULIS	ND			352	825.346	342.016
MYTILUS EDULIS	ND	DEAD		142	0.	0.
COLLISELLA PELTA	ND			109	.831	0.

MARGARITES HELICINUS	ND		2	.003	0.
LITTORINA SITKANA	ND		4	.005	0.
LITTORINA SITKANA	ND	DEAD	13	0.	0.
LITTORINA SCUTULATA	ND	DEAD	8	0.	0.
CRUSTACEA					
HARPACTICOIDA	ND		2	.001	0.
BALANUS CARIOSUS	ND		7	5.410	3.332
BALANUS GLANDULA	ND		105	45.913	25.500
CAMPYLASPIS SP	ND		1	.001	0.
PENTIDOTEA WOSENSENSKII	ND		1	.003	0.
MUNNA SP	ND		52	.056	0.
PARAMOERA SP.	ND		16	.119	0.
	ND		3	.380	0.
INSECTA					
INSECTA	ND		59	.015	0.
ECHINODERMATA					
LEPTASTERIAS HEXACTIS	ND		26	33.080	0.

BIOTICDENSITIES OF INTERTIDAL ORGANISMSFROM THE EASTERN GULFOF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/12/74
LATITUDE: 60 17 95 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 4.0HOURS BEGINNING AT 23:30INTIMEZONE: +10
CATALOG NBR:AB740246 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR: D22 GEAR: ARROW
ELEVATION: .75 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: O* LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND				.438	0.
CLADOPHORA SERIACEA	ND				.006	0.
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.972	0.
ELACHISTEA FUCICOLA	ND				.939	0.
ALARIA SP	ND	IMTR			1.249	.161
FUCUS DISTICHUS	ND	STRL			56.750	12.270
RHODOPHYTA						
HALOSACCION GLANDIFORME	ND				10.526	10465
RHODYMENIA PALMATA	ND				25.112	5*997
NEOPTILOTA ASPLENIOIDES	ND				.409	0.
PTEROSIPHONIA BIPINNATA	ND				.019	0.
RHODOMELA LARIX	ND				.157	0.
RHYNCHOCOELA						
EMPLECTONEMA GRACILE	ND	FRAG		1	.238	0.
ANNELIDA						
TYPOSYLLIS PULCHRA	ND			3	.006	0.
NEREIS SP	ND			1	.001	0.
MOLLUSCA						
KATHARINA TUNICATA	ND			1	12.900	4.471
MYTILUS EDULIS	ND			3	3.739	1.499
MYTILUS EDULIS	ND			2	.564	0.
GASTROPODA	ND			1	.105	0.
COLLISELLA PELTA	ND			1	3.657	2.134
NOTOACMAEA PERSONA	ND			1	.206	0.
MARGARITES HELICINUS	NO			25	.171	0.
LACUNA MARMORATA	No			20	.037	0.
NUCELLA LAMELLOSA	ND			3	3.350	2.192
BUCCINUM POLARE	ND			6	2.452	.962.
ARACHNIDA						
PSEUDOSCORPIONIDA	ND			1	.002	0.

C TACEA				
BALANUS CARIOSUS	ND	3	2.633	1.698
BALANUS GLANDULA	ND	7	5.350	3.470
MUNNA SP	ND	4	.001	0.
AMPITHOE RUBRICATOIDES	ND	3	.010	0.
	ND	8	1.279	.294
ECHINODERMATA				
LEPTASTERIAS HEXACTIS	ND	7	.200	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/12/74
LATITUDE: 60 17 95 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 4.0 HOURS BEGINNING AT 23:30 IN TIME ZONE: +10
CATALOG NBR: AB740247 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR: Z22 GEAR: ARROW
ELEVATION: .75 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND				.814	0.
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.033	0.
ELACHISTEA FUCICOLA	ND				.211	0.
FUCUS DISTICHUS	ND	STRL			.072	0.
RHODOPHYTA						
GIGARTINA SP	ND				.012	0.
HALOSACCION GLANDIFORME	ND				2.144	.199
RHODYMENIA PALMATA	ND				.560	0.
NEOPTILOTA ASPLENIOIDES	ND				.695	0.
PTEROSIPHONIA BIPINNATA	ND				.046	0.
ODONTHALIA FLOCCOSA	ND				.035	0.
CNIDARIA						
ANTHROZOA	ND				2.763	.460
ANNELIDA						
EULALIO VIRIDIS	ND			1	.058	0.
ENCHYTRAEIDAE	ND			1	.003	0.
MOLLUSCA						
MYTILUS EDULIS	ND	DEAD		2	0.	0.
MUSCULUS DISCORS	ND			25	.001	0.
COLLISELLA PELTA	ND			2	2.699	1.433
NOTOACMAEA PERSONA	ND			1	.161	0.
NOTOACMAEA PERSONA	ND	DEAD		1	0.	0.
MARGARITES HELICINUS	ND	DEAD		2	0.	0.
LACUNA MARMORATA	ND			9	.005	0.
LACUNA MARMORATA	ND	DEAD		8	0.	0.
NUCELLA LAMELLOSA	ND	DEAD		2	0.	0.
BUCCINUM BAERI	ND			4	2.954	1.342
CRUSTACEA						
BALANUS SP	ND			36	0.	0.
AMPITHOE RUBRICATA	ND			1	.001	0.
OLIGOCHINUS LIGHTI	ND			1	.001	0.
PARAMOERA COLUMBIANA	ND			4	.040	0.
	ND			2	.814	0.

ECHINODERMATA				
LEPTASTERIAS HEXACTIS	ND	1	19.476	5.713
PISASTER OCHRACEUS	ND	1	66.713	20.401
TELEOSTEI				
PHOLIS LAETA	ND	1	.377	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:8 ZAIKOF BAY DATE: 9/]2/74
LATITUDE: 60 17 95 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 4.0 HOURS HEGINNING AT 23:30 IN TIME ZONE: +10
CATALOG NBR:AB740248 ZONE/TRANSECT: SUBSTRATE! NO INFORMATION
PHOTOGRAPH" NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR: 6)23 GEAR: ARROW
ELEVATION: 1006 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	cOUNT	wET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
MONOSTROMA FUSCUM	ND				.680	o,
ULVA LACTUCA	ND				3.291	.206
RHIZOCLONIUM RIPARIUM	ND			1	.001	0,
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.374	0,
ELACHISTEA FUCICOLA	ND			14	● 077	00
SORANTHERA ULVOIDEA	ND			22	.271	0.
ALARIA MARGINATA	ND			3	26.860	3.500
FUCUS DISTICHUS	ND	STRL		4	110795	2.948
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND			5	.151	0,
CRYPTOSIPHONIA WOODII	ND			1	● 008	0.
HALOSACCION GLANDIFORME	ND				13.699	1036O
RHODYMENIA PALMATA	ND			26	22.556	3.929
ANTITHAMNION KYLINII	ND			1	.001	0.
PTILOTA TENUIS	ND			1	.089	0.
NEOPTILOTA ASPLENIOIDES	ND			1	.327	0,
TOKIDADENDRON BULLATA	ND			4	0.363	0.
POLYSIPHONIA PACIFICA	ND				.145	0,
PTEROSIPHONIA BIPINNATA	NO				1.420	● 117
ODONTHALIA FLOCCOSA	ND			a	14.421	1.227
PORIFERA						
PORIFERA	ND				.032	o*
TURBELLARIA						
TURBELLARIA	ND			20	.016	o*
TURBELLARIA	ND			1	.307	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			7	.003	0.
RHYNCHOCOELA	ND			1	.004	0.
NEMATODA						
NEMATODA	ND			12	0001	0.

FLIDA					
POLYCHAETA	ND		2	.001	0.
TYPOSYLLIS PULCHRA	ND		15	.010	0.
NEREIS VEXILLOSA	ND		6	.002	0.
SPIONIDAE	ND		1	.001	0.
SPIO FILICORNIS	ND		3	.009	0.
PSEUDOSABELLIDES LITTORALIS	ND		1	.002	0.
ENCHYTRAEIDAE	ND		5	.002	0.
MOLLUSCA					
KATHARINA TUNICATA	ND		1	3.411	1.364
PELECYPODA	ND		1	.001	0.
MYTILUS EDULIS	ND		127	200.200	79.000
MYTILUS EDULIS	ND	DEAD	5	0.	0.
COLLISELLA PELTA	ND		30	4.547	3.066
MARGARITES HELICINUS	ND		120	.323	0.
MARGARITES HELICINUS	ND	DEAD	1	0.	0.
LACUNA MARMORATA	ND		80	.050	0.
LACUNA MARMORATA	ND	DEAD	10	0.	0.
NUCELLA LAMELLOSA	ND		10	13.977	9.166
NUCELLA LAMELLOSA	ND	DEAD	9	0.	0.
BUCCINUM POLARE	ND		2	.884	0.
CRUSTACEA					
HARPACTICOIDA	ND		8	.001	0.
BALANUS CARIOSUS	ND		2	7.372	4.190
BALANUS GLANDULA	ND		1	.354	0.
CAMPYLASPIS VERRUCOSA	ND		1	.001	0.
MUNNA SP	ND		36	.009	0.
AMPITHOE RUBRICATA	ND		11	.024	0.
OLIGOCHINUS LIGHTI	ND		24	.031	0.
PARAMOERA COLUMBIANA	ND		5	.012	0.
PARAPLEUSTES PUGETTENSIS	ND		1	.001	0.
	ND		2	.003	0.
INSECTA					
INSECTA	ND		1	.001	0.
ECHINODERMATA					
LEPTASTERIAS HEXACTIS	ND		19	.456	0.

BIOMASS DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/12/74
LATITUDE: 60 17 95 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 4.0 HOURS BEGINNING AT 23:30 IN TIME ZONE: +10
CATALOG NBR: AB740249 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 1:30 ARROW NBR: Z23 GEAR: ARROW
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	Na				0.	0.
ULVA LACTUCA	Na			6	1.702	0.
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.001	0.
SORANTHERA ULVOIDEA	ND				.012	0.
ALARIA MARGINATA	ND			9	27.800	3.667
FUCUS DISTICHUS	ND	FRTL		2	184.200	34.860
FUCUS DISTICHUS	ND	STRL			12.920	2.471
RHODOPHYTA						
PORPHYRA SP	ND				1.062	.075
GLOIOPELTIS FURCATA	ND			7	.203	0.
HALOSACCION GLANDIFORME	ND			84	23.265	2.673
RHODYMENIA PALMATA	ND			36	38.094	8.900
NEOPTILOTA ASPLENIOIDES	ND				.203	0.
TOKIDADENDRON BULLATA	ND			3	.288	0.
ODONTHALIA FLOCCOSA	ND			8	14.216	1.641
PORIFERA						
PORIFERA	ND				1.194	.398
CNIDARIA						
ANTHROZOA	ND	FRAG		1	1.942	.227
TURBELLARIA						
TURBELLARIA	ND			13	.008	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	.010	0.
RHYNCHOCOELA	ND			19	.048	0.
RHYNCHOCOELA	ND			12	.009	0.
NEMATODA						
NEMATODA	ND			20	.001	0.
ANNELIDA						
ETEONE PACIFICA	ND			5	.003	0.
TYPOSYLLIS PULCHRA	ND			8	.008	0.
NEREIS VEXILLOSA	ND			1	.001	0.
SPIO FILICORNIS	ND			4	.016	0.
AMPHARETIDAE	ND			13	.038	0.

PIRORBIS SPIRILLUM	ND		9	.001	0.
ENCHYTRAEIDAE	ND		1	.001	0.
MOLLUSCA					
MYTILUS EDULIS	ND		88	0.	0.
MYT LUS EDULIS	ND		2	0.	0.
MYTILUS EDULIS	ND		5	0.	0.
MYTILUS EDULIS	ND	DEAD	79	0.	0.
COLLISELLA PELTA	ND		4	.902	0.
MARGARITES SP	ND	DEAD	22	0.	0.
MARGARITES HELICINUS	ND		181	2.977	1.360
LITTORINA SITKANA	ND		1	.001	0.
LITTORINA SITKANA	ND	DEAD	2	0.	0.
LACUNA MARMORATA	ND		1152	1.223	.244
LACUNA MARMORATA	ND	DEAD	17	0.	0.
NUCELLA LAMELLOSA	ND		48	38.962	24.380
BUCCINUM POLARE	ND		4	3.604	1.294
MITRELLA TUBEROSA	ND		1	.001	0.
ARACHNIDA					
HALACARIDAE	ND		14	.007	0.
CRUSTACEA					
HARPACTICOIDA	ND		11	.001	0.
BALANUS BALANOIDES	ND		4	2.903	1.803
BALANUS GLANDULA	ND		7	2.150	1.518
CAMPYLASPIS VERRUCOSA	ND		4	.001	0.
MUNNA SP	ND		4	.001	0.
AMPHIPODA	ND		1	.001	0.
AMPITHOE RUBRICATA	ND		33	.109	0.
PARAMOERA COLUMBIANA	ND		4	.015	0.
PARAMOERA CARLOTTENSIS	ND		18	.032	0.
PARAPLEUSTES PUGETTENSIS	ND		1	.001	0.
	ND		4	.123	0.
BRYOZOAN					
BRYOZOAN	No			0.	0.
ECHINODERMATA					
ASTEROIDEA	ND		2	.007	0.
LEPTASTERIAS HEXACTIS	ND		1	1.505	.380
PISASTER OCHRACEUS	ND		2	467.700	131.600
STRONGYLOCENTROTUS DROEBACHIENSI	ND		1	2.031	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/13/74
LATITUDE: 60 17 90 N LONGITUDE: 147 ° 0 W
STATION INVESTIGATED FOR 3.7 HOURS BEGINNING AT 12:00 IN TIME ZONE: +10
CATALOG NBR: AB740458 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 13:50 ARROW NBR: Z 1 GEAR: NESTED QUADRAT
ELEVATION: 1.36 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND				1.47	0.
ULOTHRIX SP	ND				0.	0.
ULVA SP	ND				.20	0.
RHIZOCLONIUM SP	ND				0.	0.
CLADOPHORA SERIACEA	ND				0.	0.
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.008	0.
SPHACELARIA SUBFUSCA	ND	STRL			0.	0.
ELACHISTEA FUCICOLA	ND	FRTL			1.243	0.
LEATHESIA DIFFORMIS	ND				.007	0.
SORANTHERA ULVOIDEA	ND	FRTL			11.424	0.
ALARIA PRAELONGA	ND			6	13.931	2.226
FUCUS SP	ND	FRAG		1	.139	0.
RHODOPHYTA						
RHODOPHYTA	ND	FRAG		1	.360	0.
ERYTHROTRICHIA CARMEA	ND				0.	0.
CRYPTOSIPHONIA WOODII	ND	IMTR			.049	0.
TENAREA DISPAR	ND				.001	0.
CALLOPHYLLIS FLABELLULATA	ND				.078	0.
IRIDAEA CORNUCOPIAE	ND				.022	0.
IRIDAEA HETEROCARPA	ND	IMTR			6.725	0.
IRIDAEA HETEROCARPA	ND	STRL			2.575	0.
HALOSACCION GLANDIFORME	ND				.212	0.
RHODYMENIA PALMATA	ND				.196	0.
ANTITHAMNION SP	ND				.001	0.
PTILOTA SP	ND				.001	0.
PTILOTA FILICINA	ND				.009	0.
NEOPTILOTA ASPLENIOIDES	ND				.005	0.
PHYCODRYS SP	ND				1.498	0.
	ND				2.788	0.
POLYSIPHONIA HENDRYI	ND				.630	0.
RHODOMELA LARIX	ND				3.630	0.
ODONTHALIA SP	ND				.103	0.
ODONTHALIA WASHINGTONIENSIS	ND				6.823	0.

ANTHOPHYTA					
ZOSTERA MARINA	ND	FRAG	1	.027	0.
TURBELLARIA					
TURBELLARIA	ND		3	.003	0.
RHYNCHOCOELA					
RHYNCHOCOELA	ND		31	.022	0.
NEMATODA					
NEMATODA	ND		178	.003	0.
ANNELIDA					
POLYCHAETA	ND		2	.001	0.
POLYCHAETA	ND	FRAG	1	.006	0.
POLYNOIDEA	ND	IMTR	15	.002	0.
HARMOTHOE IMBRICATA	ND		1	.002	0.
ANAITIDES MACULATA	ND		2	.002	0.
ETEONE PACIFICA	ND		3	.002	0.
EULALIA VIRIDIS	ND		2	.012	0.
TYPOSYLLIS PULCHRA	ND		83	.042	0.
EXOGONE GEMMIFERA	ND		8	.001	0.
NEREIS SP	ND		15	.009	0.
PLATYNEREIS BICANALICULATA	ND		8	.063	0.
SPIO FILICORNIS	ND		3	.003	0.
OPHELIIDAE	ND	IMTR	8	.001	0.
PSEUDOSABELLIDES LITTORALIS	ND		28	.076	0.
SPIRORBIS SPIRILLUM	ND		57	.002	0.
MOLLUSCA					
POLYPLACOPHORA	ND		4	.001	0.
PELECYPODA	ND	IMTR	30	.001	0.
MYTILUS EDULIS	ND		83	.106	0.
GASTROPODA	ND		3	.019	0.
GASTROPODA	ND		5	.001	0.
COLLISELLA SP	ND		6	.011	0.
MARGARITES HELICINUS	ND		20	.030	0.
LITTORINA SCUTULATA	ND		1	.013	0.
LACUNA SP	ND		2120	1.015	.525
CINGULA SP	ND		32	.015	0.
NUCELLA LAMELLOSA	ND		4	4.460	0.
SEARLESIA DIRA	ND		2	1.170	0.
MITRELLA GOULDI	ND		47	.070	0.
DIAPHANA MINUTA	ND		11	.019	0.
ARACHNIDA					
HALACARIDAE	ND		6	.001	0.
PYCNOGONIDA					
PHOXICHILIDIUM QUADRADENTATUM	ND		1	.001	0.
CRUSTACEA					
PLATYCOPA	ND		33	.001	0.
HARPACTICOIDA	ND		111	.002	0.
CAMPYLASPIS AFFINIS	ND		71	.002	0.
PENTIDOTEA WOSENSENSKII	ND		3	.013	0.
			18	.011	0.

AMPITHOE RUBRICATOIDES	ND		8	.018	0.
HYALIDAE	ND		15	.027	0.
PARALLORCHESTES OCHOTENSIS	ND		13	.039	0.
ISCHYROCERUS SP.	ND		1	.001	0.
PARAPLEUSTES NAUTILUS	ND		18	.022	0.
METOPELLOIDES SP	ND		1	.001	0.
CALLIANASSA SP	ND		2	.002	0.
PUGETTIA GRACILIS	ND		16	.448	0.
INSECTA					
INSECTA	ND		2	.001	0.
BRYOZOAN					
BRYOZOAN	ND		16	.052	0.
ECHINODERMATA					
LEPTASTERIAS HEXACTIS	ND		9	.009	0.
STRONGYLOCENTROTUS DROEBACHIENSI	ND		1	.008	0.
OPHIUROIDEA	ND	IMTR	1	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:8 ZAIKOF BAY DATE: 9/13/74
LATITUDE: 601790 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 3.7HOURS BEGINNING AT 12:00INTIMEZONE: +10
CATALOG NBR:AB740459 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME:13:50 ARROW NBR: Z 2 GEAR: NESTED QUADRAT
ELEVATION: 1.36 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND				2.100	0*
ULOTHRIX FLACCA	ND				0.	0.
ULVA RIGIDA	ND				.044	00
RHIZOCLONIUM RIPARIUM	ND				0.	0.
CLADOPHORA SERIACEA	ND				0.	0.
PHAEOPHYTA						
ELACHISTEA FUCICOLA	ND	FRTL			.515	0.
LEATHESIA DIFFORMIS	ND				.036	0.
SORANTHERA ULVOIDEA	ND				1.503	0.
ALARIA PRAELONGA	ND			4	4.182	0.
FUCUS DISTICHUS	ND				.061	0.
RHODOPHYTA						
RHODOPHYTA	ND	FRAG		1	.107	0.
ERYTHROTRICHIA CARMEA	ND				.001	0.
CRYPTOSIPHONIA WOODII	ND	FRAG		1	.013	0.
GLOIOPELTIS FURCATA	ND	FRAG		1	.003	0.
TENAREA DISPAR	ND				0.	0.
CALLOPHYLLIS FLABELLULATA	ND	FRAG		1	.007	0.
IRIDAEA CORNUCOPIAE	ND				.028	0.
IRIDAEA HETEROCARPA	ND				1.853	0.
HALOSACCION GLANDIFORME	ND				1.575	0.
RHODYMENIA PALMATA	ND				.611	0.
PTILOTA FILICINA	ND	FRAG		1	.010	0.
NEOPTILOTA ASPLENIOIDES	ND	FRAG		1	.113	0.
TOKIDADENDRON BULLATA	ND				1.191	0.
PHYCODRYS SP	ND	FRAG		1	.005	0.
POLYSIPHONIA HENDRYI	ND				.527	0,
POLYSIPHONIA PACIFICA	ND				.015	0.
RHODOMELA LARIX	ND				1.362	0.
ODONTHALIA SP	ND	FRAG		1	.117	0*
ODONTHALIA WASHINGTONIENSIS	ND				7.938	0.

RHYNCHOCOELA	ND		11	.084	0.
NEMATODA					
NEMATODA	ND		239	● 004	00
ANNELIDA					
POLYNOIDEA	ND	IMTR	4	● 001	0.
ETEONE PACIFICA	ND		2	.001	0.
TYPOSYLLIS PULCHRA	ND		24	.013	0.
PLATYNEREIS BICANALICULATA	ND		24	0074	0.
SPIO FILICORNIS	ND		3	● 003	0.
OPHELIIDAE	ND	IMTR	1	.001	0.
ARMANDIA BREVIS	NO		2	.001	0.
CAPITELLA CAPITATA	ND		2	● 002	0.
CISTENIDES BREVICOMA	ND		2	.001	0.
PSEUDOSABELLIDES LITTORALIS	ND		19	● 045	0.
SPIRORBIS SPIRILLUM	NO		19	.001	0,
MOLLUSCA					
MOLLUSCA	ND		2	● 004	0.
TONICELLA LINEATA	ND		1	.388	0.
MYTILUS EDULIS	NO		27	.025	0.
HIATELLA ARCTICA	NO		5	● 005	O*
GASTROPODA	ND		5	.001	0.
GASTROPODA	NO	IMTR	36	,005	0.
MARGARITAS HELICINUS	ND		13	● 011	0.
LITTORINA SCUTULATA	ND		2014	1.155	0.
ALVINIA SP	NO		40	"014	0.
NUCELLA SP	ND		3	.008	0.
MITRELLA SP	NO		33	● 059	0.
ODOSTOMIA SP	NO		3	.011	o*
DIAPHANA MINUTA	ND		9	● 012	00
ARACHNIDA					
HALACARIDAE	ND		5	.001	0.
CRUSTACEA					
PLATYCOPA	ND		33	● 004	0.
HARPACTICOIDA	ND		112	.002	0,
BALANUS SP	ND	FRAG	1	,104	o*
	ND		46	.002	00
MUNNA SP	NO		2	.001	0.
AMPHIPODA	ND		4	.019	0,
AMPITHOE SP	ND		2	.008	0.
AMPITHOE SP	ND		14	.020	0.
AMPITHOE RUBRICATOIDES	ND		7	,022	0.
HYALE RUBRA FREQUENS	ND		3	● 011	0.
PARALLORCHESTES OCHOTENSIS	ND		4	.055	o*
PHOTIS BREVIPES	ND		1	.001	0.
PARAPLEUSTES NAUTILUS	ND		9	.035	0.
METOPELLOIDES SP	ND		1	.001	0.
	N(.)		9	.010	0.
[illegible]	[illegible]		[illegible]	[illegible]	[illegible]

INSECTA					
CHIRONOMIDAE	ND	IMTR	36	.002	0.
BRYOZOAN					
BRYOZOAN	ND			.016	0.
ECHINODERMATA					
ASTEROIDEA	ND	IMTR	5	.006	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/13/74
LATITUDE: 60 17 90 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 3.7 HOURS BEGINNING AT 12:00 IN TIME ZONE: +10
CATALOG NBR: AB740460 ZONE/TRANSECT: SUBSTRATE% NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACETOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 13:50 ARROW NBR: Z3 GEAR: NESTED QUADRAT
ELEVATION: 1.36 METERS QUADRAT SIZE: .0313 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX FLACCA	ND				0.	0.
ENTEROMORPHA LINZA	ND				*002	0.
ULVA SP	ND				.304	0.
RHIZOCLONIUM RIPARIUM	ND				.802	0.
CLADOPHORA SERIACEA	ND				.080	0.
PHAEOPHYTA						
PHAEOPHYTA	ND	FRAG		1	.147	0.
PYLAIELLA LITTORALIS	ND	FRTL			.280	0.
SPHACELARIA SUBFUSCA	ND	FRTL			0.	0.
ELACHISTEA FUCICOLA	ND	FRTL			.248	0.
LEATHESIA DIFFORMIS	ND				.066	0.
SORANTHERA ULVOIDEA	ND				.392	0.
ALARIA SP	ND			6	2.609	0,
FUCUS SP	ND	IMTR		3	.018	0.
FUCUS SP	ND	FRAG		1	2.609	0.
RHODOPHYTA						
RHODOPHYTA	ND	FRAG		1	.054	0.
ERYTHROTRICHIA CARMEA	ND				0.	0.
CRYPTOSIPHONIA WOODII	ND				.105	0.
CONSTANTINEA SUBULIFERA	ND			4	.683	0.
GLOIOPELTIS FURCATA	ND				.011	0.
IRIDAEA SP	ND				1.690	0.
IRIDAEA CORNUCOPIAE	ND				.205	0.
IRIDAEA HETEROCARPA	ND				.100	0.
HALOSACCION GLANDIFORME	ND				8.326	0.
RHODYMENIA PALMATA	ND				3.468	0.
SCAGELIA OCCIDENTALE	NO				0.	0.
PTILOTA FILICINA	ND				0006	0.
NEOPTILOTA ASPLENIOIDES	ND				.010	0.
TOKIDADENDRON BULLATA	ND				1.894	0,
PHYCODRYS SP	ND				.142	0.
POLYSIPHONIA HENDRYI	ND				,343	0.
PTEROSIPHONIA S?	ND	FRAG		1	.008	o*
RHODOMELA LARIX	ND				3.134	0.

ODONTHALIA SP	ND	FRAG	1	.131	0.
ODONTHALIA KAMSCHATICA	ND			.240	0.
ODONTHALIA WASHINGTONIENSIS	ND			5.462	0.
RHYNCHOCOELA					
RHYNCHOCOELA	ND		41	.030	0.
NEMATODA					
NEMATODA	ND		78	.001	0.
ANNELIDA					
ANNELIDA	ND		2	.001	0.
HARMOTHOE IMBRICATA	ND		7	.062	0.
ANAITIDES MACULATA	ND		3	.001	0.
ETEONE PACIFICA	ND		2	.001	0.
EULALIA VIRIDIS	ND		5	.015	0.
TYPOSYLLIS PULCHRA	ND		80	.040	0.
EXOGONE GEMMIFERA	ND		9	.001	0.
NERE S PELAGICA	ND		7	.009	0.
PLATYNEREIS BICANALICULATA	ND		12	.059	0.
SPIONIDAE	ND		3	.001	0.
PHERUSA PAPILLATA	ND		1	.001	0.
ARMANDIA BREVIS	ND		4	.001	0.
CAPITELLA CAPITATA	ND		1	.001	0.
PSEUDOSABELLIDES LITTORALIS	ND		30	.103	0.
SPIRORBIS SPIRILLUM	ND		47	.002	0.
ENCHYTRAEIDAE	ND		1	.001	0.
MOLLUSCA					
MOLLUSCA	ND		4	.006	0.
TONICELLA LINEATA	ND		2	1.181	0.
PELECYPODA	ND	IMTR	11	.006	0.
MYTILUS EDULIS	ND		11	.027	0.
HIATELLA ARCTICA	ND		9	.003	0.
GASTROPODA	ND		1	.005	0.
GASTROPODA	ND		13	.011	0.
COLLISELLA SP	ND		2	.001	0.
COLLISELLA PELTA	ND		15	.038	0.
	ND		38	.106	0.
LITTORINA SITKANA	ND		1	.001	0.
LACUNA MARMORATA	ND		2667	1.898	0.
ALVINIA SP	ND		39	.009	0.
NUCELLA LAMELLOSA	ND		66	.128	0.
SEARLESIA DIRA	ND		1	.025	0.
MITRELLA GOULDI	ND		7	.147	0.
ODOSTOMIA SP	ND		1	.003	0.
DIAPHANA MINUTA	ND		7	.012	0.
ARACHNIDA					
HALACARIDAE	ND		23	.001	0.
CRUSTACEA					
PLATYCOPA	ND		107	.002	0.
HARPACTICOIDA	ND		142	.001	0.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CAMPYLASPIS SP	ND		51	.001	0.
SPHAEROMATIDAE	ND		1	002	0.
MUNNA SP	ND		3	*001	0.
AMPHIPODA	ND		4	*002	0.
AMPHIPODA	ND		4	020	
AMPHIPODA	ND		74	*031	0.
AMPHIPODA	ND		1	001	0.
AMPHIPODA	ND		23	*010	0.
CALLIANASSA SP	ND		5	*004	0.
PUGETTIA GRACILIS	ND		18	3 038	0.
CANCER PRODUCTUS	ND		1	*771	0.
INSECTA					
DIPTERA	ND	IMTR	1	.001	0
CHIRONOMIDAE	ND		9	0 1	0.
BRYOZOAN					0.
BRYOZOAN	ND			2.8	0.
ECHINODERMATA					
ASTEROIDEA	ND	IMTR	20	°069	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 8 ZAIKOF BAY DATE: 9/13/74
LATITUDE: 60 17 90 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 3.7 HOURS BEGINNING AT 12:00 IN TIME ZONE: +10
CATALOG NBR: AB740461 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 13:50 ARROW NBR: Z 4 GEAR: NESTED QUADRAT
ELEVATION: 1.36 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX FLACCA	ND				.001	0.
ULVA RIGIDA	ND				1.817	.326
RHIZOCLONIUM RIPARIUM	ND				5.035	.693
CHAETOMORPHA SP	ND				.074	0.
CLADOPHORA SERIACEA	ND				.822	0.
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.091	0.
RALFSIA FUNGIFORMIS	ND	FRAG		1	.163	0.
SPHACELARIA SUBFUSCA	ND				.022	0.
ELACHISTEA FUCICOLA	ND				.032	0.
LEATHESIA DIFFORMIS	ND				1.193	.058
SORANTHERA ULVOIDEA	ND				1.086	.081
MELANOSIPHON INTESTINALE	ND	IMTR			.005	0.
ALARIA PRAELONGA	ND			12	6.617	1.090
FUCUS SP	ND	FRAG		1	.470	0.
FUCUS DISTICHUS	ND			2	.012	0.
RHODOPHYTA						
ERYTHROTRICHIA CARMEA	ND				0.	0.
ACROCHAETIUM PACIFICUM	ND	FRTL			.001	0.
CRYPTOSIPHONIA WOODII	ND				.770	.073
TENAREA DISPAR	ND	FRAG		1	.004	0.
CORALLINA FRONDISCENS	ND	FRAG		1	.016	0.
IRIDAEA CORNUCOPIAE	ND				4.555	.123
IRIDAEA HETEROCARPA	ND				5.743	1.526
HALOSACCION GLANDIFORME	ND				26.279	3.081
RHODYMENIA PALMATA	ND				7.161	1.839
SCAGELIA OCCIDENTALE	ND				.007	0.
PTILOTA FILICINA	ND				.119	0.
NEOPTILOTA ASPLENIOIDES	ND	FRAG		1	.165	0.
TOKIDADENDRON BULLATA	ND				8.053	1.601
PHYCODRYS SP	ND	FRAG		1	.086	0.
POLYSIPHONIA PACIFICA	ND				.994	0.
PTEROSIPHONIA BIPINNATA	ND				.050	0.
RHODOMELA LARIX	ND				2.686	.381

ODONTHALIA FLOCCOSA	ND			.537	0.
ODONTHALIA WASHINGTONIENSIS	ND			19.140	3.387
CNIDARIA					
ANTHROZOA	ND		5	.003	0.
TURBELLARIA					
TURBELLARIA	ND		4	.007	0.
RHYNCHOCOELA					
RHYNCHOCOELA	ND		93	.014	0.
NEMATODA					
NEMATODA	ND		106	.002	0.
ANNELIDA					
ETEONE PACIFICA	ND		27	.016	0.
TYPOSYLLIS PULCHRA	ND		167	.120	0.
NEREIS PROCERA	ND		19	.010	0.
PLATYNEREIS BICANALICULATA	ND		16	.037	0.
LUMBRINERIS ZONATA	ND		2	.001	0.
SPIO FILICORNIS	ND		8	.003	0.
ARMANDIA BREVIS	ND		4	.001	0.
CAPITELLA CAPITATA	ND		3	,001	0.
PSEUDOSABELLIDES LITTORALIS	ND		91	.021	0.
SPIRORBIS SPIRILLUM	ND		121	.017	0.
MOLLUSCA					
MOLLUSCA	ND		10	,013	0.
MYTILUS EDULIS	ND		34	● 094	0.
MUSCULUS DISCORS	ND		9	.636	0.
PROTOTHACA STAMINEA	ND		3	.024	0.
HIATELLA ARCTICA	ND		14	,006	0.
COLLISELLA PELTA	ND		27	.041	o*
	ND		117	.372	0.
LACUNA CARININATA	ND		4	,010	o*
LACUNA MARMORATA	ND		1507	1.119	0.
NUCELLA LAMELLOSA	ND		5	.091	0.
MITRELLA GOULDI	NO		98	.717	0.
ODOSTOMIA SP	ND		12	.070	0"
DIAPHANA MINUTA	ND		23	.004	0.
ARACHNIDA					
HALACARIDAE	ND		35	.002	0.
PYCNOGONIDA					
PHOXICHILIDIUM QUADRADENTATUM	ND		1	.003	0.
CRUSTACEA					
PLATYCOPA	ND		11	● 001	o.
BALANUS SP	ND	FRAG	1	.445	0.
CUMELLA SP	ND		148	● 002	o*
GNORIMOSPHAEROMA OREGONENSIS	ND		1	.001	o.
MUNNA SP	ND		5	,002	0.
ODIUS CARINATUS	ND		1	● 016	0,
AMPITHOE SIMILANS	ND		58	.254	0.
PARALLORCHESTES OCHOTENSIS	ND		36	.332	0.
[illegible]	ND		[illegible]	[illegible]	0

METOPELLOIDES SP	ND		11	.038	0.
	ND		19	.010	0.
PUGETTIA GRACILIS	ND		11	.037	0.
INSECTA					
CHIRONOMIDAE	ND		6	.001	0.
CHIRONOMIDAE	ND	IMTR	18	.022	0.
BRYOZOAN					
BRYOZOAN	N D			.272	0.
ECHINODERMATA					
ASTEROIDEA	ND	IMTR	49	.042	0.

RIOTICDENSITIESOF INTERTIDAL ORGANISMSFROMTHE EASTERN GULF OF ALASKA
FALL 1974

STAYION NBR:8 ZAIKOF BAY DATE: 9/13/'74
LATITUDE: 60 17 90 N LONGITUDE: 147 0 0 W
STATION INVESTIGATED FOR 307 HOURS BEGINNING AT 12:00 IN TIMFZONE: +10
CATALOG NBR:AB740462 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE Topography NO INFORMATION
SAMPLING TIME: 13:50 ARROW NBR: Z 5 GEAR:NESTED QUADRAT
ELEVATION: 1036 METERS QUADRAT SIZE; .1250 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
MONOSTROMA SP	ND	FRAG		1	.134	o.
MONOSTROMA FUSCUM	ND				,567	0.
ULVA SP	ND				10140	● 199
RHIZOCLONIUM RIPARIUM	ND				1.633	0.
CLADOPHORA SERIACEA	ND				0.	00
BACILLARIOPHYCEAE						
BACILLARIOPHYCEAE	ND				● 013	J.
PHAEOPHYTA						
PHAEOPHYTA	ND	FRAG			.395	0.
ECTOCARPUS SIMULANS	ND				.089	o*
ECTOCARPUS SIMULANS	ND				.074	o.
PYLAIELLA LITTORALIS	ND				● 006	0.
PYLAIELLA LITTORALIS	ND	FRTL			o.	0.
LEATHESIA DIFFORMIS	ND				.948	0.
SORANTHERA ULVOIDEA	ND				7.743	● 424
LAMINARIA YEZOENSIS	ND				3.263	o.
ALARIA PRAELONGA	N1)			18	36.459	5.301
FUCUS DISTICHUS	ND			3	178.200	48.800
RHODOPHYTA						
RHODOPHYTA	ND	FRAG		1	● 021	0.
ERYTHROTRICHIA CARMEA	ND				0.	0,
CRYPTOSIPHONIA wOO(III	ND				1.004	0.
CONSTANTINEA SUBULIFERA	ND				4.334	.964
BOSSIELLA CHILOENSIS	ND	FRAG		1	,028	0.
CORALLINA FRONDISCENS	ND				● 687	0.
AHNFELTIA PLICATA	ND				● 679	0.
IRIDAEA SP	ND	FRAG		1	2.127	0.
IRIDAEA CORNUCOPIAE	ND				0.	0.
IRIDAEA HETEROCARPA	ND				10.619	3.643
HALOSACCION GLANDIFORME	ND				81.762	7.850
RHODYMENIA PALMATA	ND				20.236	5.022
ANTITHAMNION SP	ND				.012	o*
PTILOTA FILICINA	ND				.025	0.
NEOPTILOTA ASPLENIOIDES	ND				.294	0.

NEOPTILOTA HYPNOIDES	ND			.120	0.
TOK DADENDRON BULLATA	ND			5.629	.990
PHYCODRYS SP	ND			.785	0.
POLYSIPHONIA SP	ND			3.915	.315
POLYSIPHONIA PACIFICA	ND			.902	0.
PTEROSIPHONIA BIPINNATA	ND			2.807	0.
RHODOMELA LARIX	ND			39.278	5.226
ODONTHALIA FLOCCOSA	ND	FRAG	1	9.252	0.
ODONTHALIA WASHINGTONIENSIS	ND			35.396	6.301
TURBELLARIA					
TURBELLARIA	ND		1	.011	0.
TURBELLARIA	ND		9	.057	0.
RHYNCHOCOELA					
RHYNCHOCOELA	ND		10	.530	0.
RHYNCHOCOELA	ND	FRAG	1	.167	0.
ANNELIDA					
POLYCHAETA	ND		2	.001	0.
HARMOTHOE MBRICATA	ND		12	.044	0.
ANAITIDES MACULATA	ND		14	.007	0.
ETEONE PACIFICA	ND		97	.155	0.
EULALIA V RIDIS	ND		2	.029	0.
TYPOSYLLIS ALTERNATA	ND		2	.007	0.
TYPOSYLLIS PULCHRA	ND		266	.181	0.
EXOGONE GEMMIFERA	ND		2	.001	0.
EXOGONE LOUREI	ND		2	.001	0.
SPHAEROSYLLIS HYSTRIX	ND		3	.001	0.
NEREIS SP	ND		46	.058	0.
NEREIS PROCERA	ND		2	.061	0.
PLATYNEREIS BICANALICULATA	ND		59	.571	0.
SPHAERODORIDIUM GRACILIS	ND		2	.003	0.
LUMBRINERIDAE	ND	FRAG	1	.001	0.
SPIO FILICORNIS	ND		35	.054	0.
CAULLERIELLA SP	ND		9	.001	0.
PHERUSA PAPILLATA	ND		1	.003	0.
OPHELIIDAE	ND		4	.001	0.
ARMANDIA BREVIS	ND		6	.004	0.
CAPITELLA CAPITATA	ND		1	.002	0.
PSEUDOSABELLIDES LITTORALIS	ND		352	.935	0.
SP RORBIS SPIRILLUM	ND		881	.223	0.
MOLLUSCA					
POLYPLACOPHORA	ND	IMTR	1	.001	0.
MYTILUS EDULIS	ND		631	.200	0.
MUSCULUS DISCORS	ND		3	.865	0.
DACRYDIUM SP	ND		3	.003	0.
PROTOTHACA STAMINEA	ND		5	.029	0.
HIATELLA ARCTICA	ND		46	.066	0.
THRACIA SP	ND	IMTR	5	.002	0.
GASTROPODA	ND		11	.035	0.

COLLISELLA PELTA	ND		52	.048	0.
MARGARITES HELICINUS	ND		155	.156	0.
LACUNA MARMORATA	ND		8032	.237	0.
NUCELLA CANALICULATA	ND		2	.042	0.
NUCELLA LAMELLOSA	ND		6	.957	0.
SEARLESIA DIRA	ND		2	1.395	0.
MITRELLA TUBEROSA	ND		1	.012	0.
MITRELLA GOULDI	ND		398	1.419	0.
ODOSTOMIA SP	ND		20	.016	0.
DIAPHANA MINUTA	ND		34	.065	0.
ARACHNIDA					
HALACARIDAE	ND		8	.004	0.
PYCNOGONIDA					
PHOXICHILIDIUM QUADRADENTATUM	ND		2	.017	0.
CRUSTACEA					
CAMPYLASPIS AFFINIS	ND		66	.009	0.
PENTIDOTEA WOSENSENSKII	ND		2	.153	0.
SPHAEROMATIDAE	ND		1	.003	0.
MUNNA SP	ND		2	.001	0.
AMPHIPODA	ND		6	.002	0.
AMPITHOE SP	ND		19	.193	0.
AMPITHOE RUBRICATOIDES	ND		37	.080	0.
COROPHIUM SP	ND		1	.001	0.
MELITA SP	ND	IMTR	1	.001	0.
HYALE RUBRA FREQUENS	ND		101	.091	0.
PARALLORCHESTES OCHOTENSIS	ND		55	.698	0.
PARAPLEUSTES NAUTILUS	ND		62	.062	0.
METOPELLOIDES SP	ND		10	.009	0.
CALLIANASSA SP	ND		7	.011	0.
	ND		3	.197	0.
PUGETTIA GRACILIS	ND		54	10.630	0.
CANCER OREGONENSIS	ND		2	1.451	0.
INSECTA					
DIPTERA	ND	MT[a]	9	.001	0.
CHIRONOMIDAE	ND		5	.001	0.
BRYOZOAN					
BRYOZOAN	ND		1	.068	0.
ECHINODERMATA					
ASTEROIDEA	ND	IMTR	2	.020	0.
LEPTASTERIAS SP	ND	IMTR	80	.410	0.
STRONGYLOCENTROTUS DROEBACHIENSI	ND		1	.265	0.

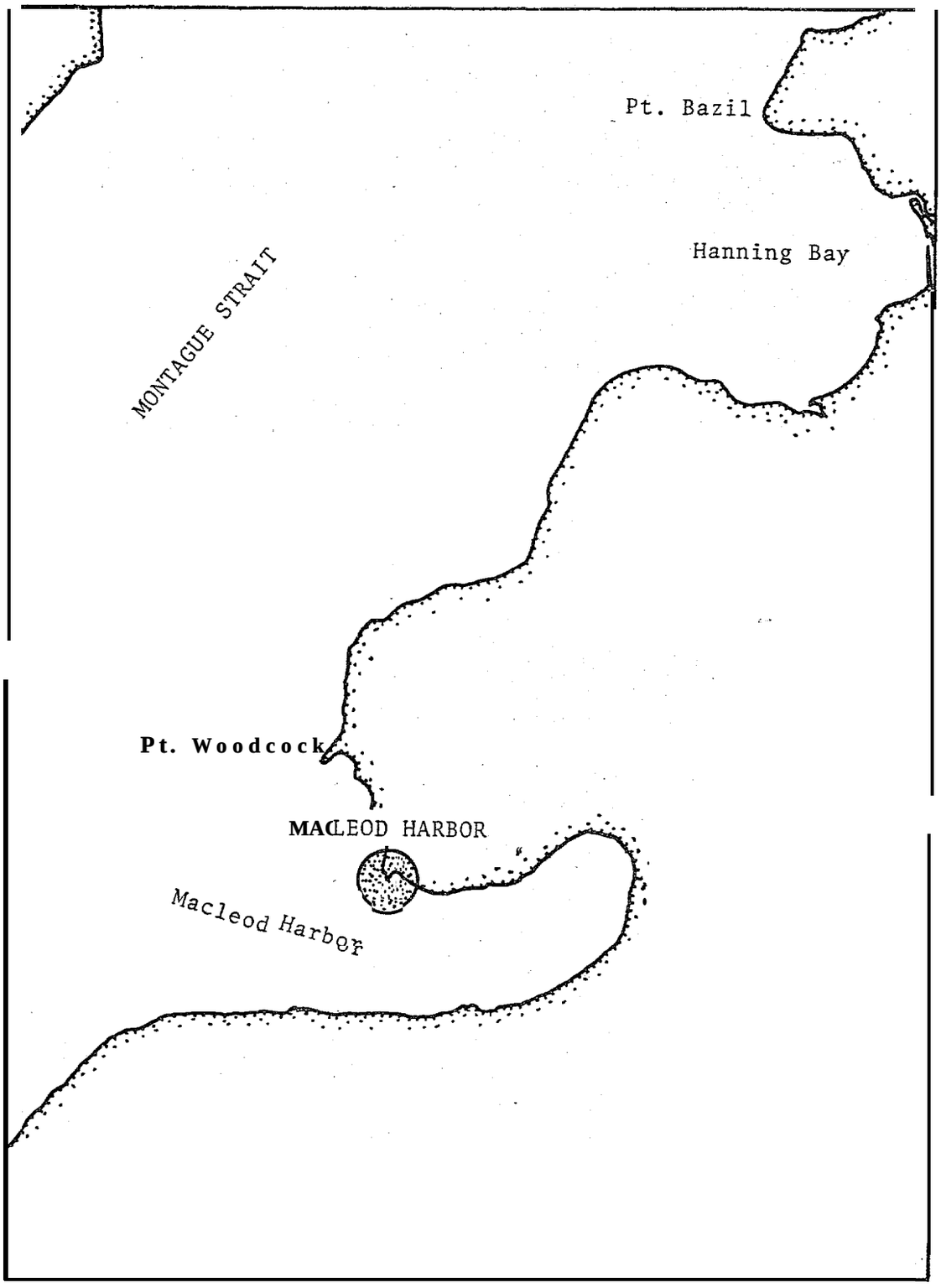

Figure A-8. MacLeod Bay sampling site.

SPECIES OF MCLEOD HARBOR

CHLOROPHYTA
- Chlorophyta
- Ulothrix laetevirens
- Enteromorpha linza
- Ulva fenestrata
- Ulva lactuca
- Rhizoclonium riparium

BACILLARIOPHYCEAE
- Bacillariophyceae

PHAEOPHYTA
- Phaeophyta
- Pylaiella littorals
- Sphacelaria sp.
- Sphacelaria subfusca
- Elachistea fucicola
- Desmarestia aculeata
- Soranthera ulvoidea
- Pe talonia fascia
- Scytosiphon lomentaria
- Alaria sp.
- Alaria marginata
- Alaria praelonga
- Fucus sp.
- Fucus distichus

RHODOPHYTA
- Rhodophyta
- Porphyra sp.
- Cryptosiphonia woodii
- Farlowia compressa
- Endocladia muricata
- Gloiopeltis furcata
- Peyssonelia pacifica
- Bossiella sp.
- Bossiella californica
- Bossiella chiloensis
- Corallina frondi scens
- Callophyllis sp.
- Callophyllis flabellulata
- Gigartinaceae
- Gigar tins papillata
- Iridaea heterocarpa
- Halos accion glandiforme
- Rhodymenia palmata
- Antithamnion sp.
- Antithamnion kylinii
- Ptilota tenuis

RHODOPHYTA cont.

Neoptilota asplendioides
Tokidadendron sp.
Tokidadendron bullata
Polysiphonia hendryi
Polysiphonia pacifica
Pterosiphonia sp.
Pterosiphonia arctica
Pterosiphonia bipinnata
Phodomela larix
Odonthalia sp.
Odonthalia floccosa
Odonthalia washingtoniensis

PHYCOMYCETES

Phycomycetes

ANTHOPHYTA

Phyllospadix scouleri

PORIFERA

Porifera
Eudendrium ramosum

CNIDARIA

Anthrozoa

TURBELLARIA

Turbellaria

RHYNCHOCOELA

Rhynchocoela
Emplectonema gracile

NEMATODA

Nematoda

ANNELIDA

Polychaeta
Phyllodocidae
Eteone pacifica
Eulalia viridis
Syllidea
Typosyllis pulchra
Typosyllis stewarti
Typosyllis a. adamantea
Eusyllis assimilis
Exogone verugera
Brania brevipharyngea
Nereis sp.
Nereis vexillosa
Sphaerodoridium gracilis
Glycera capitata
Lumbrineris zonata
Paraonis gracilis

ANNELIDA cont.

Spionidae
Polydora ciliata
Spio filicornis
Boccardia columbiana
Spiophanes bombyx
Cirratulus cirratus
Caulleriella sp.
Capitella capitata
Pectinaria belgica
Laonome sp.
Pseudosabellides littorals
Spirorbis spirillum
Enchytraeidae

MOLLUSCA

Tonicella lineata
Tonicella rubra
Katharina tunicata
Mopalia mucosa
Mytilus edulis
Musculus discors
Protothaca sp.
Protothaca staminea
Macoma sp.
Macoma balthica
Hiatella arctica
Puncturella sp.
Collisella pelta
Notoacmaea persona
Margaritas olivaceus
Margaritas helicinus
Margaritas pupillus
Littorina sitkana
Littorina scutulata
Lacuna sp.
Lacuna carininata
Lacuna marmorata
Alvinia compacta
Bittium munitum
Cerithiopsis sp.
Crepidula sp.
Nucella sp.
Nucella canaliculata "
Nucella lamellosa
Buccinum sp.

MOLLUSCA **cont.**

Odostomia **sp.**

Onchidella **borealis**

ARACHNIDA

Halacaridae

PYCNOGONIDA

Ammothea **sp.**

Ammothea alaskensis

Ammothea gracilipes

Ammothea latifrons

Ammothea pribilofensis

Achelia chelata

CRUS TACEA

Crustacea

Platycopa

Harpacticoida

Balanus balanoides

Balanus cariosus

Balanus glandula

Campylaspis sp.

Campylaspis verrucosa

Campylaspis affinis

Tanidacea

Pentidotea wosensenskii

Sphaeromatidae

Exosphaeroma sp.

Ianiropsis kincaidi kincaidi

Munna sp.

Bopyridae

Amphipoda

Ampithoe sp.

Ampithoe rubricata

Ampithoe rubricatoides

Olighchinus lighti

Calliopiella pratti

Paramoera columbiana

Paramoera carlottensis

Melita sp.

Hyalidae

Hyale sp.

Hyale rubra frequens

Parallorchestes sp.

Parallorchestes ochotensis

Photis reinhardi

Ischyrocerus krascheninnikovi

Jassa pulcella

CRUSTACEA cont.

Parapleustes nautilus

Parapleustes pugettensis

Metopelloides sp.

Decapoda

Cancer productus

INSECTA

Insects

Chironomidae

BRYOZOA

Bryozoan

Microporina sp.

ECHINOIDEA

Strongylocentrotus droebachiensis

TELEOSTEI

Clinocottus acuticeps

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/16/74
LATITUDE; 59 53 40 N LONGITUDE: 147 47 70 w
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 3:15 IN TIME ZONE: +10
CATALOG NBR: AB740293 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010288 METER NBR: 9 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WE-T WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ALARIA MARGINATA	ND				90.180	12.170
RHODOPHYTA						
BOSSIELLA CHILOENSIS	ND				.030	0.
PTEROSIPHONIA BIPINNATA	ND				6.670	1.492
TURBELLARIA						
TURBELLARIA	ND			19	.010	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	0043	0.
ANNELIDA						
EULALIA VIRIDIS	ND			1	.038	0.
TYPOSYLLIS PULCHRA	ND			7	.047	0.
TYPOSYLLIS STEWARTI	ND			1	.106	0.
SPIRORBIS SPIRILLUM	ND			12	.006	0.
MOLLUSCA						
MYTILUS EDULIS	NC)	DEAD		10	0.	0.
MYTILUS EDULIS	ND	DEAD		3	00	0.
MYTILUS EDULIS	ND	DEAD		6	0.	0.
MYTILUS EDULIS	ND			53	268.850	141.850
MYTILUS EDULIS	ND			69	56.327	26.512
MYTILUS EDULIS	ND			16	21.841	10.104
MUSCULUS DISCORS	ND	DEAD		2	.059	0.
MUSCULUS DISCORS	ND			2	.219	0.
PROTOTHACA STAMINEA	ND	DEAD		1	.124	0.
HIATELLA ARCTICA	ND			1	.163	0.
COLLISELLA PELTA	ND	DEAD		12	1.555	0.
COLLISELLA PELTA	ND			13	4.595	3.126
MARGARITAS HELICINUS	ND			4	.007	0.
LACUNA MARMORATA	ND	DEAD		1	.051	0.
LACUNA MARMORATA	ND			8	.016	0.
NUCELLA CANALICULATA	ND			19	23.563	15.320
PYCNOGONIDA						
AMMOTHEA SP	ND			1	.005	0.

CRUSTACEA				
OLIGOCHINUS LIGHTI	ND	3	.035	0.
PARAMOERA COLUMBIANA	ND	1	.013	0.
UNKNOWN	ND	4	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/16/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 3:15 IN TIME ZONE: +10
CATALOG NBR: AB740294 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010290 METER NBR: 11 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND			1	.002	0.
ALARIA MARGINATA	ND			6	106.190	13.410
RHODOPHYTA						
BOSSIELLA CHILOENSIS	ND			6	.695	0.
TOKIDADENDRON BULLATA	ND			1	.031	0.
PTEROSIPHONIA BIPINNATA	ND				.859	.132
ODONTHALIA FLOCCOSA	ND			8	.927	0.
PORIFERA						
PORIFERA	ND				0.	0.
TURBELLARIA						
TURBELLARIA	ND			1	.001	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	.016	0.
NEMATODA						
NEMATODA	ND			2	.001	0.
ANNELIDA						
ETEONE PACIFICA	ND			1	.002	0.
TYPOSYLLIS PULCHRA	ND			5	.012	0.
NEREIS SP	ND			2	.005	0.
BOCCARDIA COLUMBIANA	ND			2	.009	0.
CAPITELLA CAPITATA	ND			1	.002	0.
ENCHYTRAEIDAE	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			59	1.158	.532
MUSCULUS DISCORS	ND			2	.069	0.
HIATELLA ARCTICA	ND			1	.093	0.
COLLISELLA PELTA	ND			2	.440	0.
MARGARITES HELICINUS	ND			3	.015	0.
LACUNA MARMORATA	ND			26	.063	0.
NUCELLA CANALICULATA	ND			3	6.194	4.229
CRUSTACEA						
HARPACTICOIDA	ND			1	.001	0.
IANIROPSIS KINCAIDI KINCAIDI	ND			1	.001	0.
A PHIPODA	ND			1	.001	0.

AMPITHOE RUBRICATOIDES	ND	6	.044	0.
BRYOZOAN				
BRYOZOAN	ND		0.	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/16/74
LATITUDE: 59 53 40 N LONGITUDE 47 47 70 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 3:15 IN TIME ZONE: +10
CATALOG NBR: AB740295 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010295 METER NBR: 13 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
TOKIDADENDRON BULLATA	ND				.146	0.
PTEROSIPHONIA BIPINNATA	ND				.717	0.
ODONTHALIA FLOCCOSA	ND				.057	0.
MOLLUSCA						
MYTILUS EDULIS	ND			398	6.357	3.079
HIATELLA ARCTICA	ND			5	.748	0.
COLLISELLA PELTA	ND			29	2.384	1.078
NUCELLA CANALICULATA	ND			2	.391	0.
CRUSTACEA						
CHTHAMALUS DALLI	ND			20	.001	0.
AMPITHOE RUBRICATOIDES	ND			3	.012	0.
OLIGOCHINUS LIGHTI	ND			4	.023	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/16/74
LATITUDE: 59 53 40 N LONGITUDE! 147 47 70 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 3:15 IN TIME ZONE: +10
CATALOG NBR:AB740296 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR:15 SURFACE Topography NO INFORMATION
SAMPLING TIME: 4:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: ● 45 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	cOUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ALARIA MARGINATA	ND			1	42.690	5.490
ALARIA PRAELONGA	ND			2	35*030	5.900
RHODOPHYTA						
RHODYMENIA PALMATA	ND				.022	0.
PTEROSIPHONIA BIPINNATA	ND				.002	0.
CNIDARIA						
ANTHROZOA	ND				2.797	.466
MOLLUSCA						
KATHARINA TUNICATA	ND			2	.537	0.
HIATELLA ARCTICA	ND			5	.505	0.
COLLISELLA PELTA	ND			70	1.084	● 497
MARGARITAS HELICINUS	ND	DEAD		2	.026	0.
MARGARITAS HELICINUS	ND			4	.027	o*
LACUNA MARMORATA	ND			3	.026	o,
NUCELLA CANALICULATA	ND			4	.173	0.
NUCELLA LAMELLOSA	ND			3	1.834	1.314
ODOSTOMIA SP	ND	DEAD		1	.004	0.
CRUSTACEA						
PARAPLEUSTES NAUTILUS	ND				.012	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/16/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 3:15 IN TIME ZONE: +10
CATALOG NBR: AB740297 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010297 METER NBR: 16 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: .45 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT GRAMS)
PHAEOPHYTA						
	ND				5.519	.542
ALARIA MARGINATA	ND			15	529.460	79.000
RHODOPHYTA						
BOSSIELLA CHILOENSIS	ND				.019	0.
TOKIDADENDRON BULLATA	ND				.546	0.
PTEROSIPHONIA BIPINNATA	ND				.699	0.
ODONTHALIA FLOCCOSA	ND				.502	0.
PORIFERA						
PORIFERA	ND			1	.082	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.044	0.
ANNELIDA						
EULALIA VIRIDIS	ND			2	.045	0.
TYPOSYLLIS PULCHRA	ND			8	.012	0.
NEREIS SP	ND			3	.004	0.
BOCCARDIA COLUMBIANA	ND			17	.142	0.
CIRRATULUS CIRRATUS	ND			1	.003	0.
CAPITELLA CAPITATA	ND	FRAG		1	.006	0.
SPIRORBIS SPIRILLUM	ND			6	.004	0.
MOLLUSCA						
TONICELLA LINEATA	ND			1	.342	0.
KATHARINA TUNICATA	ND			2	2.057	.597
MYTILUS EDULIS	ND	DEAD		1	.005	0.
MUSCULUS DISCORS	ND			259	.385	0.
HIATELLA ARCTICA	ND			36	4.228	2.166
COLLISELLA PELTA	ND	DEAD		1	.021	0.
COLLISELLA PELTA	ND			11	.287	0.
LACUNA SP	ND			2	.007	0.
CERITHOPSIS SP	ND	DEAD		1	.012	0.
NUCELLA SP	ND	IMTR		7	.272	0.
NUCELLA CANALICULATA	ND			2	.749	0.
NUCELLA LAMELLOSA	ND			1	2.350	1.679

PYCNOGONIDA					
ACHELIA CHELATA	ND		1	.002	0.
CRUSTACEA					
BALANUS CARIOSUS	ND		1	6.553	4.687
AMPHIPODA	ND		3	.001	0.
AMPHIPODA	ND		2	.002	0.
AMPITHOE RUBRICATA	ND		1	.001	0.
AMPITHOE RUBRICATOIDES	NO		1	.056	0.
HYALE RUBRA FREQUENS	ND		1	.059	0.
PUGETTIA GRACILIS	ND		2	.546	0,
INSECTA					
CHIRONOMIDAE	ND	IMTR	4	.019	0.
BRYOZOAN					
BRYOZOAN	ND			.720	o*
ECHINODERMATA					
STRONGYLOCENTROTUS DROEBACHIENSI	ND		1	.953	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/16/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 2.3 HOURS BEGINNING AT 3:15 IN TIME ZONE: +10
CATALOG NBR: AB740298 ZONE/TRANSECT: 1 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010276 METER NBR: 18 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 4:23 ARROW NBR: GEAR: TRANSECT
ELEVATION: .45 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND				.725	0.
ULVA LACTUCA	ND			1	.001	0.
RHIZOCLONIUM RIPARIUM	ND				.001	0.
PHAEOPHYTA						
DESMARESTIA ACULEATA	ND			1	.359	0.
ALARIA MARGINATA	ND			1	4.627	1.046
FUCUS D STICHUS	ND	STRL		1	.128	0.
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND			9	.161	0.
BOSSIELLA CHILOENSIS	ND			7	.540	0.
TOKIDADENDRON BULLATA	ND			41	22.763	3.933
POLYSIPHONIA PACIFICA	ND			3	.014	0.
PTEROSIPHONIA BIPINNATA	ND				2.500	.470
ODONTHALIA FLOCCOSA	ND			4	.176	0.
CNIDARIA						
EUDENDRIUM RAMOSUM	ND	FRAG		1	.001	0.
ANTHROZOA	ND			3	.012	0.
TURBELLARIA						
TURBELLARIA	ND			1	.001	0.
TURBELLARIA	ND			24	.020	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			12	.041	0.
RHYNCHOCOELA	ND			1	.002	0.
RHYNCHOCOELA	ND			2	.021	0.
NEMATODA						
NEMATODA	ND			30	0.	0.
ANNELIDA						
ETEONE PACIFICA	ND			1	.001	0.
EULALIA VIRIDIS	ND			4	.005	0.
TYPOSYLLIS PULCHRA	ND			56	.074	0.
EXOGONE VERUGERA	ND			3	.001	0.
NEREIS SP	ND			23	.052	0.

SPIO FILICORNIS	ND		5	.006	0.
BOCCARDIA COLUMBIANA	ND		20	.129	0.
CAPITELLA CAPITATA	ND		27	.049	0.
LAONOME SP	ND		1	.001	0.
MOLLUSCA					
TONICELLA LINEATA	ND		2	.851	0.
KATHARINA TUNICATA	ND		1	2.368	.768
MYTILUS EDULIS	ND	DEAD	11	0.	0.
MYTILUS EDULIS	ND		157	.017	0.
MUSCULUS DISCORS	ND		15	.653	0.
MIATELLA ARCTICA	ND		73	.751	0.
COLLISELLA PELTA	ND		12	.170	0.
MARGARITES HELICINUS	ND		40	.079	0.
MARGARITES PUPILLUS	ND	DEAD	1	0.	0.
LACUNA MARMORATA	ND		970	3.188	1.061
NUCELLA LAMELLOSA	ND		42	.338	0.
ODOSTOMIA SP	ND	DEAD	1	0.	0.
PYCNOGONIDA					
AMMOTHEA SP	ND		12	.023	0.
AMMOTHEA ALASKENSIS	ND		1	.002	0.
AMMOTHEA GRACILIPES	ND		8	.016	0.
CRUSTACEA					
TANIDACEA	ND		3	.016	0.
PENTIDOTEA WOSENSENSKII	ND		1	.002	0.
SPHAEROMATIDAE	ND		13	.060	0.
IANIROPSIS KINCAIDI KINCAIDI	ND		4	.003	0.
BOPYRIDAE	ND		3	.022	0.
AMPHIPODA	ND		2038	1.188	0.
AMPITHOE RUBRICATOIDES	ND		9	.032	0.
HYALE RUBRA FREQUENS	ND		12	.031	0.
PARALLORCHESTES SP	ND		7	.022	0.
PHOTIS REINHARDI	ND		1	.001	0.
PARAPLEUSTES NAUTILUS	ND		14	.003	0.
PARAPLEUSTES PUGETTENSIS	N		5	.015	0.
DECAPODA	ND	IMTR	1	.008	0.
CANCER PRODUCTUS	ND		1	.015	0.
INSECTA					
CHIRONOMIDAE	ND	IMTR	1	.007	0.
BRYOZOAN	D				
BRYOZOAN	ND			.024	0.
BRYOZOAN	ND			10.009	0.
TELEOSTEI					
TELEOSTEI	ND	IMTR	1	.003	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN T ME ZONE: +10
CATALOG NBR: AB740299 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010241 METER NBR 4 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 3.19 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES DENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
TURBELLARIA						
TURBELLARIA	ND			8	.013	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.002	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1	.012	0.
COLLISELLA PELTA	ND			20	0.	0.
NOTOACMAEA PERSONA	ND			4	1.040	.614
MARGARITES HELICINUS	ND			3	.005	0.
LITTORINA SITKANA	ND			8	.506	0.
LITTORINA SCUTULATA	ND			30	.564	0.
CRUSTACEA						
SPHAEROMATIDAE	ND			1	.003	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740300 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010242 METER NBR: 6 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 2.58 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		10	210.680	46.180
FUCUS DISTICHUS	ND	FRTL		6	116.800	25.170
RHODOPHYTA						
BOSSIELLA CHILOENSIS	ND				.018	0.
PTEROSIPHONIA BIPINNATA	ND				.001	0.
ODONTHALIA FLOCCOSA	ND				.347	0.
ANNELIDA						
ENCHYTRAEIDAE	ND			5	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			52	89.420	44.220
MYTILUS EDULIS	ND			16	16.367	7.776
MYTILUS EDULIS	ND			22	6.100	2.819
COLLISELLA PELTA	ND	DEAD		1	0.	0.
COLLISELLA PELTA	ND			27	2.082	1.113
LITTORINA SITKANA	ND			215	30.939	19.527
LITTORINA SCUTULATA	ND	DEAD		1	0.	0.
LITTORINA SCUTULATA	ND			51	2.153	1.417
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			4	.475	0.
AMPITHOE RUBRICATOIDES	ND			1	.006	0.
PARAMOERA COLUMBIANA	ND			1	.001	0.
	ND			5	.347	0.
BRYOZOAN						
BRYOZOAN	ND	FRAG		1	.018	0.
MICROPORINA SP	ND	FRAG		1	.029	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION NVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740301 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010243 METER NBR: 8 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 2.89 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
FUCUS D STICHUS	ND			15	24.560	5.480
RHODOPHYTA						
RHODOPHYTA	ND				.057	0.
MOLLUSCA						
MYTILUS EDULIS	ND			71	4.420	0.
MUSCULUS DISCORS	ND	DEAD		1	0.	0.
HIATELLA ARCTICA	ND	DEAD		1	0.	0.
COLLISELLA PELTA	ND			46	1.676	.874
LITTORINA SITKANA	ND	DEAD		1	0.	0.
LITTORINA SITKANA	ND			29	.650	0.
LITTORINA SCUTULATA	ND	DEAD		5	0.	0.
LACUNA MARMORATA	ND	DEAD		1	0.	0.
CRUSTACEA						
BALANUS GLANDULA	ND			6	.288	0.
PARAMOERA CARLOTTENSIS	ND			1	.013	0.
BRYOZOAN						
BRYOZOAN	ND				.011	0.
BRYOZOAN	ND				.005	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE 147 47 70 W
STATION INVESTIGATED FOR 5.° HOURS BEGINNING AT 14:30 IN TIME ZONE +10
CATALOG NBR: AB740302 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010244 METER NBR: 10 SURFACE TOPOGRAPHY NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 2.89 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND	FRAG		1	.090	0.
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL		25	173.750	32.000
FUCUS DISTICHUS	ND	FRTL		24	271.310	45.360
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND			2	.123	0.
PHODYMENIA PALMATA	ND	FRAG		1	.071	0.
TOKIDADENDRON BULLATA	ND			1	.407	0.
PTEROSIPHONIA BIPINNATA	ND			2	.027	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	.002	0.
EMPLECTONEMA GRACILE	ND			1	.060	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1	1.325	.484
MYTILUS EDULIS	ND			5	3.348	.884
MYTILUS EDULIS	ND			16	2.427	1.105
HIATELLA ARCTICA	ND	DEAD		1	0.	0.
COLLISELLA PELTA	ND			34	4.751	2.346
MARGARITES PUPILLUS	ND			1	.104	0.
LITTORINA SITKANA	ND			90	26.746	16.186
LITTORINA SCUTULATA	ND			13	.323	0.
ONCHIDELLA BOREALIS	ND			1	.006	0.
CRUSTACEA						
BALANUS GLANDULA	ND			1	.075	0.
OLIGOCHINUS LIGHTI	ND			11	.061	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740303 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010245 METER NBR: 12 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 2.58 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND	FRAG		1	.319	0.
PHAEOPHYTA						
FUCUS DISTICHUS	ND	FRTL		18	154.700	30.440
FUCUS DISTICHUS	ND	STRL		20	104.690	21.490
RHODOPHYTA						
ENDOCLADIA MURICATA	ND				.749	0.
TURBELLARIA						
TURBELLARIA	ND			3	.181	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.133	0.
EMPLECTONEMA GRACILE	ND	FRAG		1	.230	0.
MOLLUSCA						
MYTILUS EDULIS	ND			9	22.665	10.945
MYTILUS EDULIS	ND			12	7.321	3.485
MYTILUS EDULIS	ND			23	3.681	1.748
COLLISELLA PELTA	ND			54	2.572	1.177
LITTORINA SITKANA	ND			23	2.489	1.616
LITTORINA SCUTULATA	ND			58	2.024	1.381
CRUSTACEA						
BALANUS GLANDULA	ND			9	1.175	.921
AMPITHOE RUBRICATOIDES	ND			1	.006	0.
OLIGOCHINUS LIGHTI	ND			7	.029	0.

STATION NBR:9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE; 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR:AB740304 ZONE/TRANSECT! 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010246 METER NBR: 14 SURFACE TOPOGRAPHY! NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1097 METERS QUADRAT SIZE: ● 0625 SQUAREMETERS SEDIMENT VOLUME: 00 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	cOUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
SORANTHERA ULVOIDEA	ND			1	.031	0.
FUCUS DISTICHUS	ND	FRTL		3	43.000	9,118
FUCUS DISTICHUS	ND	STRL		6	32?.900	8,722
RHODOPHYTA						
ENDOCLADIA MURICATA	ND			1	1.220	● 361
ODONTHALIA FLOCCOSA	ND				66.900	9.055
TURBELLARIA						
TURBELLARIA	ND			50	0085	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			2	.030	0.
EMPLECTONEMA GRACILE	ND			1	● 106	0.
ANNELIDA						
PHYLLODOCIDAE	ND				.003	0.
TYPOSYLLIS PULCHRA	ND			3	● 001	0.
NEREIS SP	ND			1	1.205	.246
ENCHYTRAEIDAE	ND			1A	● 006	o,
MOLLUSCA						
MUSCULUS DISCORS	ND			8	,665	o.
PROTOTHACA STAMINEA	ND			3	.509	0,
COLLISELLA PELTA	ND			35	1,450	1.157
MARGARITES HELICINUS	ND	DEAD			0.	0.
LITTORINA SITKANA	ND	DEAD			0.	o*
LITTORINA SITKANA	ND			50	7.064	4.811
LITTORINA SCUTULATA	ND	DEAD			0.	0.
LITTORINA SCUTULATA	ND			93	3.244	2,661
LACUNA MARMORATA	ND			3	.021	0.
NUCELLA LAMELLOSA	No	DEAD			o.	0.
ODOSTOMIA SP	ND	DEAD			o*	0.
CRUSTACEA						
BALANUS GLAND(JLA	ND			3	.193	0,
CHTHAMALUS DALLI	ND			5	.013	0,
IANIROPSIS KINCAIDI KINCAIDI	ND			6	.001	0.
AMPITHOE RUBRICATA	ND			4	0001	0,
AMPITHOE RUBRICATOIDES	ND			29	.221	0.

OLIGOCHINUS LIGHTI	ND		48	.075	0.
PARAMOERA COLUMBIANA	ND		65	.034	
PARAMOERA CARLOTTENSIS	ND		2	.003	0.
PARALLORCHESTES SP	ND		4	.001	0.
	ND		10	.377	0.
INSECTA					0.
CHIRONOMIDAE	ND	IMTR	5	.023	0.
BRYOZOAN					
BRYOZOAN	ND			.658	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740305 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010247 METER NBR: 18 SURFACE Topography NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
Elevation 1.67 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND	FRAG		1	.002	0.
PHAEOPHYTA						
ELACHISTEA FUCICOLA	ND	FRAG		1	.001	0.
DESMARESTIA ACULEATA	ND			1	.197	0*
SORANTHERA ULVOIDEA	ND			19	.180	0.
FUCUS DISTICHUS	ND	STRL FRAG		1	.247	0.
RHODOPHYTA						
BOSSIELLA CHILOENSIS	ND			3	.164	0.
PTEROSIPHONIA BIPINNATA	ND	FRAG		1	.001	0*
ODONTHALIA FLOCCOSA	ND				269.500	34.460
ANTHOPHYTA						
PHYLLOSPADIX SCOULERI	ND	DEAD			0.	0.
CNIDARIA						
ANTHROZOA	ND			2	.549	0*
TURBELLARIA						
TURBELLARIA	ND			10	.017	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			6	.027	0.
ANNELIDA						
POLYCHAETA	ND			7	.006	0.
ETEONE PACIFICA	ND			5	.155	0.
TYPOSYLLIS PULCHRA	ND			42	.082	0.
TYPOSYLLIS A ADAMANTEA	ND			1	.009	0.
SPHAERODORIDIUM GRACILIS	ND			1	.002	0.
GLYCERA CAPITATA	ND			1	.215	0.
SPIO FILICORNIS	ND			2	.001	0.
SPIOPHANES BOMBYX	ND	FRAG		1	.003	0.
CAPITELLA CAPITATA	ND			15	.015	0.
PECTINARIA BELGICA	ND			3	.247	0.
ENCHYTRAEIDAE	ND			6	.003	0.
MOLLUSCA						
MYTILUS EDULIS	ND			54	149.141	72.707
MYTILUS EDULIS	ND			25	13.996	6.612
MYTILUS EDULIS	ND			114	7.231	3.332

MUSCULUS DISCORS	ND	DEAD	2	0.	0.
MUSCULUS DISCORS	ND		6	.465	0.
PROTOTHACA STAMINEA	ND		27	1.524	.958
MACOMA BALTHICA	ND		20	.120	0.
HIATELLA ARCTICA	ND	DEAD	8	0.	0.
HIATELLA ARCTICA	ND		4	.920	0.
PUNCTURELLA SP	ND	DEAD	1	0.	0.
COLLISELLA PELTA	ND	DEAD	33	0.	0.
COLLISELLA PELTA	ND		19	1.831	1.251
MARGARITES HELICINUS	ND	DEAD	3	0.	0.
MARGARITES HELICINUS	ND		4	.008	0.
LITTORINA SITKANA	ND	DEAD	24	0.	0.
LITTORINA SITKANA	ND		120	6.784	4.195
LITTORINA SCUTULATA	ND	DEAD	32	0.	0.
LITTORINA SCUTULATA	ND		99	1.917	1.247
LACUNA CARINATA	ND		3	.067	0.
LACUNA MARMORATA	ND	DEAD	5	0.	0.
LACUNA MARMORATA	ND		9	.997	0.
CREPIDULA SP	ND	DEAD	1	0.	0.
NUCELLA LAMELLOSA	ND	DEAD	4	0.	0.
NUCELLA LAMELLOSA	ND		6	.853	.613
ODOSTOMIA SP	ND	DEAD	2	0.	0.
ODOSTOMIA SP	ND		1	.002	0.
PYCNOGONIDA					
AMMOTHEA LATIFRONS	ND		6	.014	0.
CRUSTACEA					
BALANUS CARIOSUS	ND	DEAD	2	0.	0.
BALANUS GLANDULA	ND	DEAD	3	0.	0.
BALANUS GLANDULA	ND		5	.891	.755
CAMPYLASPIS VERRUCOSA	ND		1	.001	0.
MUNNA SP	ND		1	.001	0.
AMPITHOE RUBRICATOIDES	ND		3	.009	0.
OLIGOCHINUS LIGHTI	ND		52	.085	0.
PARAMOERA COLUMBIANA	ND		85	.024	0.
PARAPLEUSTES NAUTILUS	ND		2	.001	0.
NSECTA					
CHIRONOMIDAE	ND	IMTR	2	.009	0.
BRYOZOAN					
BRYOZOAN	ND			.318	0.
BRYOZOAN	ND			.297	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATEI) FOR 5.0 HOURS HEGINNING AT 14:30IN TIME ZONE: +10
CATALOG NBR:AB740306 ZONE/TRANSECT: 2 Substrate NO INFORMATION
PHOTOGRAPH NBR:7401010248 METER NBR: 20 SURFACE TOPOGRAPHYI NO INFORMATION
SAMPLING TIME:17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.67 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUMEI 0, LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	cOUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
SORANTHERA ULVOIDEA	ND			1	.001	0.
FUCUS DISTICHUS	NO	FRAG		1	,212	0.
RHODOPHYTA						
ENDOCLADIA MURICATA	ND				,992	0.
BOSSIELLA CHILOENSIS	ND				.010	0.
PTEROSIPHONIA BIPINNATA	ND				16.383	3.088
ODONTHALIA FLOCCOSA	NO	STRL			57*347	9,429
CNIDARIA						
ANTHROZOA	ND				● 471	0.
TURBELLARIA						
TURBELLARIA	ND			10	.012	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	9112	0.
ANNELIDA						
TYPOSYLLIS PULCHRA	ND			20	.107	0.
CAULLERIELLA SP	ND			1	.005	o*
ENCHYTRAEIDAE	ND			22	,006	0.
MOLLUSCA						
MYTILUS EDULIS	ND	DEAD		3	0.	0.
MYTILUS EDULIS	ND			51	119.073	64.201
MYTILUS EDULIS	NO			17	23.398	11.831
MYTILUS EDULIS	ND			185	7.330	3.575
MUSCULUS DISCORS	ND			2	.278	0.
PROTOTHACA SP	NO			3	.111	o*
MACOMA BALTHICA	No			1	.012	o.
HIATELLA ARCTICA	ND			1	.003	o*
COLLISELLA PELTA	ND	DEAD		18	0.	0.
COLLISELLA PELTA	ND			22	1.894	1.174
MARGARITAS OLIVACEUS	No	DEAD		1	00	0.
MARGARITAS HELICINUS	NO			41	.071	o*
LITTORINA SITKANA	ND			300	8.275	5.318
LITTORINA SCUTULATA	ND	DEAD		15	0.	0.
LITTORINA SCUTULATA	ND			108	4.290	2.945
LACUNA CARININATA	ND	DEAO		4	00	0.

LACUNA CARININATA	ND		21	.398	O*
LACUNA MARMORATA	ND		846	1.413	.803
NUCELLA CANALICULATA	ND		2	1.035	.677
NUCELLA LAMELLOSA	ND		4	1.268	.872
ODOSTOMIA SP	ND	DEAD	6	o*	0.
ODOSTOMIA SP	ND		5	.055	0.
CRUSTACEA					
MUNNA SP	NO		7	.006	0.
AMPITHOE RUBRICATOIDES	ND		6	.002	0.
PARAMOERA CARLOTTENSIS	ND		6	.001	0.
PARAMOERA CARLOTTENSIS	ND		8	.033	0.
	ND		3	.004	0.
INSECTA					
INSECTA	ND		3	.003	0.
INSECTA	ND		1	.001	o*
BRYOZOAN					
BRYOZOAN	ND	FRAG	1	.060	0.

BIOMASS DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740307 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH" NBR: 7401010249 METER NBR: 22 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1067 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND			11	.004	o.
SPHACELARIA SP	ND			1	.001	0.
ELACHISTEA FUCICOLA	ND			21	.027	0.
DESMARESTIA ACULEATA	ND			1	,029	o*
ALARIA MARGINATA	ND			25	o*	o.
ALARIA PRAELONGA	ND			1	22.610	5.187
FUCUS DISTICHUS	NO	FRTL		2	28.731	6.842
FUCUS DISTICHUS	ND	STRL		9	118.600	27.849
RHODOPHYTA						
RHODOPHYTA	ND	FRAG			0.	0.
CRYPTOSIPHONIA WOODII	ND	FRAG		1	"005	0.
BOSSIELLA CHILOENSIS	ND			1	.049	o*
CALLOPHYLLIS SP	ND			1	0003	o.
CALLOPHYLLIS SP	ND			1	.002	0.
GIGARTINACEAE	ND				.377	00
RHODYMENIA PALMATA	ND	FRAG		1	.821	0.
TOKIDADENDRON BULLATA	ND			2	.030	0.
PTEROSIPHONIA ARCTICA	ND				.254	0,
ODONTHALIA FLOCCOSA	ND			2	.142	0.
ODONTHALIA WASHINGTONIENSIS	ND				.833	00
TURBELLARIA						
TURBELLARIA	ND			14	.829	.185
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	.001	0.
RHYNCHOCOELA	ND			1	.013	0.
RHYNCHOCOELA	ND			9	.025	0.
EMPLECTONEMA GRACILE	ND			2	.037	0.
ANNELIDA						
ETEONE PACIFICA	ND			1	.002	0.
TYPOSYLLIS PULCHRA	ND			8	.012	0.
TYPOSYLLIS A ADAMANTEA	ND			2	.003	0.
ENCHYTRAEIDAE	ND			18	.005	00

MOLLUSCA					
MYTILUS EDULIS	ND		139	342.100	208.900
MYTILUS EDULIS	ND		42	31.195	17.276
MYTILUS EDULIS	ND		278	16.823	8.180
COLLISELLA PELTA	ND		75	.944	0.
LITTORINA SITKANA	ND	DEAD	8	0.	0.
LITTORINA SCUTULATO	ND	DEAD	7	0.	0.
LACUNA CARININATA	ND		1	.052	0.
LACUNA MARMORATA	ND	DEAD	4	0.	0.
LACUNA MARMORATA	ND		1	.031	0.
BITTIUM MUNITUM	ND	DEAD		0.	0.
ARACHNIDA					
HALACARIDAE	ND		2	.001	0.
CRUSTACEA					
BALANUS GLANDULA	ND		7	2.650	1.921
MUNNA SP	ND		45	.035	0.
AMPITHOE RUBRICATOIDES	ND		41	.332	0.
OLIGOCHINUS LIGHTI	ND		1	.001	0.
PARAMOERA COLUMBIANA	ND		1	.012	0.
BRYOZOAN					
BRYOZOAN	ND			.025	0.
BRYOZOAN	ND			.006	0.
BRYOZOAN	ND			.289	0.
BRYOZOAN	ND			.124	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 4770 w
STATION INVESTIGATED FOR 5,0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740308 ZONE/TRANSECT% 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010250 METER NBR: 24 SURFACE Topography: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.36 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND	FRAG			.746	o*
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.071	0.
DESMARESTIA ACULEATA	ND				1.056	.104
ALARIA MARGINATA	ND			4	174,290	23.910
FUCUS DISTICHUS	ND	STRL			,915	0.
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND				,602	0.
BOSSIELLA CALIFORNIA	ND				o*	0.
HALOSACCION GLANDIFORME	ND				● 057	0,
RHODYMENIA PALMATA	ND				.057	0.
PTILOTA TENUIS	ND				.009	0.
TOKIDADENDRON BULLATA	ND				● 033	0.
PTEROSIPHONIA BIPINNATA	ND				14.646	2.895
ODONTHALIA FLOCCOSA	NO				10.208	1.833
ANTHOPHYTA						
PHYLLOSPADIX SCOULERI	ND			1	.069	0.
PORIFERA						
PORIFERA	ND			1	● 045	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG			.044	0.
ANNELIDA						
ETEONE PACIFICA	ND			2	● 003	0.
SYLLIDEA	ND			1	● 001	0,
TYPOSYLLIS PULCHRA	ND			19	.061	o*
SPIONIDAE	ND			1	● 00A	o.
BOCCARDIA COLUMBIANA	ND			2	*005	0.
CAPITELLA CAPITATA	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			75	1630260	84.210
MYTILUS EDULIS	ND			64	.27.359	12.837
MYTILUS EDULIS	ND			193	19.492	8.794
PROTOTHACA STAMINEA	ND			2	.197	0.
MACOMA SP	ND			1	.011	00

HIATELLA ARCTICA	ND	DEAD	1	0.	0.
HIATELLA ARCTICA	ND		1	.029	0.
COLLISELLA PELTA	ND	DEAD	3	0.	0.
COLLISELLA PELTA	ND		24	5.367	2.623
MARGARITES HELICINUS	NO	DEAD	2	0.	0.
MARGARITES HELICINUS	ND		21	.037	0.
LITTORINA SITKANA	NO	DEAD	2	00	0.
LITTORINA SCUTULATA	ND	DEAD	3	0.	0.
LACUNA CARININATA	ND		2	.042	0.
LACUNA MARMORATA	ND	DEAD	3	0.	0.
LACUNA MARMORATA	ND		59	.117	0.
CERITHIOPSIS 5P	ND	DEAD	2	0.	0.
NUCELLA CANALICULATA	ND	DEAD	1	0.	0.
ODOSTOMIA SP	ND	DEAD	1	0.	0.
PYCNOGONIDA					
AMMOTHEA LATIFRONS	ND		3	.006	0.
CRUSTACEA					
BALANUS BALANOIDES	ND		1	.025	0.
CHTHAMALUS DALLI	ND		2	.031	0.
CAMPYLASPIS SP	ND		1	.001	0.
MUNNA SP	ND		2	cool	0.
AMPITHOE RUBRICATA	ND		3	.001	0.
OLIGOCHINUS LIGHTI	NC)		5	.002	0.
PARAMOERA CARLOTTENSIS	ND		35	.034	0.
	ND		3	.609	0.
BRYOZOAN					
BRYOZOAN	ND	FRAG	1	.032	0.
MICROPORINA SP	ND		1	.019	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740309 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010251 METER NBR: 26 SURFACE TOPOGRAPHY; NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION* 1036 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ALARIA MARGINATA	ND			3	430700	4.700
RHODOPHYTA						
GLOIOPELTIS FURCATA	ND				● 005	0.
CALLOPHYLLIS FLABELLULATA	ND				.062	0,
RHODYMENIA PALMATA	ND	FRAG		1	.053	0.
TOKIDADENDRON BULLATA	ND				.001	0.
PTEROSIPHONIA BIPINNATA	ND				3.920	.294
ODONTHALIA FLOCCOSA	ND				● 015	0.
TURBELLARIA						
TURBELLARIA	ND				1.310	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.239	0.
RHYNCHOCOELA	ND	FRAG		1	.157	0.
NEMATODA						
NEMATODA	ND			1	0001	o*
ANNELIDA						
TYPOSYLLIS PULCHRA	ND			21	.025	0.
NEREIS SP	ND			1	.002	0.
BOCCARDIA COLUMBIANA	ND			1	.001	0.
ENCHYTRAEIDAE	ND			9	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND	DEAD		38	0.	0.
MYTILUS EDULIS	ND			25	38.978	19.512
MYTILUS EDULIS	ND			13	11.150	5.543
MYTILUS EDULIS	ND			342	18.969	9.240
HIATELLA ARCTICA	ND	DEAD		1	0.	o,
HIATELLA ARCTICA	ND			2	.154	0,
COLLISELLA PELTA	ND	DEAD		5	0.	o*
COLLISELLA PELTA	ND			39	3.002	1.689
MARGARITAS HELICINUS	ND	DEAD		1	0.	0.
MARGARITAS HELICINUS	ND			67	.210	0.
LACUNA CARININATA	ND			6	● 078	0.
LACUNA MARMORATA	ND	DEAD		20	0.	o*
LACUNA MARMORATA	ND			64	.107	0.

NUCELLA CANALICULATA	ND		3	2.039	1.992
NUCELLA LAMELLOSA	ND		" 2	.730	0.
ODOSTOMIA SP	ND	DEAD	5	0.	0.
CRUSTACEA					
CAMPYLASPIS VERRUCOSA	ND		2	.001	0.
MUNNA SP	ND		3	.003	o*
OLIGOCHINUS LIGHTI	ND		1	.007	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AI374031O ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010252 METER NBR: 28 SURFACE TOPOGRAPHY? NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
Elevation 1.36 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				.008	0.
BACILLARIOPHYCEAE						
BACILLARIOPHYCEAE	ND				.050	0.
RHODOPHYTA						
PTEROSIPHONIA BIPINNATA	ND				14.435	3.057
RHYNCHOCOELA						
RHYNCHOCOELA	ND			12	.161	0.
ANNELIDA						
ETEONE PACIFICA	ND			9	.055	0.
TYPOSYLLIS PULCHRA	ND			12	,056	0.
ENCHYTRAEIDAE	ND			21	.007	0.
MOLLUSCA						
MYTILUS EDULIS	ND	DEAD		2	0.	0.
MYTILUS EDULIS	ND			211	918*954	474.704
MYTILUS EDULIS	ND			104	64,482	31,428
MYTILUS EDULIS	ND			453	399393	17.577
PROTOTHACA STAMINEA	NC)			3	.101	0.
HIATELLA ARCTICA	ND			1	● 008	0.
COLLISELLA PELTA	ND	OEAD		22	o*	0,
COLLISELLA PELTA	ND			44	● 543	0.
MARGARITAS HELICINUS	ND	DEAD		3	o,	0.
MARGARITAS HELICINUS	ND			2	● 005	o*
LITTORINA SITKANA	ND	DEAD		4	o*	0.
LITTORINA SCUTULATA	ND	DEAD		2	0.	0.
LACUNA CARININATA	ND	DEAD		1	o*	o*
LACUNA MARMORATA	N(.)	DEAD		13	0,	0.
LACUNA MARMORATA	ND			2	0013	o*
CERITHIOPSIS SP	ND	DEAD		1	o*	0.
NUCELLA CANALICULATA	ND	DEAD		1	0.	0.
BUCCINUM SP	NO	DEAD		1	0.	0.
ODOSTOMIA SP	ND	DEAD		1	0.	0.

CRUSTACEA				
BALANUS CARIOSUS	ND	1	4.796	3.793
BALANUS GLANDULA	ND	2	.343	0.
MUNNA SP	ND	2	.001	o*
AMPITHOE RUBRICATA	ND	3	.9002	0.
AMPITHOE RUBRICATOIDES	ND	1	.009	0.
OLIGOCHINUS LIGHTI	ND	1	.006	o,
BRYOZOAN				
BRYOZOAN	ND		.266	o*

BIOTICDENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE; 147 47 70 w
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30INTIMEZONE: +10
CATALOG NBR:A8740311 ZONE/TRANSECT\ 2 SUBSTRATE:NO INFORMATION
PHOTOGRAPH NBR:7401010253 METER NBR: 30 SURFACE TOPOGRAPHY NO INFORMATION
SAMPLING TIME:17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.06 METERS QUADRAT SIZE: 00625 SQUARE METERS SEDIMENT VOLUME: O. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	cOUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS]
CHLOROPHYTA						
RHIZOCLONIUM RIPARIUM	ND				.759	o.
	ND				.004	0.
PHAEOPHYTA						
ALARIA MARGINATA	ND				7.797	1.413
FUCUS DISTICHUS	ND			1	.214	0,
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND				.880	,205
BOSSIELLA CHILOENSIS	ND			1	.017	0.
NEOPTILOTA ASPLENIOIDES	ND				.003	0.
TOKIDADENDRON BULLATA	ND				.001	0.
PTEROSIPHONIA BIPINNATA	ND				8.016	1.472
RHODOMELA LARIX	ND			11	2.893	.478
ODONTHALIA FLOCCOSA	ND			7	.086	0.
CNIDARIA						
ANTHROZOA	ND			10	.224	0.
TURBELLARIA						
TURBELLARIA	ND			52o	.720	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.045	o*
ANNELIDA						
ETEONE PACIFICA	ND			34	0067	0.
EULALIA VIRIDIS	ND			1	0002	0.
TYPOSYLLIS PULCHRA	ND			53	.079	0.
GLYCERA CAPITATA	ND			1	0010	o*
PARAONIS GRACILIS	ND			1	.001	o.
SPIONIDAE	NO			53	.015	0"
PECTINARIA BELGICA	ND			1	.076	0.
PSEUDOSABELLIDES LITTORALIS	NO			1	.017	0.
ENCHYTRAEIDAE	NO			2	.009	0.
ENCHYTRAEIDAE	ND			30	.008	0.
MOLLUSCA						
MYTILUS EDULIS	ND	DEAD		9	0.	0,
MYTILUS EDULIS	ND			133	528.224	2'70,724
MYTILUS EDULIS	NO			102	50.067	24.266

MYTILUS EDULIS	ND		702	43.979	19.717
MUSCULUS DISCORS	ND		1	.001	0.
PROTOTHACA STAMINEA	ND		17	.200	0.
HIATELLA ARCTICA	ND	DEAD	1	0.	0,
HIATELLA ARCTICA	ND		2	.040	0.
COLLISELLA PELTA	ND	DEAD	29	0.	0.
COLLISELLA PELTA	ND		48	.971	0.
MARGARITAS HELICINUS	ND		170	.488	0.
LITTORINA SITKANA	ND	DEAD	4	0.	0.
LACUNA CARININATA	ND	DEAD	12	0.	o*
LACUNA CARININATA	ND		12	.248	0.
LACUNA MARMORATA	NC)		306	.662	0.
ALVINIA COMPACTA	ND		7	.010	0.
CERITHIOPSIS SP	ND	DEAD	5	0.	0.
NUCELLA LAMELLOSA	NO	DEAD	3	0.	0.
ODOSTOMIA SP	ND	DEAD	14	04	0.
ODOSTOMIA SP	ND		1	9122	o*
PYCNOGONIDA					
AMMOTHEA SP	ND	IMTR	9	,017	o.
CRUSTACEA					
CAMPYLASPIS SP	ND		12	.003	0.
MUNNA SP	ND		24	.009	0.
AMPITHOE RUBRICATOIDES	ND		1	.001	0.
OLIGOCHINUS LIGHTI	ND		46	.121	O*
INSECTA					
CHIRONOMIDAE	ND	IMTR	1	.009	0.
BRYOZOAN					
MICROPORINA SP	ND	FRAG	1	.124	o*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDES 59 5340 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740312 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010255 METER NBR: 32 SURFACE TOPOGRAPHY: No INFORMATION
SAMPLING TIME:17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: 1.36 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	wET WEIGHT (GRAMS)	DRY WEIGHT' (GRAMS)
PHAEOPHYTA						
ALARIA MARGINATA	ND			15	318.210	37.900
RHODOPHYTA						
ODONTHALIA FLOCCOSA	NO				.007	0.
TURBELLARIA						
TURBELLARIA	ND			376	.809	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	DEAD		1	● 044	0.
RHYNCHOCOELA	ND	DEAD		1	.063	0.
ANNELIDA						
ETEONE PACIFICA	ND			6	● 038	0.
TYPOSYLLIS PULCHRA	ND			6	.033	0.
NEREIS SF	NO			1	.001	0,
SPIONIDAE	ND			4	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND	DEAD		31	0.	o*
MYTILUS EDULIS	ND			178	348.200	220.855
MYTILUS EDULIS	ND			83	58.900	34.520
MYTILUS EDULIS	ND			358	33*471	21.260
PROTOTHACA SP	ND.			3	.004	0.
HIATELLA ARCTICA	ND	DEAD		1	0.	0.
HIATELLA ARCTICA	ND			2	.358	0.
COLLISELLA PELTA	ND	DEAD		7	0.	0.
COLLISELLA PELTA	NO			15	10.839	5.918
MARGARITAS HELICINUS	ND	OEAD		2	0.	0.
MARGARITES HELICINUS	ND			49	● 136	0.
LACUNA CARININATA	NO	DEAD		7	0.	0.
LACUNA CARININATA	ND			2	.050	o*
NUCELLA CANALICULATA	ND			12	14.242	9.290
NUCELLA LAMELLOSA	NO			3	4.051	2,852
ODOSTOMIA SP	ND			1	.005	O*
PYCNOGONIDA						
AMMOTHEA SP	ND			1	.001	0.

CRUSTACEA				
CAMPYLASPIS SP	ND	9	.001	0.
MUNNA SP	ND	3	.001	0.
OLIGOCHINUS LIGHTI	ND	1	.001	0.
	ND	1	.402	0.
BRYOZOAN				
MICROPORINA SP	ND	1	'.010	o*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
S TATION Investigate FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740313 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 74010]0256 METER NBR: 34 SURFACE Topography NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
Elevation .75 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 00 LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX LAETEVIRENS	ND				.162	0.
PHAEOPHYTA						
PYLAIELLA LITTORALIS	ND				.001	0*
DESMARESTIA ACULEATA	ND				.058	0.
SCYTOSIPHON LOMENTARIA	ND				.022	0.
ALARIA MARGINATA	ND				17.087	2.372
FUCUS DISTICHUS	NO	STRL			11.223	2.614
RHODOPHYTA						
RHODYMENIA PALMATA	ND				.879	.348
ANTITHAMNION SP	ND				.001	0.
PTEROSIPHONIA BIPINNATA	ND				16.877	2.025
ODONTHALIA FLOCCOSA	ND				2.109	.351
PHYCOMYCETES						
PHYCOMYCETES	ND			4	.380	0.
TURBELLARIA						
TURBELLARIA	ND			17	0044	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	● 329	00
EMPLECTONEMA GRACILE	ND			1	.026	0.
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND			5	.025	0*
ENCHYTRAEIDAE	ND			51	.027	0.
MOLLUSCA						
MYTILUS EDULIS	ND			119	00	0.
MYTILUS EDULIS	ND			35	0*	0.
MYTILUS EDULIS	ND			399	0.	0.
MUSCULUS DISCORS	ND			1	.052	0.
MACOMA SP	ND			1	.001	0*
HIATELLA ARCTICA	ND	DEAD		1	0*	0.
HIATELLA ARCTICA	ND			1	,083	0.
COLLISELLA pELTA	ND	OEAD		18	0.	0.
COLLISELLA PELTA	ND			51	.748	0,
MARGARITES HELICINUS	ND			17	.038	0.
LITTORINA SITKANA	ND	DEAD		8	0..	0..

LITTORINA SCUTULATA	ND	DEAD	6	0.	0.
LACUNA CARININATA	ND	DEAD	3	0.	0.
LACUNA MARMORATA	ND	DEAD	2	0.	0.
LACUNA MARMORATA	ND		128	.257	0.
NUCELLA CANALICULATA	ND	DEAD	1	0.	0.
CRUSTACEA					
BALANUS CARIOSUS	ND		2	2.856	2.204
BALANUS GLANDULA	ND		38	13.862	10.631
MUNNA SP	ND		4	.002	0.
AMPITHOE RUBRICATA	ND		8	.008	0.
PARAMOERA CARLOTTENSIS	ND		10	.034	0.
INSECTA					
CHIRONOMIDAE	ND	IMTR	1	.005	0.
BRYOZOAN					
MICROPORINA SP	ND	FRAG	1	.036	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR:AB740314 ZONE/TRANSECT: 2 SUBSTRATE:NO INFORMATION
PHOTOGRAPH NBR: 7401010259 METER NBR:38 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME:17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: ● 21 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME! 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGH"((GRAMS)
PHAEOPHYTA						
ALARIA MARGINATA	NO			1	3.665	.554
RHODOPHYTA						
RHODYMENIA PALMATA	ND			1	.484	0.
MOLLUSCA						
KATHARINA TUNICATA	ND			1	.069	0.
MYTILUS EDULIS	ND			1	● 034	00
COLLISELLA PELTA	NO			54	.844	0.
MARGARITAS HELICINUS	ND			1	.003	0.
LACUNA CARININATA	ND			2	.031	0,
LACUNA MARMORATA	ND			3	.009	0.
NUCELLA LAMELLOSA	ND			4	.187	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740315 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010260 METER NBR: 40 SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: .21 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
"L"RIA MARGINATA	ND	FRTL		8	288.450	37.090
RHODOPHYTA						
CALLOPHYLLIS FLABELLULATA	ND				.042	0.
RHODYMENIA PALMATA	ND				.282	0.
"TER"S P"ONIA BIPINNATA	ND				.139	0.
RHYNCHOCOELA						
RHYNCHOCOELA	N.			1	.007	0.
NEMATODA						
NEMATODA	ND			5	.001	0.
ANNELIDA						
EULALIA VIRIDIS	ND			3	.011	0.
TYPOSYLLIS PULCHRA	ND			2	.001	0.
ⅢPANIA ⅢREVIPHARYNGEA	ND			1	.001	0.
NEREIS SP	ND			3	.004	0.
BOCCARDIA COLUMBIANA	ND			2	.014	0.
CAPITELLA CAPITATA	ND			3	.003	0.
MOLLUSCA						
MYTILUS EDULIS	ND			27	.326	0.
MUSCULUS DISCORS	ND			1	.153	0.
HIATELLA ARCTICA	ND			11	.269	0.
COL⊥SELLA PELTA	ND			38	.669	0.
MARGARITES HELICINUS	ND			9	.027	0.
LACUNA CARININATA	ND			10	.096	0.
LACUNA MARMORATA	ND			21	.035	0.
NUCELLA LAMELLOSA	ND	DEAD		1	0.	0.
NUCELLA LAMELLOSA	ND			1	.066	0.
CRUSTACEA						
BALANUS GLANDULA	ND			2	.004	0.
EXOSPHAEROMA SP	ND			5	.007	0.
AMPITHOE RUBRICATOIDES	ND			3	.029	0.
HYALE RUBRA FREQUENS	ND			5	.010	0.
PARALLORCHESTES SP	ND			1	.005	0.
PARAPLEUSTES NAUTILUS	ND			1	.001	0.

BRYOZOAN					
BRYOZOAN	ND	FRAG	1	.001	0.
TELEOSTEI					
CLINOCOTTUS ACUTICEPS	ND		1	.089	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740317 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: 42A SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: .09 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND			4	2.760	0.
TOKIDADENDRON BULLATA	ND				.171	0.
POLYSIPHONIA PACIFICA	ND				.056	0.
PTEROSIPHONIA BIPINNATA	ND				.192	0.
ODONTHALIA FLOCCOSA	ND				3.321	.487
TURBELLARIA						
TURBELLARIA	ND			7	.007	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	.004	0.
NEMATODA						
NEMATODA	ND			8	.001	0.
ANNELIDA						
TYPOSYLLIS PULCHRA	ND			3	.008	0.
NEREIS SP	ND			3	.025	0.
SPIRORBIS SPIRILLUM	ND			18	.021	0.
	ND			2	.006	0.
MOLLUSCA						
TONICELLA LINEATA	ND			1	.426	0.
MYTILUS EDULIS	ND			35	.151	0.
MUSCULUS DISCORS	ND			9	.941	0.
COLLISELLA PELTA	ND			12	.174	0.
MARGARITES HELICINUS	ND			15	.033	0.
LACUNA CARININATA	ND			5	.407	0.
LACUNA MARMORATA	ND			306	.643	0.
NUCELLA LAMELLOSA	ND			2	.043	0.
PYCNOGONIDA						
AMMOTHEA LATIFRONS	ND			3	.005	0.
CRUSTACEA						
BALANUS GLANDULA	ND			3	.026	0.
PENTIDOTEA WOSENSENSKII	ND			3	.057	0.
SPHAEROMATIDAE	ND			9	.028	0.
AMPHIPODA	ND			75	.048	0.
AMPITHOE RUBRICATOIDES	ND			5	.030	0.

PARALLORCHESTES SP	ND	8	.014	0*
PHOTIS REINHARDI	ND	2	0001	00
BRYOZOAN				
BRYOZOAN	ND		● 007	00

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740316 ZONE/TRANSECT: 2 SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: 42B SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: GEAR: TRANSECT
ELEVATION: .09 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ALARIA MARGINATA	ND			2	61.550	7.750
RHODOPHYTA						
CRYPTOSIPHONIA WOODII	ND				.090	0.
RHODYMENIA PALMATA	ND				.045	0.
ANTITHAMNION KYLINII	ND				.002	0.
TOKIDADENDRON BULLATA	ND				16.028	2.747
POLYSIPHONIA PACIFICA	ND				.013	0.
PTEROSIPHONIA BIPINNATA	ND				.163	0.
ODONTHALIA FLOCCOSA	ND				.348	0.
TURBELLARIA						
TURBELLARIA	ND			7	.009	0.
ANNELIDA						
POLYCHAETA	ND	FRAG		1	.001	0.
SPIRORBIS SPIRILLUM	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1	.007	0.
MYTILUS EDULIS	ND			10	.117	0.
MARGARITES HELICINUS	ND			3	.012	0.
LACUNA CARININATA	ND			2	.040	0.
LACUNA MARMORATA	ND			65	.128	0.
PYCNOGONIDA						
AMMOTHEA GRACILIPES	ND			1	.015	0.
AMMOTHEA LATIFRONS	ND			1	.015	0.
CRUSTACEA						
TANIDACEA	ND			1	.001	0.
PENTIDOTEA WOSENSENSKII	ND			2	.023	0.
SPHAEROMATIDAE	ND			2	.007	0.
AMPHIPODA	ND			83	.057	0.
AMPITHOE RUBRICATA	ND			1	.001	0.
AMPITHOE RUBRICATOIDES	ND			2	.002	0.
HYALE RUBRA FREQUENS	ND			56	.056	0.

FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740318 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010222 METER NBR: SURFACE TOPOGRAPHY; NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: D15 GEAR: ARROW
ELEVATION: .75 METERS QUADRAT SIZE: 00625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
PHAEOPHYTA	ND	FRAG		1	0170	o.
ELACHISTEA FUCICOLA	ND			1	● 001	0.
ALARIA MARGINATA	ND			20	222.240	31.140
RHODOPHYTA						
RHODYMENIA PALMATA	ND			4	.563	0.
NEOPTILOTA ASPLENIOIDES	ND			4	11.896	1.527
PTEROSIPHONIA BIPINNATA	ND	FRAG		1	.001	0.
ODONTHALIA FLOCCOSA	ND			9	1.729	.246
PORIFERA						
PORIFERA	ND				2.423	● 395
RHYNCHOCOELA						
RHYNCHOCOELA	ND			1	.001	0.
NEMATODA						
NEMATODA	ND			3	● 001	00
ANNELIDA						
NEREIS SP	ND			2	.002	0.
SPIONIDAE	NO	FRAG		1	● 006	0.
SPIRORBIS SPIRILLUM	NO			11	0.	0.
MOLLUSCA						
TONICELLA LINEATA	ND			1	.403	0.
KATHARINA TUNICATA	ND			2	● 996	O*
MYTILUS EDULIS	ND			342	4,275	1.717
MUSCULUS DISCORS	ND			2	0137	0.
HIATELLA ARCTICA	ND			2	.090	0.
COLLISELLA PELTA	N(3			4	.077	0.
LACUNA MARMORATA	ND			12	,090	0,
NUCELLA LAMELLOSA	NO			2	.061	0.
CRUSTACEA						
BALANUS CARIOSUS	ND			13	13.355	7,880
BALANUS GLANDULA	ND			1	.001	0.
AMPHIPODA	NO			1	● 001	0.
AMPITHOE RUBRICATOIDES	NO			2	,011	0.
OLIGOCHINUS LIGHTI	NC)			2	.009	0,
HYALE RUBRA FREQUENS	ND			5	.028	o*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR AB74032O ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR 7401010238 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: D36 GEAR: ARROW
ELEVATION: .75 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
PETALONIA FASCIA	ND			10	387.600	54.700
RHODOPHYTA						
GLOIOPELTIS FURCATA	ND				1.339	.168
HALOSACCION GLAN° FORME	ND				5.104	.753
RHODYMENIA PALMATA	ND				.784	0.
ANTITHAMNION KYLINII	ND				0.	0.
TOKIDADENDRON BULLATA	ND				.460	0.
PTEROSIPHONIA BIPINNATA	ND				4.930	.505
°D°NTHALIA FLOCCOSA	ND				1.772	.214
PORIFERA						
PORIFERA	ND				4.925	.802
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		2	.154	0.
ANNELIDA						
POLYCHAETA	ND	FRAG		1	.003	0.
ETEONE PACIFICA	ND			1	.001	0.
EULALIA VIRIDIS	ND			11	.490	0.
TYPOSYLLIS PULCHRA	ND			61	.182	0.
EUSYLLIS ASSIMILIS	ND			1	.001	0.
LUMBRINERIS ZONATA	ND			1	.014	0.
POLYDORA CILIATA	ND			1	.017	0.
BOCCARDIA COLUMBIANA	ND			2	.007	0.
PSEUDOSABELLIDES LITTORALIS	ND			2	.001	0.
SPIRORBIS SPIRILLUM	ND			700	.336	0.
ENCHYTRAEIDAE	ND			3	.006	0.
MOLLUSCA						
TONICELLA RUBRA	ND			1	1.419	.569
KATHARINA TUNICATA	ND			4	19.515	5.554
MOPALIA MUCOSA	ND			3	1.324	.447
MYTILUS EDULIS	ND			80	1.371	.484
MUSCULUS DISCORS	ND			13	2.527	.891
HIATELLA ARCTICA	ND			87	8.995	4.349
COLLISELLA PELTA	ND			14	.119	0.
				[illegible]	[illegible]	0.

LACUNA MARMORATA	ND		213	1*574	.471
NUCELLA SP	ND	IMTR	7	.181	0.
NUCELLA LAMELLOSA	ND		3	7.186	5.315
ARACHNIDA					
HALACARIDAE	ND		7	● 004	0.
PYCNOGONIDA					
AMMOTHEA SP	ND		1	.015	0.
AMMOTHEA GRACILIPES	ND		1	.002	0.
CRUSTACEA					
BALANUS CARIOSUS	ND		3	7.842	40974
AMPITHOE RUBRICATOIDES	ND		2	● 010	0.
OLIGOCHINUS LIGHTI	ND			● 009	O*
HYALE RUBRA FREQUENS	ND		19:	,299	0.
ISCHYROCERUS KRASCHENINNIKOVI	ND		23	.021	0.
JASSA PULCELLA	NO		4	.003	0.
PARAPLEUSTES NAUTILUS	ND		20	.011	0.
INSECTA					
CHIRONOMIDAE	ND	IMTR	6	.042	0.
BRYOZOAN					
BRYOZOAN	ND			2.049	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR AB740453 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR 7401010257 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME 17:00 ARROW NBR: Z 1 GEAR: NESTED QUADRAT
ELEVATION: .45 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
POLYSIPHONIA HENDRYI	ND				.733	0.
PTEROSIPHONIA SP	ND	FRAG		1	.051	0.
ANNELIDA						
TYPOSYLLIS PULCHRA	ND			1	.001	0.
ENCHYTRAEIDAE	ND			15	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			259	2.189	1.209
COLLISELLA PELTA	ND			18	.240	0.
MARGARITES HELICINUS	ND			1	.002	0.
LACUNA MARMORATA	ND			2	.002	0.
CRUSTACEA						
CRUSTACEA	ND			1	.001	0.
CHTHAMALUS DALLI	ND			1	.006	0.
AMPITHOE RUBRICATOIDES	ND			4	.006	0.
INSECTA						
DIPTERA	ND	IMTR		3	.002	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE! 59 53 40 N LONGITUDE! 14747 70 W
STATION INVESTIGATE FOR 5.0 HOURS BEGINNING AT 14:30INTIMEZONE: +10
CATALOG NBR:AB740454 ZONE/TRANSECT: SUBSTRATE:NO INFORMATION
PHOTOGRAPHNBR: 7401010257 METER NBR: SURFACE TOPOGRAPHY! NO INFORMATION
SAMPLING TIME:17:00 ARROW NBR:Z 2 GEAR: NESTED QUADRAT
Elevation ● 45 METERS QUADRAT SIZE: ● O156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
RHODOPHYTA						
- RHODYMENIA PALMATA	ND			1	.326	0.
POLYSIPHONIA HENDRYI	ND				.739	0.
PTEROSIPHONIA SP	ND	FRAG		1	.048	0,
ODONTHALIA WASHINGTONIENSIS	ND				.019	0.
ANNELIDA						
NEREIS SP	ND			1	.001	0.
MOLLUSCA						
MYTILUS EDULIS	ND			70	.440	o*
COLLISELLA PELTA	ND			17	,200	o.
LACUNA MARMORATA	ND			1	cool	0.
CRUSTACEA						
AMPITHOE RUBRICATOIDES	ND			3	.011	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740455 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010257 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: Z 3 GEAR: NESTED QUADRAT
ELEVATION: .45 METERS QUADRAT SIZE: .0313 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA FENESTRATA	ND				.001	0.
PHAEOPHYTA						
SPHACELARIA SUBFUSCA	ND				.015	0.
ALARIA PRAELONGA	ND			3	25.700	3.400
RHODOPHYTA						
RHODOPHYTA	ND	FRAG		1	.041	0.
GLOIOPELTIS FURCATA	ND				.006	0.
RHODYMENIA PALMATA	ND	IMTR			.011	0.
POLYSIPHONIA HENDRYI	ND				1.832	0.
PTEROSIPHONIA SP	ND				.160	0.
RHODOMELA LARIX	ND	IMTR			.003	0.
ODONTHALIA WASHINGTONIENSIS	ND				.029	0.
TURBELLARIA						
TURBELLARIA	ND			5	.001	0.
NEMATODA						
NEMATODA	ND			59	.002	0.
ANNELIDA						
NEREIS SP	ND			1	.001	0.
SPIRORBIS SPIRILLUM	ND			1	.001	0.
ENCHYTRAEIDAE	ND			61	.002	0.
MOLLUSCA						
MYTILUS EDULIS	ND			382	3.958	0.
COLLISELLA PELTA	ND			34	.568	0.
LACUNA CARININATA	ND			13	.059	0.
ARACHNIDA						
HALACARIDAE	ND			1	.001	0.
CRUSTACEA						
HARPACTICOIDA	ND			36	.001	0.
PENTIDOTEA WOSENSENSKII	ND			7	.012	0.
SPHAEROMATIDAE	ND			1	.005	0.
AMPITHOE RUBRICATOIDES	ND			15	.038	0.
CALLIOPIELLA PRATTI	ND			2	.001	0.
HYALELLIDAE	ND			1	.001	0.

›ECTA					
DIPTERA	ND	IMTR	6	cool	0.
CHIRONOMIDAE	ND		17	.001	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

S TATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDEI 147 47 70 W
STATION INVESTIGATED FOR 5*O HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740456 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010257 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: Z 4 GEAR: NESTED QUADRAT
ELEVATION: .45 METERS QUADRAT SIZE: ● 0625 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA FENESTRATA	ND	FRAG		1	.002	0.
PHAEOPHYTA						
PHAEOPHYTA	ND	FRAG		1	●737	0.
ALARIA SP	ND	FRAG		1	2.250	0.
ALARIA PRAELONGA	ND			16	499,800	60.700
FUCUS SP	ND	FRAG		1	.004	0.
FUCUS DISTICHUS	ND				.001	o*
RHODOPHYTA						
GIGARTINA PAPILLATA	ND				.352	0.
RHODYMENIA PALMATA	ND				.014	0.
	ND	FRAG		1	,002	0,
POLYSIPHONIA HENDRYI	ND				10639	o*
PTEROSIPHONIA SP	ND	FRAG		1	.018	0.
RHODOMELA LARIX	ND				1.229	0,
ODONTHALIA SP	ND	FRAG		1	●168	0.
ODONTHALIA WASHINGTONIENSIS	ND	IMTR			1.061	0.
TURBELLARIA						
TURBELLARIA	ND			69	.048	O*
RHYNCHOCOELA						
RHYNCHOCOELA	ND			12	.009	0.
NEMATODA						
NEMATODA	ND			29	0002	0.
ANNELIDA						
ETEONE PACIFICA	ND			1	$001	0,
TYPOSYLLIS PULCHRA	ND			17	.024	o*
NEREIS SP	ND			8	boo4	0.
BOCCARDIA COLUMBIANA	ND			15	,009	00
CAPITELLA CAPITATA	ND			4	●012	0.
SPIRORBIS SPIRILLUM	ND			34	"003	o*
ENCHYTRAEIDAE	ND			67	●007	0.
MOLLUSCA						
MYTILUS EDULIS	ND			1248	22.253	0,
HIATELLA ARCTICA	ND			11	*005	0.

MA RGARITES HE LICINUS	ND		19	.016	0,
LACUNA CARININATA\	ND		5	● 145	0.
LACUNA MARMORATA	ND		186	● 262	0.
NUCELLA CANALICULATA	NO		2	.021	0.
ARACHNIDA					
HALACARIDAE	ND		93	.002	0.
CRUSTACEA					
PLATYCOPA	ND		4	.001	0.
HARPACTICOIDA	ND		185	.005	0.
BALANUS CARIOSUS	ND		1	.929	0.
CAMPYLASPIS AFFINIS	ND		14	.001	0.
PENTIDOTEA WOSENSENSKII	ND		1	.004	0,
SPHAEROMATIDAE	ND		9	.043	0.
MUNNA SP	ND		4	.002	0.
AMPHIPODA	ND		1	.001	0.
AMPITHOE SP	ND		27	.099	0.
AMPITHOE RUBRICATOIDES	ND		8	.011	0.
OLIGOCHINUS LIGHTI	ND		9	.016	0,
HYALE SP	ND		2	.004	0.
METOPELLOIDES SP	ND		1	.002	0.
INSECTA					
DIPTERA	N[)	IMTR	10	.034	0.
CHIRONOMIDAE	ND		16	.001	0.
BRYOZOAN					
BRYOZOAN	ND			9004	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 9 MCLEOD HARBOR DATE: 9/17/74
LATITUDE: 59 53 40 N LONGITUDE: 147 47 70 W
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT 14:30 IN TIME ZONE: +10
CATALOG NBR: AB740457 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: 7401010257 METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 17:00 ARROW NBR: Z 5 GEAR: NESTED QUADRAT
ELEVATION: .45 METERS QUADRAT SIZE: .1250 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ENTEROMORPHA LINZA	ND				.067	0.
PHAEOPHYTA						
ELACHISTEA FUCICOLA	ND				.001	0.
DESMARESTIA ACULEATA	ND				.003	0.
ALARIA PRAELONGA	ND			14	454.900	56.600
RHODOPHYTA						
RHODOPHYTA	ND	IMTR			.005	0.
PORPHYRA SP	ND	FRAG			.008	0.
CRYPTOSIPHONIA WOODII	ND	IMTR			.116	0.
FARLOWIA COMPRESSA	ND	IMTR			.007	0.
GLOIOPELTIS FURCATA	ND	FRAG		1	.039	0.
PEYSSONELIA PACIFICA	ND	STRL			.022	0.
BOSSIELLA SP	ND	FRAG		1	.002	0.
CORALLINA FRONDISCENS	ND				.014	0.
IRIDAEA HETEROCARPA	ND	IMTR			.006	0.
RHODYMENIA PALMATA	ND				.064	0.
TOKIDADENDRON SP	ND	FRAG		1	.001	0*
	ND				.415	0.
POLYSIPHONIA HENDRYI	ND				2.254	0.
PTEROSIPHONIA SP	ND	FRAG		1	.269	0.
RHODOMELA LARIX	ND	IMTR			.025	0.
ODONTHALIA SP	ND	FRAG		1	.219	0.
ODONTHALIA WASHINGTONIENSIS	ND	IMTR			7.252	0.
TURBELLARIA						
TURBELLARIA	ND			23	.015	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.094	0.
ANNELIDA						
ETEONE PACIFICA	ND			2	.001	0.
EULALIA VIRIDIS	ND			1	*003	0.
TYPOSYLLIS PULCHRA	ND			21	.039	o*
NEREIS SP	ND			5	COOl	0.

SPIRORBIS SPIRILLUM	ND		44	.012	0,
ENCHYTRAEIDAE	ND		6	.001	0.
MOLLUSCA					
MYTILUS EDULIS	ND		958	2.512	1.136
MUSCULUS DISCORS	ND		4	.344	0 .
PROTOTHACA STAMINEA	ND		1	.007	0.
HIATELLA ARCTICA	ND		20	.605	0.
COLLISELLA PELTA	ND		18	2.175	1.224
MARGARITAS HELICINUS	ND		57	,054	0.
LACUNA CARININATA	ND		22	.385	o*
LACUNA MARMORATA	ND		253	.329	0.
ALVINIA COMpACTA	ND		9	.011	0.
NUCELLA CANALICULATA	ND		5	9.663	6.774
NUCELLA LAMELLOSA	ND		1	.114	0.
PYCNOGONIDA					
AMMOTHEA PRIBILOFENSIS	ND		2	.006	0.
CRUSTACEA					
CHTHAMALUS DALLI	ND		3	.011	0.
PENTIDOTEA WOSENSENSKII	ND		2	.007	0.
SPHAEROMATIDAE	ND		1	.004	0.
MUNNA SP	ND		1	0.	0.
AMPITHOE RUBRICATOIDES	ND		33	.207	0.
HYALE RUBRA FREQUENS	ND			.018	0.
	ND		1	.101	0.
INSECTA					
DIPTERA	ND	IMTR	3	.009	0.

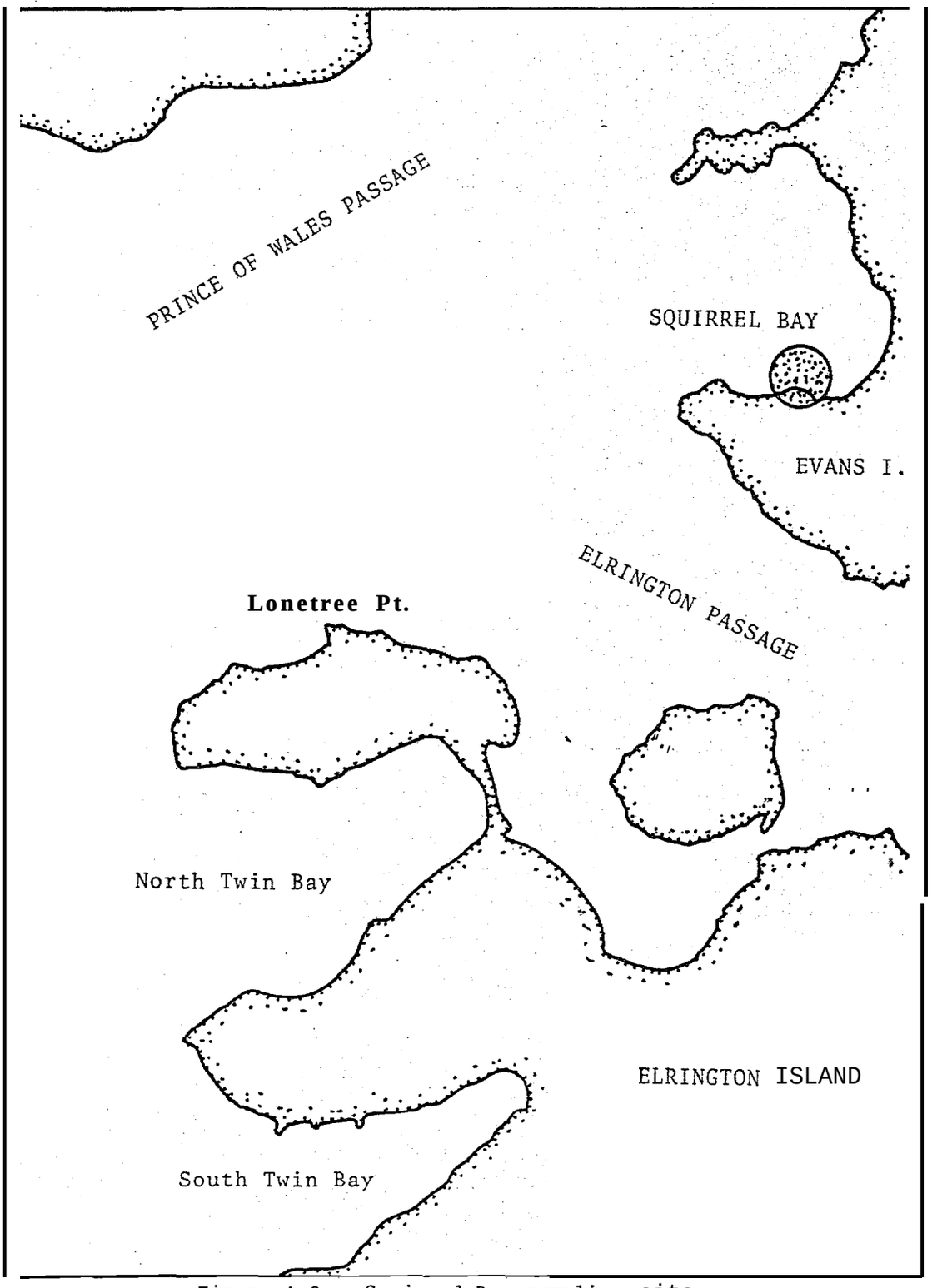

Figure A-9. Squirrel Bay sampling site.

SPECIES OF SQUIRREL BAY

CHLOROPHYTA
- Chlorophyta
- Ulothrix sp.
- Monostroma fuscum
- Ulva sp.
- Ulva fenestrata
- Ulva lactuca

PHAEOPHYTA
- Phaeophyta
- Pylaiella littoralis
- Elachistea fucicola
- Petalonia fascia
- Alaria sp.
- Alaria crispsa
- Alaria marginata
- Alaria praelonga
- Fucus distichus

RHODOPHYTA
- Porphyra sp.
- Porphyra perforata
- Gloiopeltis furcata
- Bossiella sp.
- Pugetia fragillissima
- Callophyllis adhaerens
- Callophyllis flabellulata
- Gymnogongrus platyphyllus
- Gigartina sp.
- Gigartina papillata
- Gigartina latissima
- Iridaea sp.
- Iridaea cornucopia
- Iridaea heterocarpa
- Rhodoglossum californicum
- Halosaccion glandiforme
- Rhodymenia sp.
- Rhodymenia lineforme
- Rhodymenia palmata
- Antithamnion kylinii
- Ptilota sp.
- Ptilota filicina
- Neoptilota asplendioides
- Pterosiphonia bipinnata
- Odonthalia aleutica

PORIFERA
- Porifera

CNIDARIA
Anthrozoa
TURBE LLARIA
Turbellaria
RHYNCHOCOELA
Rhynchocoela
Emple ctonema gracile
NE MA TODA
Nematoda
ANNE LIDA
E ulalia sp.
E ulalia viridis
Typosyllis sp.
Typosyllis alternata
Typos yllis pulchr a
Typosyllis fasciata
Typosyllis a. adamantea
Ne reis sp.
Glycinde picta
Spio filicornis
Boccardia columbiana
C spite lla capi tata
Sabellidae
Fabricia sabella
Fabricia minuta
Laonome sp.
Enchytraeidae
MOLLUSCA
Mollusca
Katharina tunicata
Schizoplax brandtii
Nucula tenuis
Mytilus ed ulis
Musculus discors
Hiatella arctica
Gastropoda
Acmaeidae
Collisella pelts
Notoacmaea scutum
Notoacmaea persona
Margaritas sp.
Margarites helicinus
Littorina sitkana
Littorina scutulata
Lacuna sp.
Lacuna carininata

MO LLUSCA cont.

Lacuna marmorata
Cerithiopsis sp.
Nucella lamellosa
Odostomia sp.
Anchidella borealis
Siphonaria thersites
Aglaja diomedeum

ARACHNIDA

Halacaridae
Ammo thea gracilipes

CRUS TACEA

Harpacticoida
Balanus cariosus
Balanus glandula
Pentidotea wosensenskii
Sphaeromatidae
Munna sp.
Munna s tephenseni
Amphipoda
Ampithoe sp.
Ampithoe rubricata
Ampithoe rubricatoides
Olighchinus lighti
Calliopiella pratti
Paramoera sp.
Paramoera columbiana
Paramoera carlottensis
Hyalidae
Hyale rubra frequens
Parallorchestes sp.
Parallorchestes ochotensis
Parapleustes nautilus
Talitrus sp.
Callianassa sp.

INSE C TA

Insects
Anurida maritima
Chironomidae

BRYOZOA

Bryozoan

AS TEROIDEA

Aster oidea
Leptasterias hexactis

UROCHORDA TA

UROCHORDATA **cont.**

Urochordata

OTHER

Egg mass

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 10 SQUIRREL BAY DATE: 9/14/74
LATITUDE: 59 58 80 N LONGITUDE: 148 8 40 W
STATION INVESTIGATE FOR 5.8 HOURS BEGINNING AT 12:45 IN TIME ZONE: +10
CATALOG NBR:AB740265 ZONE/TRANSECT: SUBSTRATE; NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACETOPOGRAPHY:NO INFORMATION
SAMPLING TIME: 15:40 ARROW NBR: T 1 GEAR: NESTED QUADRAT
ELEVATION: 1.97 METERS QUADRAT SIZE: ● 0156 SQUAREMETERS SEDIMENT VOLUME? o* LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND				.034	o.
PHAEOPHYTA						
ELACHISTEA FUCICOLA	ND				● 845	0.
FUCUS DISTICHUS	ND	STRL			59.258	100448
RHODOPHYTA						
GIGARTINA LATISSIMA	ND				,496	0,
CNIDARIA						
ANTHROZOA	ND			2	.340	00
MOLLUSCA						
	ND			1	.009	0.
ONCHIDELLA BOREALIS	ND			2	.077	0.
SIPHONARIA THERSITES	ND			26	,326	0.
CRUSTACEA						
AMPITHOE RUBRICATOIDES	NO			3	.015	0.
OLIGOCHINUS LIGHTI	ND			11	● 029	o*

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 10 SQUIRREL BAY DATE: 9/14/74
LATITUDE: 59 58 80 N LONGITUDE: 148 8 40 W
STATION INVESTIGATED FOR 5.8 HOURS BEGINNING AT 12:45 IN TIME ZONE: +1°
CATALOG NBR: A8740266 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 15:40 ARROW NBR: T 2 GEAR: NESTED QUADRAT
ELEVATION: 1.97 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ELACHISTEA FUCICOLA	ND				.521	0.
FUCUS DISTICHUS	ND	STRL		4	38.678	8.327
RHODOPHYTA						
CALLOPHYLLIS ADHAERENS	ND				.570	0.
GIGARTINA PAPILLATA	ND				.046	0.
MOLLUSCA						
ONCHIDELLA BOREALIS	ND			1	.066	0.
SIPHONARIA THERSITES	ND			10	.027	0.
CRUSTACEA						
AMPITHOE RUBRICATOIDES	ND				.033	0.
OLIGOCHINUS LIGHTI	ND			8	.027	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR:10 SQUIRREL BAY DATE: 9/14/74
LATITUDE: 59 58 80 N LONGITUDE: 148 3 40 W
STATION INVESTIGATED FOR 5.8 HOURS BEGINNING AT 12:45 IN TIME ZONE: +10
CATALOG NBR:AB740267 ZONE/TRANSECT: SUBSTRATE:NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACETOPOGRAPHY:NO INFORMATION
SAMPLING TIME:15:40 ARROW NBR:T 3 GEAR: NESTED QUADRAT
ELEVATION: 1.97 METERS QUADRAT SIZE: .0313 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULOTHRIX SP	ND				1.143	.178
PHAEOPHYTA						
FUCUS DISTICHUS	ND	STRL			65.170	12,700
FUCUS DISTICHUS	ND	FRTL			122.900	21.350
RHODOPHYTA						
CALLOPHYLLIS FLABELLULATA	ND				10.400	1.541
TURBELLARIA						
TURBELLARIA	ND			4	.003	0.
ANNELIDA						
ENCHYTRAEIDAE	ND			1	.001	0.
MOLLUSCA						
MUSCULUS DISCORS	ND			4	● 030	0.
ACMAEIDAE	ND			77	● 988	0.
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND				0.	0.
AMPITHOE RUBRICATOIDES	ND			23	.105	0.
OLIGOCHINUS LIGHTI	ND			14	.028	0.
	ND			2	.330	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 10 SQUIRREL BAY DATE: 9/14/74
LATITUDE: 59 58 80 N LONGITUDE: 148 8 40 W
STATION INVESTIGATED FOR 5.8 HOURS BEGINNING AT 12:45 IN TIME ZONE: +10
CATALOG NBR: AB740268 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 15:40 ARROW NBR: T 4 GEAR: NESTED QUADRAT
ELEVATION: 1.97 METERS QUADRAT SIZE: .0625 SQUARE METERS SEDIMENT VOLUME 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA FENESTRATA	ND				.285	0.
PHAEOPHYTA						
ELACHISTEA FUCICOLA	ND				.564	0.
FUCUS D STICHUS	ND	STRL		9	109.773	23.993
RHODOPHYTA						
G GARTI'A LATISSIMA	ND				28.033	2.148
HALOSACCION GLANDIFORME	ND				19.397	2.139
RHODYMENIA PALMATA	ND				6.543	1.176
CNIDARIA						
ANTHROZOA	ND			1	.008	0.
TURBELLARIA						
TURBELLARIA	ND			2	.003	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND			2	.009	0.
ANNELIDA						
TYPOSYLLIS A ADAMANTEA	ND			2	.001	0.
ENCHYTRAEIDAE	ND			21	.010	0.
MOLLUSCA						
MYTILUS EDULIS	ND			53	.789	0.
MUSCULUS DISCORS	ND			2	.019	0.
COLPISELLA PELTA	ND			3	.617	0.
NOTOACMAEA SCUTUM	ND			3	.181	0.
SIPHONARIA THERSITES	ND			61	.307	0.
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			2	.285	0.
AMPITHOE RUBRICATOIDES	ND			9	.055	0.
OLIGOCHINUS LIGHTI	ND			57	.187	0.
	ND			1	.139	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 10 SQUIRREL BAY DATE: 9/14/74
LATITUDE: 59 58 80 N LONGITUDE: 148 8 40 W
STATION INVESTIGATED FOR 5.8 HOURS BEGINNING AT 12:45 IN TIME ZONE: +10
CATALOG NBR: AB740269 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 15:40 ARROW NBR: T 5 GEAR: NESTED QUADRAT
ELEVATION: 1.97 METERS QUADRAT SIZE: .1250 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
ULVA LACTUCA	ND				.287	0.
PHAEOPHYTA						
ELACHISTEA FUCICOLA	ND				4.315	.505
FUCUS DISTICHUS	ND	STRL			218.100	46.600
FUCUS DISTICHUS	ND	FRTL			200.500	43.550
RHODOPHYTA						
CALLOPHYLLIS FLABELLULATA	ND				10.609	1.286
GIGARTINA LATISSIMA	ND				17.014	2.328
HALOSACCION GLANDIFORME	ND				70.863	7.737
	ND				2.524	.530
	ND				.040	0.
TURBELLARIA						
TURBELLARIA	ND			5	.100	0.
TURBELLARIA	ND			4	.004	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.017	0.
ANNELIDA						
TYPOSYLLIS A[illegible] AMANTEA	ND			27	.080	0.
ENCHYTRAEIDAE	ND			62	.043	0.
ENCHYTRAEIDAE	ND			6	.010	0.
MOLLUSCA						
MYTILUS [illegible]	ND			7	4.266	1.691
MYTILUS [illegible]	ND			204	17.896	6.094
MUSCULUS DISCORS	ND			1	.009	0.
NOTOACMAEA SCUTUM	ND			5	1.139	.911
SIPHONARIA THERSITES	ND			42	.855	0.
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			2	.068	0.
AMPITHOE RUBRICATA	ND			2	.002	0.
AMPITHOE RUBRICATOIDES	ND			38	.260	0.
OLIGOCHINUS LIGHTI	ND			87	.261	0.
	ND			2	.696	0.

>ECTA INSECTA	0	2	.015	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 10 SQUIRREL BAY DATE: [illegible]
LATITUDE: 59 58 80 N LONGITUDE: 140 40 [illegible]
STATION INVESTIGATED FOR 5.0 HOURS BEGINNING AT [illegible] IN TIME ZONE: +10
CATALOG NBR: AB740270 ZONE/TRANSECT: SUBSTRATE NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 15:40 ARROW NBR: A 1 GEAR : NESTED QUADRAT
ELEVATION: .75 METERS QUADRAT SIZE: .0155 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVER	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
CHLOROPHYTA						
CHLOROPHYTA	ND	FRAG			.014	0.
PHAEOPHYTA						
ALARIA SP	ND	FRAG		1	.689	0.
RHODOPHYTA						
PUGETIA FRAGILLISSIMA	ND				3.126	.463
RHODYMENIA PALMATA	ND				15.674	4.190
NEMATODA						
NEMATODA	ND			2	0.	0.
ANNELIDA						
ENCHYTRAEIDAE	ND			53	.023	0.
MOLLUSCA						
MYTILUS EDULIS	ND			15	1.346	.666
MUSCULUS DISCORS	ND			3	.413	0.
GASTROPODA	ND	IMTR		4	.025	0.
COLLISELLA PELTA	ND			5	.162	0.
LITTORINA SITKANA	ND			1	.001	0.
LACUNA CARINATA	ND			14	.1[illegible]1	0.
NUCELLA [illegible]	ND			1	2.851	2.024
ARACHNIDA						
HALACARID	ND			1	.001	0.
CRUSTACEA						
PENTIDOTEA [illegible]SKII	ND			1	.041	0.
OLIGOCHINUS [illegible]GHTI	ND			2	.025	0.
CALLIOPIELLA PRATTI	ND			3	.005	0.
HYALE RUBRA FREQUENS	ND			1	.004	0.
	ND			1	.129	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 10 SQUIRREL BAY DATE: 9/14/74
LATITUDE: 59 58 80 N LONGITUDE: 148 3 40 W
STATION INVESTIGATED FOR 5.8 HOURS BEGINNING AT 12:45 IN TIME ZONE: +10
CATALOG NBR: A8740271 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 15:40 ARROW NBR: A 2 GEAR: NESTED QUADRAT
ELEVATION: .75 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVRG	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ALARIA PRAELONGA	ND				144.800	0.
FUCUS DISTICHUS	ND	STRL			11.581	.345
RHODOPHYTA						
CALLOPHYLLIS FLABELLULATA	ND				11.762	1.583
HALOSACCION GLANDIFORME	ND			4	.001	0.
RHODYMENIA PALMATA	ND				20.609	5.024
TURBELLARIA						
TURBELLARIA	ND			1	.002	0.
RHYNCHOCOELA						
RHYNCHOCOELA	ND	FRAG		1	.032	0.
ANNELIDA						
TYPOSYLLIS ALTERNATA	ND			2	.004	0.
ENCHYTRAEIDAE	ND			13	.002	0.
MOLLUSCA						
SCHIZOPLAX BRANDTII	ND			3	.182	0.
MYTILUS EDULIS	ND			27	.693	0.
MUSCULUS DISCORS	ND			5	.378	0.
GASTROPOD	ND	FR		1	.004	0.
COLLISELLA DELTA	ND			4	.187	0.
MARGARITES HELICINUS	ND			1	.005	0.
LACUNA CARINATA	ND			10	.113	0.
LACUNA MARMORATA	ND			10	.026	0.
ARACHNIDA						
HALACARIDAE	ND			1	.001	0.
CRUSTACEA						
PENTIDOTEA WOSENSENSKII	ND			3	.010	0.
AMPHIPODA	ND			3	.006	0.
ECHINODERMATA						
ASTEROIDEA	ND			1	.006	0.

BIOTIC DENSITIES OF INTERTIDAL ORGANISMS FROM THE EASTERN GULF OF ALASKA
FALL 1974

STATION NBR: 10 SQUIRREL BAY DATE: 9/14/74
LATITUDE: 59 58 80 N LONGITUDE: 148 [illegible] 40 W
STATION INVESTIGATED FOR 5.8 HOURS BEGINNING AT [illegible] IN TIME ZONE: +10
CATALOG NBR: AB740272 ZONE/TRANSECT: SUBSTRATE: NO INFORMATION
PHOTOGRAPH NBR: METER NBR: SURFACE TOPOGRAPHY: NO INFORMATION
SAMPLING TIME: 15:40 ARROW NBR: A 3 GEAR: BEST D QUADRAT
ELEVATION: .75 METERS QUADRAT SIZE: .0156 SQUARE METERS SEDIMENT VOLUME: 0. LITERS

SPECIES IDENTIFICATION	SEX	CONDITION	COVER	COUNT	WET WEIGHT (GRAMS)	DRY WEIGHT (GRAMS)
PHAEOPHYTA						
ALARIA SP	ND	FRAG FRTL		1	11.011	1.343
RHODOPHYTA						
CALLOPHYLLIS FLABELLULATA	ND				.185	0.
RHODYMENIA PALMATA	ND				8.474	4.276
ANNELIDA						
ENCHYTRAEIDAE	ND			1	.001	0.
MOLLUSCA						
SCHIZOPLAX BRANDYII	ND			3	.266	0.
MYTILUS EDULIS	ND			1	.042	0.
MUSCULUS DISCORS	ND			4	.396	0.
HIATELLA ARCTICA	ND			1	.001	0.
MARGARITES HELICINUS	ND			2	.004	0.
LITTORINA SITKANA	ND			1	.002	0.
LACUNA MARMORATA	ND			4	.030	0.
CRUSTACEA						
AMPITHOE RUBRICATOIDES	ND			1	.001	0.
OLIGOCHINE [illegible]	ND			2	.004	0.
HYALE RUB[illegible] PERGUENS	ND			2	.002	0.
CALLIANASS[illegible]	ND			1	.001	0.
ECHINODERMATA						
ASTEROIDE[illegible]	ND			1	.004	0.