

November 2-3, 1978

AGENDA ITEM: 19

ACTION REQUIRED: Informational

SUBJECT: Progress Reports for Contracts #77-5, #78-4, #78-7,
#78-8, #78-9 and 78-10.

SUMMARY: Six documents are included:

- ✓ (a) Domestic Groundfish Observer Program - ADF&G (9/30/77-9/28/78)
Progress Report
- ✓ (b) Computerized Fisheries Information System - ADF&G (7/1/78-9/30/78)
- ✓ (c) Troll Salmon Tag Recovery (Not available)
- ✓ (d) Troll Salmon Observer Program - ADF&G (9/22/78)
- ✓ (e) Clam Harvesting/Benthic Impacts Study - Tetra Tech (Memo 10/28/78)
- ✓ (f) Troll Salmon Logbook Analysis (10/24/78)

COMMENTS:

- (a) Informational - 1st year completed, 2nd year planning to include joint ventures.
- (b) Informational - Prior to the first meeting in 1979 2nd year work and funding will be presented for approval.
- (c) Not Available
- (d) Informational - We are planning to fund a major observer program in 1979 and are investigating a general RFP.
- (e) Informational - Some sampling problems were incurred and are being studied and monitored by the SSC. An events schedule amendment has been made with the concurrence and request of the SSC.
- (f) Informational

Agenda #19 (a)
Nov. 2-3, '78

ANNUAL REPORT

NUMBER 1

PROJECT TITLE
An Observer Program for the
Domestic Groundfish Fishery in the
Gulf of Alaska

CONTRACT NO. 77-5
NORTH PACIFIC FISHERIES MANAGEMENT COUNCIL

REPORT PERIOD
SEPTEMBER 30, 1977 THROUGH SEPTEMBER 28, 1978

PREPARED BY
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INTRODUCTION

Although the Contract, No. 77-5, between the North Pacific Fisheries Management Council and the Alaska Department of Fish and Game was signed September 30, 1977 funding was not available at the project level until February, 1978. On February 14 two observers were hired at the Fisheries Biologist I level, and orientation and training commenced.

During the initial stage of the project much time was spent designing recording forms, sampling procedures and methods, and building tables, measuring boards, fish picks, and other essential sampling gear. Four days of consultation with the National Marine Fisheries Service foreign observer staff prior to this time proved invaluable.

After approximately three weeks of preparation the observers were ready for their first trip. The domestic trawl fishery in the Kodiak area had accelerated its development in March and three vessels were delivering groundfish for human consumption in addition to the continuing bait fishery.

However, at this time we were made aware by various vessel skippers that they were extremely concerned about their potential liability should an observer be injured on their boats; and that they would have to refuse our requests to place observers on board until they were protected, at other than their own expense, against claims made against them by an injured observer or his relatives.

Several conferences were called and both the Council staff and the Alaska Department Fish and Game representatives attempted to resolve this situation. The final solution appears to be, in addition to Workers Compensation, non-owned protection and indemnity coverage paid for by the State, with waiver of subrogation, for all State employees working on vessels engaged in the observer program. This coverage was announced on April 14 and on April 18 our first two observed trips began. Between this time and June 4 a total of eight trips were observed on three vessels.

As of June 1 the major production areas for shrimp opened and the trawl effort for groundfish dropped, essentially to nothing. Upon June 9 one observer was terminated, and the other observer is being retained to assist in various projects such as the development of an observer manual and to train new observers. At the end of June one trip was made on a shrimp vessel.

OBJECTIVES

As per Contract No. 77-5:

The study will (1) develop necessary methodology and (2) implement an observer program for the developing domestic groundfish fishery off Alaska as required under Section 8.3.1.1(F)(1) and (2) of the Fishery Management Plan for the Groundfish Fishery in the Gulf of Alaska during 1978.

TASK 1

The Contractor will gather, summarize and report information on the fishery, specifically in the following areas; (1) estimate location of proposed and potential fisheries; (2) estimate number and type of boats; (3) estimate target species; (4) estimate gear types; and (5) estimate season.

TASK 2

A basic observer effort requires precise and standardized methods and procedures for data collection. The Contractor will develop methodology and biologically acceptable standards for collecting and recording data. In addition, the Contractor will also statistically design and describe the complete sampling program, taking into account at least total effort by species.

TASK 3

The contractor will assess the incidental catch of halibut and crab (King and Tanner) in the developing domestic groundfish fishery.

TASK 4

The contractor will determine catch per unit effort, data for vessels observed for primary designated target species.

TASK 5

The contractor will provide an estimate of poundage discarded. This task is in direct support of information needed under Section 8.3.1.1(F) of the Management Plan.

TASK 6

The contractor will provide catch composition information, length and weight data and other biological information as opportunity permits. As time permits, the gathering of this information as the fishery develops would be valuable.

TASK 7

The contractor will report on the general state of the art of the domestic groundfish fishing industry in terms of gear efficiencies, gear types, mechanics of the fishery and possibly high seas delivery.

OBSERVER DATA

During the period March through May ten vessels trawled for groundfish. Of the seven vessels large enough to take an extra person we were able to place observers on three, with a total trip coverage of 21%. The three skippers involved in the program were cooperative and the crews of these vessels were especially conscientious about sorting and disarding incidental crab and halibut as rapidly as possible.

Mean halibut incidence for all observed tows was 1.035% by weight of the unsorted catches; the highest weight per tow was 199.3 kg, the lowest 0 kg. The average weight per haul was 26.1 kg; and the average weight per hour was 9.18 kg. In general the incidence rate for the vast majority of hauls was very low or zero and most of the halibut caught was contributed by less than 10% of the tows. The highest catches of halibut occurred on tows with fouled or snagged gear, or when the gear had obviously been hard on the bottom. Very few large halibut were captured, the average length per trip ranging between 47 and 61 cm.

King crab were seldom encountered in the general area of Shelikof Strait and along the south side of the Alaska Peninsula. However, during April and May in Viekoda Bay the incidence of king crab was very high especially at 70 fathoms, and it will be necessary to closely monitor future trawling in this area.

The overall incidence of king crab was 2.3%, but the incidence for all tows excluding those in Viekoda Bay was 0.08%.

Tanner crab occurred in all but three of the tows observed. The overall incidence rate was 1.98% and excluding the Viekoda Bay tows was 0.49%. As also indicated by research cases, tanner crab are distributed widely throughout the Gulf of Alaska and are usually represented in trawl catches and occasionally make up a substantial portion of the species composition when the gear is hard on the bottom.

The halibut and crab incidence rates for the vessels observed were low probably because the groundline on the trawls of these vessels were fished such that they were only slightly in contact with the bottom or in other cases were equipped with roller gear.

PRESENT FISHERY

I am aware of no markets in the Westward Region for substantial quantities of groundfish for human consumption. Presently several trawlers are fishing out of Dutch Harbor and Kodiak for bait, but this fishery is difficult to follow since there are still no records of the quantities of fish sold on the grounds to the crab fleets. With the recent closures of the major shrimp production areas many vessel operators are looking for alternative fisheries. The bait market although lucrative is limited. Five to eight trawlers on a continuous basis could supply the bait needs of the crab fleets in the Western Gulf and Bering Sea. Some shrimpers are now converting to crab.

PROJECT ACTIVITIES

A computer programmer is being contracted to write and prove operational the following programs so that we can have the observer data summarized and available on a real time basis.

- (a) Incidence Data - A summary output which will list by individual drag or combine and summarize by day, month, Alaska stat area, INPFC area, trip, depth or a combination of these the total poundage of groundfish captured; the total poundage of tanner crab, king, halibut and salmon; and the percent by weight of the total catch of each of these species.
- (b) Species Composition Data - A summary output which will list by individual drag or combine and summarize by day, month, Alaska stat area, INPFC area, trip, depth, or a combination of these, the total groundfish catch weight, the weight of each species, and the percent by weight of the total for each species.
- (c) CPUE Estimates - A summary output giving the CPUE for each species and all species combined by same categories as in (a) and (b).

A manual for observers is also being prepared at this time.

Data which has been collected includes vessel and gear specification, CPUE, discard estimates, species composition including incidental species, and a limited number of length frequencies.

SAMPLING

The species composition is obtained from the three, two bushel basket samples taken randomly from the catch. For incidence samples when available, 20 halibut, male and female tanner and king crab are weighted. An average weight of each sex and species group is calculated and all specimens of each group in the load are counted as they are being discarded. The average weight is applied to the total number to calculate the total incidence per haul.

Since incidence is calculated using the estimated total weight of the entire catch, and the delivered weight as recorded on fish tickets represents a catch after considerable sorting, a discrepancy may occur when total halibut incidence by statistical area is estimated using fish ticket data as the source for the total groundfish catch. Further consideration should be given to this matter.

The observer is forced to work on an open deck with and around the crew and machinery without a reserved work area; his job tends to be more difficult than for the foreign vessel observers.

As the fishery again becomes active we will be recruiting for additional observers.

BUDGET

With the late start of the project and the slow development of the fishery during the summer only a portion of the available funding was utilized. Below is the estimated carry-over to FY 1979.

| <u>Line Item</u> | <u>Balance (\$)</u> |
|------------------|---------------------|
| 100 | 62,462 |
| 200 | 10,097 |
| 300 | 4,489 |
| 400 | 1,145 |

OPINIONS AND IMPRESSIONS

Currently the fishery is not progressing because of the lack of buyers for substantial quantities of groundfish. The market which is available to the fishermen requires only the larger fish. Consequently, a significant amount of small fish are sorted and discarded at sea and sorted again at the dock severely reducing the potential monetary return to the fishermen. There is a continued high demand for bait; however, this demand could be adequately filled by a continued effort of several draggers, each working in the vicinity of Kodiak and Dutch Harbor.

Except within specific areas where the continental shelf edge or deep guts are in close proximity to sheltered water, the groundfish fishery will remain highly seasonal until large all weather vessels enter the fishery.

CONCLUSIONS

1. The limited data we now have indicates that at least when fishing for roundfish incidence rates can be reduced substantially by the proper adjustment of the gear so that the groundline makes only light contact with the bottom and by the use of roller gear.
2. Viability of incidental species appears to be directly related to the size of the catch, the length of tow, and the speed of sorting on deck. These factors are pluses for the domestic trawlers. Observers assistance on deck has reduced mortality of incidental species and reduced handling time, which has been advantageous to those skippers cooperating in the observer program.
3. The attitude of the skipper is very important in reducing incidence and increasing survival of these species. Certain skippers have been especially cooperative, however, even they are reluctant to take observers on board when going into a new area, probably for fear of having large catches of crab and halibut documented; even though, the observer data has been to their advantage showing low incidental catch rates.

Also, unfortunately several skippers have said that when observers become mandatory with the adoption of the Fishery Management Plan for the Gulf of Alaska Groundfish Fishery they will refuse to cooperate.

The effectiveness of the observer program will be determined to a large extent by the attitudes of the trawl fishermen.

INCIDENCEⁱ

Halibut

Overall incidence 1.04%
Average Wt./Hour 9.18 kg.

Average Wt./Haul 26.1 kg.
Highest Wt. 199.3 kg. Lowest Wt. 0

KING CRAB

Overall incidence 2.3%
Excluding Viekoda B. 0.08%

Average Wt./Haul 57.5 kg.
Excluding Viekoda B. 4.6 kg.
Highest Wt. 516.2 kg. Lowest Wt. 0
Excluding Viekoda B. 25 kg.

TANNER CRAB

-Overall incidence 1.98%
Excluding Viekoda B. 0.49%

Average Wt./Haul 34.8 kg.
Excluding Viekoda B. 10.6 kg.
Highest Wt. 279.2 kg. Lowest Wt. 0
Excluding Viekoda B. 49 kg.

ADDITION DATA

Overall CPUE¹ 880 kg./hr

Average Haul Duration 2.8 hr.
Total Hauls Observed 100

¹ Based on unsorted catch weight

Progress in the Development and Enhancement of a
Computerized Fisheries Information System for Alaska

Prepared by
Ivan Frohne and Don Wanie
Alaska Department of Fish and Game
October 5, 1978

Background

Initial tasks of the first component of phase I of this project, concerned exclusively with the installation of computer hardware and the design and implementation of catch data entry, editing and file maintenance of software, have been completed successfully. Computer programming for those components took longer than had been anticipated because the standard data entry software supplied by Digital Equipment Corporation (DECFORM) did not perform as well as had been expected, and DIBOL, a commercial programming language with similarities to both FORTRAN and COBOL, was used. Further software design and programming is expected to be on schedule; programming will be done in DIBOL as planned and considerable experience in using this language has been acquired.

The second component of phase I, evaluation of the status of historical catch data, has not yet begun. Thus, we are as yet unable to recommend procedures for editing and consolidating these data. A new State-funded systems analyst position has been approved and will be filled soon. With this added help, work will begin soon on the examination of historical catch data.

The objectives of phase I of the project are to improve the timeliness and accuracy of current catch data, and to assemble, edit and reformat as feasible and necessary, historical catch data. Phase II covers the design and implementation of a responsive fisheries catch information system. A proposed additional objective is the oversight and coordination of the data processing and biometrical analysis incorporated in other North Pacific Fisheries Management Council contracts with the Alaska Department of Fish and Game.

Development of a Computerized Fisheries Information Retrieval System

A Proposed Procedure

- I. The Contractor will contact potential users and solicit input regarding the needs and applications for such a system. The agencies to be contacted include:

Alaska Department of Fish and Game
Extended Jurisdiction
Fisheries Management
Fisheries Research
North Pacific Fisheries Management Council
National Marine Fisheries Service
Alaska Region
Northwest Region
Commercial Fisheries Entry Commission
Sea Grant
NOR FISH
Pacific Marine Fisheries Commission

The product to be derived will be a comprehensive set of user requirements reflecting the needs of all users and a determination of the user base.

- II. Upon completion of Step I, the Contractor will develop a conceptual design for the system that will meet those needs expressly identified. The proposed system will then be presented to the Contract Monitoring Committee for review.
- III. Upon approval of the original or a revised version of the proposal, the Contractor will perform a feasibility study and cost analysis of the system. The results of those studies will then be presented to the Committee along with recommendations concerning each study.
- IV. After a review of both studies, the Committee will recommend the development of a final version of the system. The final version will be tailored to meet the specified needs in as much as is possible taking into account, availability and source of funding, time constraints, hardware capabilities available and human resources required.

The foregoing is our recommended approach to determining the applications for a retrieval system, identifying the user base, developing a conceptual design, rationalizing shortcomings and limitations and proceeding with the detailed development of such a system.

AGENDA 19(b)
Nov. 2-3, '78

QUARTERLY REPORT NUMBER 2

Project Title: The Development and Enhancement of a Computerized
Fisheries Information System

Contract No: 78-4, North Pacific Fisheries Management Council

Report Period: July 1, 1978 - September 30, 1978

Prepared by: Donald L. Wanie

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ABSTRACT

During the time period covered by this report, the initial phase of the regionalized data entry system was implemented in the Juneau and Anchorage processing centers. A total of three data entry operators, two permanent and one temporary have been hired to key fish ticket data in the regional offices.

Progress on Component 1 of Phase I is pretty much on schedule but little or no progress has been made on Component 2.

INTRODUCTION

The contents of this report include a report on progress relative to Phase I tasks, a narrative summary and a notice of staffing changes and adjustments to our timetable of events.

Status Relative to Component 1 and Component 2 Tasks

Component 1

Task 1: As stated in the first quarterly report, the regionalized data processing system is to be implemented in three parts: 1) data entry, editing, file maintenance and error reporting, 2) file update and correction, 3) report generation. We did not make the July 17 implementation of Part 1 as planned. Part 1 was implemented in Juneau by September 12 and implementation in Anchorage took

place from September 13-19. At the present time we are in the process of working out a few relatively minor bugs in the system. One rather significant change regarding master file maintenance has been implemented in Juneau and is scheduled for implementation in Anchorage on October 9. A limited amount of systems work has been done on Part 2 but no actual program development has taken place.

Aside from error reporting, none of the report generation portion of the system has been developed.

Task 2: This task was completed on June 14, 1978

Subsequent to installation we have experienced some minor problems with the hardware, all of which were repaired by the vendor in a reasonably timely fashion.

Task 3: As required under this task, data capture, editing and file maintenance capability has been implemented in the Anchorage and Juneau offices. Report generation capability will not be available before December 1978.

For a number of reasons, actual data capture has been relatively slow since system implementation. Lack of experience in using the new hardware and data entry techniques, unforeseen system bugs and occasional hardware problems are all factors contributing to the slow start.

All major system problems have been resolved and additional training is being scheduled for the Anchorage center during the second week in October. The data entry operators are demonstrating steadily increasing efficiency and can be expected to be working at near maximum efficiency by mid to late October.

Task 4: System review cannot be accomplished until all parts of the system have been implemented.

A meeting of the Contract Monitoring Committee has been scheduled for October 5 at which time a detailed oral report on progress to date and system status will be presented to the committee for review and discussion.

Task 5: This procedure was used when Part 1, the data entry, editing and file maintenance portion of the system was implemented. Bill McCauley and Brad Wilmot were in Anchorage from September 13 through September 19 installing the system. During that time they trained the regional programmer and data entry operator on machine operation and all portions of the data entry and file maintenance functions. Additionally, they generated the required regional master operating system and developed a number of special purpose programs to be run at the central region facility.

Task 6: This task is not applicable at this time.

Component 2

Tasks 1-5: To date, no significant effort has gone into performing the Component 2 tasks. As stated in the June report, development of the regionalized data entry and reporting system has taken considerably more personal services resources and time than was originally anticipated. As a result we had planned to compensate for the problem by utilizing the Department's new systems analyst position to perform the Component 2 tasks of analyzing, upgrading and standardizing historical data files. To date, the Division of Data Processing has not yet approved that position for the Department. This problem should be resolved by October 15, and recruiting will begin immediately.

SUMMARY

During the quarter, Part 1 (data entry, editing, file maintenance) of the regionalized processing system was implemented in the Anchorage and Juneau offices. Training and implementation was completed in Juneau on September 12 and in Anchorage on September 19. Since they elected to process 1978 data on their IBM 3741 data station rather than wait for the new system, the Kodiak office will be brought on line under the new system beginning January 1, 1979.

Subsequent to initial implementation, a number of hardware and software problems have been encountered and resolved.

The Anchorage office is currently running a single data entry shift staffed by a permanent operator. Since September 12, the Juneau office has been running one data entry shift staffed by a temporary operator. Effective October 1, an additional permanent operator will be added to the staff giving the Juneau office two full shifts of data entry support daily.

Based on our experience thus far, it appears that barring hardware or system problems, an operator can be expected to successfully enter 900-1100 tickets during a normal shift.

Since no significant effort has gone into Component 2 tasks, the Department proposes to assign those duties to its new systems analyst as soon as that person can be brought on board. We further propose to provide programmer support for that position using contractual services funding available under Phase I of the contract.

Special Meeting on Project Status

During a meeting between Mark Hutton, Judy Willoughby and Don Wanie on September 12, 1978, a number of problems were resolved.

- 1) It was mutually agreed that the original timetable of events written into the contract would be adjusted by three months to reflect the actual March 1, 1978 start date rather than the planned date of January 1, 1978.

- 2) It was mutually agreed that the Department would use proposed temporary data entry support funding for hiring staff to assist in reducing the large backlog of data caused by late implementation of Part 1 of the system. The money was originally to have been spent during the last two months of FY 78.

- 3) It was mutually agreed that contractual services funds available under Phase I, would be used to provide programmer support for the systems analyst working on the Component 2 tasks of Phase I.

PRELIMINARY FISHING EFFORT AND SALMON CATCH PER BOAT-HOUR
RESULTS FROM THE 1977 SOUTHEAST ALASKA TROLL LOGBOOK PROGRAM

Division of Commercial Fisheries
Alaska Department of Fish and Game

Prepared by:

Ivan Frohne
September 21, 1978

Introduction

A total of 99 logbooks, representing more than 6,200 fishing days, were returned by trollers participating in the 1977 Southeast Alaska Troll Logbook Program. This report presents preliminary information on fishing effort and salmon catch per boat-hour by time period and geographical area. The results are believed to accurately represent 1977 logbook data; however they have not been thoroughly verified.

Three time periods and five geographical areas were selected:

- I. Time periods
 1. Early -- January 1, 1977 to June 14, 1977
 2. Middle -- June 15, 1977 to July 31, 1977
 3. Late -- August 1, 1977 to December 31, 1977

- II. Geographical areas (see Figure 1)
 1. North coast -- north of Cape Spencer
 2. Central coast -- Cape Ommaney to Cape Spencer
 3. South coast -- outside south of Cape Ommaney
 4. Southern inside -- inside south of Wrangell; eastern Dixon Ent.
 5. Northern inside -- inside north of Wrangell

Fishing Effort

Table 1 shows the number of reported fishing days by time period, geographical area and fishing location (within 3 miles of the coast, outside 3 miles, or both inside and outside). Region-wide, for all time periods, reporting trollers spent 15% of the time outside 3 miles, 78% within 3 miles of land and 7% both. Thus, a little less than 22% of reported fishing was at least partially outside State waters (22% is too high because some State waters extend more than 3 miles from land).

Table 2 gives the percentages (inside, outside and both) by geographical area for the entire year. Fishing outside 3 miles was most common off the north coast -- 56% -- and fairly common in southern inside waters (17%), no doubt mostly in Dixon Entrance. Outside fishing was rare in other areas, but on the central coast, fishing either exclusively outside 3 miles or both outside and inside, was not uncommon (14% of reported fishing days). Outside fishing effort declined in all areas after July.

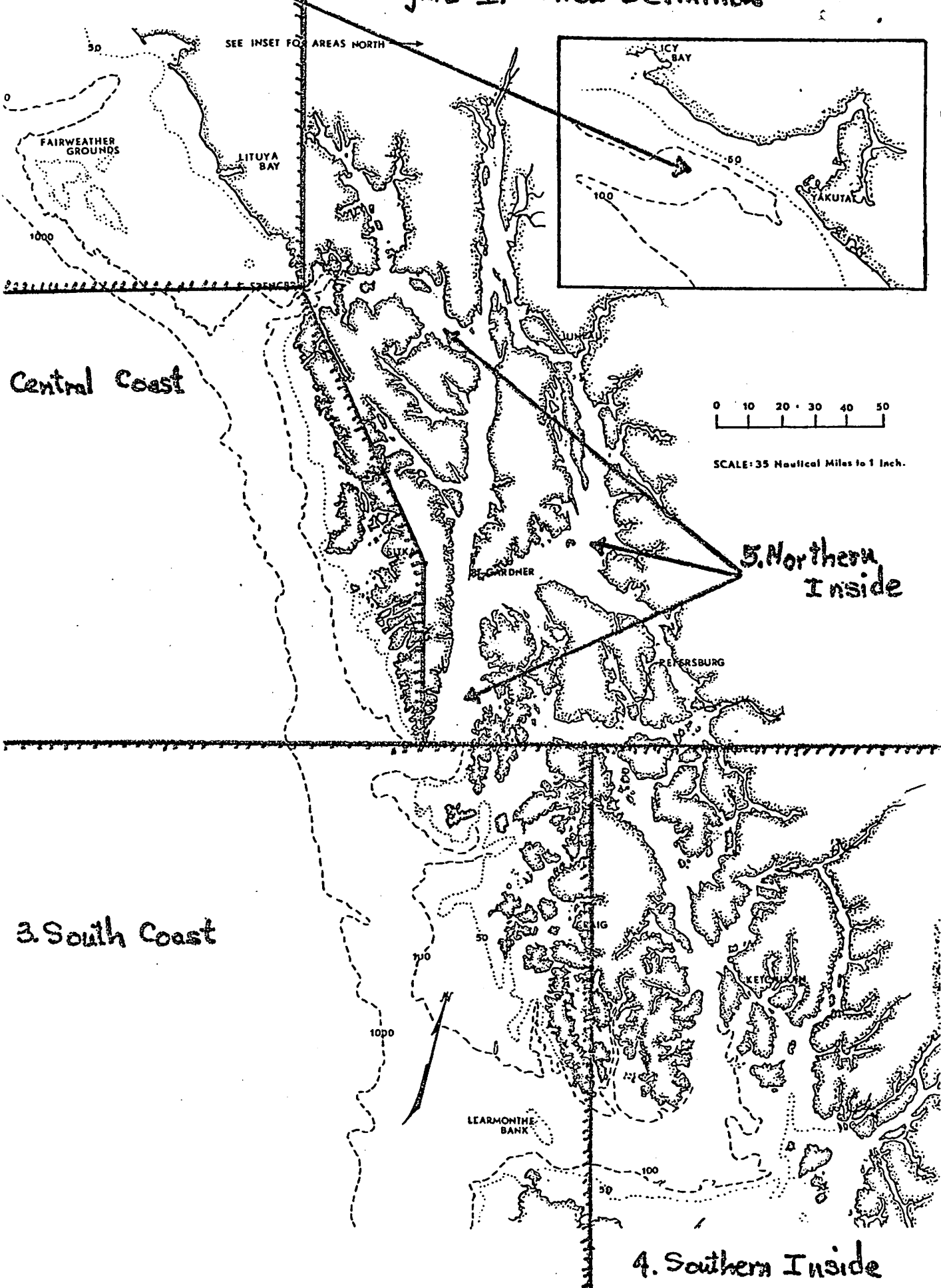
Chinook and Coho Catch per Boat-hour

Tables 3 through 6 give the reported catch per boat hour (CPUE) of large (mild cure) chinook, medium chinook, shakers (chinook less than 28 inches in length), and coho. Results are not given when less than 10 days of fishing were reported.

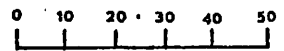
1. Large chinook (Table 3): Highest reported catches of large chinook per boat-hour (CPUE) occurred outside 3 miles on the north coast before June 15 (1.30 large chinook/hour). In other areas, reported CPUE for large chinook was higher close to shore, except off the south coast, where CPUE peaked at 0.47 in mid-season. Large chinook CPUE appeared to vary less on the central coast by time period than in other areas.
2. Medium chinook (Table 4): Again, the highest reported CPUE was in outside waters on the north coast, before June 15, and off the south coast, inside and outside 3 miles. Although the medium chinook CPUE held up well in outside north coast waters in mid-season, it was low in all other areas. After July the medium chinook CPUE dropped to less than 1 fish every 5 hours of fishing in all areas.
3. Shakers (Table 5): Reported shaker incidence per hour was high in mid-season, outside 3 miles on the north coast. It also appeared to increase in mid-season on the central coast in June and July. On the south coast, however, reported shaker incidence declined in mid-season from higher levels early in the year. In northern inside waters above Wrangell, shakers became less common as the season progressed, but the picture was less clear below Wrangell.

4. Coho (Table 6): The coho CPUE in waters outside 3 miles was small off the north and central coast in mid season, but improved after July on the central coast. The coho CPUE was higher in eastern Dixon Entrance outside 3 miles.

Figure 1. Area Delineations



Central Coast



SCALE: 35 Nautical Miles to 1 inch.

5. Northern Inside

3. South Coast

4. Southern Inside

Table 1. Days of Fishing Effort by Time Period, Geographical Area^{1/} and Fishing Location^{2/}, 1977 Southeast Alaska Troll Logbook Program^{3/}

| Time Period | Area | | | | | Total |
|---------------------|-------------------|---------------|-------------|-----------------|-----------------|-------|
| | North Coast | Central coast | South coast | Southern Inside | Northern Inside | |
| Early 1/1-6/14 | 66 (inside 3mi) | 538 | 680 | 196 | 117 | 1597 |
| | 321 (outside 3mi) | 12 | 8 | 6 | 0 | 347 |
| | 0 (both) | 48 | 49 | 0 | 0 | 97 |
| Middle 6/15-7/31 | 185 | 1078 | 25 | 185 | 195 | 1858 |
| | 206 | 53 | 3 | 63 | 1 | 326 |
| | 25 | 118 | 10 | 10 | 3 | 166 |
| Late 8/1-12/31 | 152 | 455 | 148 | 303 | 346 | 1404 |
| | 116 | 42 | 6 | 75 | 1 | 240 |
| | 77 | 83 | 8 | 5 | 2 | 175 |
| 1977 | 403 | 2071 | 1043 | 684 | 658 | 4859 |
| Total | 643 | 107 | 17 | 144 | 2 | 913 |
| | 102 | 249 | 67 | 15 | 5 | 438 |
| All Locations | 1148 | 2427 | 1127 | 843 | 665 | 6210 |

^{1/} See text and Figure 1 for geographical area descriptions

^{2/} For each category, top to bottom, are the number of reported days fished within 3 miles of land, more than 3 miles out, and both within and outside the 3 mile limit

^{3/} Compiled September 21, 1978.

Table 2. Percent of Fishing Days within 3 mile of Land, Outside 3 miles, and both, by Geographical Area, ^{1/4}

| Area | North | Central | South | Southern | Northern | Alaska | Total |
|---------------|-------|---------|-------|----------|----------|--------|-------|
| Coast | 35% | 86% | 92% | 81% | 99% | 78% | 78% |
| Outside 3 mi. | 56% | 4% | 2% | 17% | — | 15% | 15% |
| Both | 9% | 10% | 6% | 2% | 1% | 7% | 7% |

^{1/4} See Foot and Loggers, Table 1

Table 3. Large Chinook Catch per Boat-hour ^{1/}

| Area | Time Period | | Area | | | | |
|-----------|-------------|-----------|---------|-------|-------|-------|------|
| | North | Coast | Central | South | South | North | |
| Area | Early | 1/1-6/14 | 0.60 | 1.30 | — | 0.59 | 0.47 |
| | Middle | 4/15-7/31 | 0.18 | 0.82 | 0.37 | 0.58 | 0.17 |
| | | 8/1-12/31 | 0.04 | 0.76 | 0.32 | 0.32 | 0.06 |
| | Late | 4/15-7/31 | 0.10 | 0.10 | 0.37 | 0.22 | 0.21 |
| 8/1-12/31 | | 0.04 | 0.04 | 0.43 | — | — | |

^{1/} See text and legend, Table 1.

Table 4. Medium Chinook Catch per Boat-hour^{1/}

| Time Period | Area | | | | |
|---------------------|-------------|---------------|-------------|-----------------|-----------------|
| | North Coast | Central Coast | South Coast | Southern Inside | Northern Inside |
| Early 1/1-6/14 | 0.22 | 0.11 | 0.19 | 0.26 | 0.16 |
| | 0.46 | 0.14 | — | — | — |
| | — | 0.07 | 0.43 | — | — |
| Middle 6/15-7/31 | 0.14 | 0.18 | 0.10 | 0.13 | 0.18 |
| | 0.36 | 0.08 | — | 0.16 | — |
| | 0.06 | 0.10 | 0.03 | 0.18 | — |
| Late 8/1-12/31 | 0.19 | 0.10 | 0.05 | 0.06 | 0.04 |
| | 0.17 | 0.09 | — | 0.10 | — |
| | 0.03 | 0.08 | — | — | — |

^{1/} See text and legend, Table 1.

Table 6. Coko catch per Boat-hour

| Time Period | Area | | | | |
|------------------|-------------|---------------|-------------|-----------------|-----------------|
| | North Coast | Central Coast | South Coast | Southern Inside | Northern Inside |
| Early 1/1-6/14 | 0.02 | 0.02 | 0.02 | 0.01 | 0.03 |
| Middle 6/15-7/31 | 2.17 | 0.52 | 0.21 | 0.99 | 0.99 |
| Late 8/1-12/31 | 1.89 | 1.43 | 2.26 | 2.50 | 1.66 |
| | 0.01 | 0.04 | 0.02 | — | — |
| | 0.28 | 0.82 | — | 3.93 | — |
| | 2.08 | 0.65 | 1.40 | 1.57 | — |
| | 0.53 | 1.74 | — | 4.40 | — |
| | 1.75 | 1.68 | — | — | — |

See text and legend, Table 1.

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

PILOT OBSERVER PROGRAM FOR THE TROLL SALMON FISHERY OFF ALASKA

Contract No. 78-9

September 22, 1978

Craig Juleen
Troll Fishery Biologist
Alaska Department of Fish and Game

OCEAN TROLL FISHERY OBSERVER PROGRAM

To meet the objectives of the observer program data was collected by on-board observers to help identify salmon species by catch, age, length, weight, sex, mature and sub-legal (shaker), catch by gear type, and influencing environmental factors for various statistical areas and times. Troll logbook information was also obtained in conjunction with comments recorded on daily record sheets.

See Table 1 for a list of the observer trips by statistical area and location.

The total catch (all species) for the observer program was:

| <u>Chinook</u> | <u>Coho</u> | <u>Pink</u> | <u>Chum</u> | <u>Chinook Shakers</u> | <u>Sockeye</u> | <u>Salable Halibut</u> |
|--------------------------|-------------|-----------------|-----------------|--------------------------------------|-----------------|------------------------|
| 715 | 1,778 | 873 | 38 | -300: 233 Good 27 Fair 40 Poor | 7 | 15 |
| <u>Unsalable Halibut</u> | | <u>Ling Cod</u> | <u>True Cod</u> | <u>Turbot</u> | <u>Rockfish</u> | |
| 45 | | 17 | 10 | 1 | 509 | |

Total Landed Chinook and Coho Weight Per Trip:

| <u>Vessel</u> | <u>Chinook(lbs.)</u> | <u>Coho(lbs.)</u> |
|--------------------|----------------------|-------------------|
| <u>North Star</u> | 238.40 | |
| <u>F/V Rambler</u> | 1,375.00 | |
| <u>Gota</u> | | 6.50 |
| <u>Germaine</u> | 124.74 | 13.20 |
| <u>C-Rae</u> | 1,132.11 | 593.25 |
| <u>Carolyn L</u> | 1,491.36 | 46.98 |
| <u>F/V Sea Kin</u> | 1,394.00 | 3,390.20 |
| <u>Myrth</u> | 558.54 | 98.46 |
| <u>F/V Duke</u> | 559.77 | 360.36 |

| <u>Vessel</u> | <u>Chinook(1bs.0</u> | <u>Coho(1bs.)</u> |
|---|---------------------------|------------------------------|
| <u>Defense</u> | 758.43 | 5,879.97 |
| <u>Coronation</u> | 214.40 | 2,148.80 |
| <u>Chief Seattle</u> (for 3 areas fished) | 155.25 455.40 12.54 | 550.20 1,721.98 162.80 |
| <u>Defiance</u> (2 areas fished) | 2,828.00 207.00 | 851.00 959.00 |
| Combined Total Weight for All Trips - | 11,504.94 | 21,782.10 |
| Combined Catch Average for All Trips- | 16.00 | 7.00 |

Overall Shaker to Legal Chinook Incidence
 (Total shaker divided by total chinook) = 0.42

Scale and gonad samples were taken from every fifth chinook and coho salmon. Laboratory analysis will begin September 20th to determine age composition, maturity and stock origin. Recorded lengths and weights for each landed chinook and coho salmon were on the daily record sheets for the separate areas and times (Specific and detailed information can be obtained from the individual trip data sheets).

Trips by statistical areas were separated and statistics for total and average chinook and coho weights were computed. Shaker to legal chinook incidence was recorded for all given areas. The results are displayed in Table 2.

The observers were asked to look at gear type and possible influential effects on catch composition. It was noted that the various boats observed used a varied assortment of gear. The following is collected data pertaining to each individual vessel:

Gear Type: (Flashers were used at all times in conjunction with baited hooks, and in the majority of cases with hootchies.)

1. North Star - 8 lines, 49 hooks - 28 spoons, 10 hootchies, 11 bait
2. Rambler - 4 lines, 32 hooks - 2 plugs, 4 spoons, 13 hootchies, 13 bait. 40-45 fathoms of wire out.
3. Germaine - 3 lines, 15 hooks - 15 hootchies. 20 fathoms of wire out.
4. Gota - 4 lines, 20 hooks - 6 spoons, 14 hootchies. (hook baited with herring used once) 28 fathoms of wire out.

5. C-Rae - 4 lines, 30 hooks - 22 spoons, 4 hootchies, 3 bait, 1 plug. 50 fathoms of outside wire. 25 fathoms inside wire.
6. Carolyn L - 4 lines, 29 hooks - 7 spoons, 13 hootchies, 9 bait. 6 lines, 36 hooks - 8 spoons, 17 hootchies, 11 bait
7. Sea Kin - 6 lines, 48 hooks - 24 spoons, 24 hootchies. 40 fathoms of wire out. Coho gear.
8. Myrth - 4 lines, 22 hooks - 2 plugs, 8 spoons, 6 hootchies, 6 bait. 28-30 fathoms of outside wire out. 26 fathoms of inside wire out.
9. Duke - 4 lines, 41 hooks -26 spoons, 15 hootchies.
10. Defense - 4 lines, 26 hooks - 22 spoons, 4 hootchies. (Coho gear) 15-18 fathoms of wire out.
11. Coronation - 4 lines, 46 hooks - 26 spoons, 20 hootchies. (Coho gear) 20-30 fathoms of wire out (varied for the different areas fished)
12. Chief Seattle - Coho gear - 4 lines, 54 hooks - 44 spoons, 10 hootchies.

The gear was periodically changed due to good or poor fishing conditions or a shift to a new location. The choice of gear noticeably affected the catch composition. Those fishermen using coho gear* (Chief Seattle, Coronation, Defense and Sea Kin) caught a much larger percentage of coho in relation to chinook salmon, while the C-Rae and Myrth using hooks baited with herring and copper chinook spoons caught a higher percentage of chinooks compared to the coho catch.

Feed varied with time and area. The following data pertains to stomach contents in order of abundance.

Rambler - Chinook and coho feeding on: 1) needlefish, 2) Krill

Germaine - Chinook and coho feeding on: 1) needlefish, 2) juvenile needlefish

Gota - Coho examined contained needlefish.

C-Rae - Chinook feeding on: 1) herring, 2) needlefish, 3) juvenile pollock. Coho feeding on: 1) juvenile pollock.

Carolyn L - Salmon contained shrimp, herring, needlefish and capelin

* Small spoons and hotchies utilizing bright colors.

Sea Kin - Chinook feeding on: 1) shrimp, 2) herring, 3) juvenile pollock, 4) prowfish. Coho feeding on: 1) shrimp, 2) herring.

Myrth - Chinook and coho feeding on: 1) needlefish, 2) juvenile needlefish

Duke - Chinook and coho feeding on herring.

Defense - Chinook and coho feeding on: 1) herring, 2) juvenile herring.

Chief Seattle - Chinook and coho feeding on herring

It was discovered on some fishing trips that most salmon were landed between 0645-1000 and 1845-2045 hours. When fathometers were used, most feed showed up on the graph in the early morning and evening hours.

Observers also took note of environmental influences on the salmon harvest. When seas became larger, it was hard to see the poles rattle. Also, when the weather became nasty, fishermen spent more time in their wheel houses. Both of these environmentally-related factors led to higher mortality rates of sub-legal fish due to the dragging of hooked fish. During this past (1978) fishing season there was a large intermittent amount of pelagic seasquirts, a gelatinous, free-swimming, Urochordate (genus Salpa). By continually fouling both hooks and line, they became a perpetual headache to the fishermen.

The observers for this first on-board program encountered a few problems. Perhaps the major difficulty was finding skippers willing to have observers aboard. Reasons for not wanting observers onboard were: 1) No room - not enough back space, 2) distrust of Fish and Game management programs and 3) violation of personal space. When onboard, there were a few drawbacks in collecting data. Noting catch by bait type, sampling, cleaning, weighing, observing, keeping balance, etc., did become a dilemma when large pallets of fish were encountered at one time. Pandemonium ran high with fish flapping everywhere. (Boats with small working decks should be avoided.) Shaker conditions when released can also be questioned due to the continual forward progress of the boats and not wanting to get in the way of fishing operations. Those shakers marked good on the daily record sheets may have actually been impaired. Normal trip practices of shaker release may have been changed by having a Fish and Game observer on board. Other problems were: 1) ocean fatigue, 2) wind, rain and large seas making data collection extremely rough and 3) personality conflicts.

A comparison of observer logbook data with the fishermen's log shows that there were varying observed and recorded variances pertaining to information regarding shaker numbers, abundance of bottom fish and marine mammals. Memories of such data are not clear after a hard day or trip of fishing.

From all of the data, observations and observer comments, it was found that an onboard program does work. The skippers who took the observers were congenial and cooperative. The biological samples, daily statistical record sheets, observer log, and individual trip summaries will definitely be useful tools in helping form a comprehensive management plan.

| <u>Location</u> | <u>Statistical Area</u> | <u>Vessel</u> | <u>Observer</u> | <u>Dates</u> | <u>Average Fishing Time</u> | <u>Sea Conditions</u> | <u>No. of Fish Caught and Average Wt.</u> | <u>Shaker to Legal Chinook Incidence</u> | <u>0</u> |
|------------------------------------|-------------------------|-----------------------|-----------------|--------------|--------------------------------------|-----------------------|--|--|----------|
| 1. St. Lazaris Island | 113 | <u>Gota</u> | Craig Juleen | 7/20-7/22 | 1¼ hrs. 1-harbor day 2-fishing | 3-4 ft. | 1 coho- 6.5 lbs. 2 shakers- 1 good 1 fair | --- | E t |
| 2. Gornoi, Gulf & Biorka Is. | 113 | <u>Germaine</u> | Robert Hernacki | 7/26-7/27 | 6-¾ hrs. | slight | 9-chinook-13.86 lbs. 2-coho-6.6 lbs. 2-shakers- 1 good 1 fair | 0.22 | |
| 3. St. Lazaris Is. to Cape Edgumbe | 113 | <u>C-Rae</u> | Craig Juleen | 7/26-7/30 | 14 hrs. | 5-7 ft. | 63-chinook-17.97 lbs. 113-coho - 5.25 lbs. 6- shakers-4 good 2 fair | 0.10 | |
| 4. Sandy and Snipe Bay | 113 | <u>Myrth</u> | Craig Juleen | 8/5-8/10 | 9¼ hrs. | 3-4 ft. | 29-chinook-19.26 lbs. 18-coho- 5.47 lbs. 20-shakers- 17 good 1 fair 2 poor | 0.69 | |
| 5. Off Cape Edgumbe | 113 | <u>F/V Duke</u> | Robert Hernacki | 8/26-8/29 | 10¼ hrs. | slight to 5 ft. | 29-chinook-20.68 lbs. 44-coho- 8.19 lbs. 5-shakers- 4 fair 1 poor | 0.17 | |
| 6. Surge Bay-Hoktaheen Area | 113 | <u>F/V Coronation</u> | Linnea Neuman | 8/1-8/9 | 9½ hrs. | 2-8 ft. | 13-chinook-16.8 lbs. 316-coho- 6.8 lbs. 13-shakers-11 good 2 poor | 1.00 | |

| <u>Location</u> | <u>Statistical Area</u> | <u>Vessel</u> | <u>Observer</u> | <u>Dates</u> | <u>Average Fishing Time</u> | <u>Sea Conditions</u> | <u>No. of Fish Caught and Average Wt.</u> | <u>Shaker to Legal Chinook Incidence</u> |
|--|-------------------------|----------------------|-----------------|--------------|-----------------------------|---|---|--|
| Surge Bay | 113 | <u>Chief Seattle</u> | Linnea Neuman | 8/18-8/20 | 6¼ hrs. | 3-6 ft. | 9-chinook-17.25 lbs. 60-coho-9.17 lbs. 2-shakers- 1 good 1 poor | 0.22 |
| 3. From Redfish Cape to Biorka Island | 154 | <u>F/V Sea Kin</u> | Robert Hernacki | 7/28-8/5 | 16½ hrs. | 2-6 ft. | 68-chinook-20.50 lbs. 460-coho- 7.37 lbs. 10-shakers-7 good 1 fair | 0.15 |
| 9. Between Cape Addington & Cape Chirikof | 104 | <u>F/V Rambler</u> | Gary Gunstrom | 5/19-5/30 | 14 hrs. | 15-20 ft. 8-fishing 2-harbor days | 101-chinook-13.75 lbs. 32-shakers-26 good 2 fair 4 poor | 0.32 |
| 10. Inner Bank- Outside of Stat. Area-116-25 | | <u>North Star</u> | Randy Timothy | 5/24-6/1 | 7¼ hrs. | 5-7 ft. 3-fishing 3-harbor days | 16-chinook-14.90 lbs. 8-shakers-5 good 3 fair | 0.50 |
| 11. Nine miles off Cape Fairweather | 181-05 | <u>Carolyn L</u> | Linnea Neuman | 6/16-6/22 | 14 hrs. | 3-8 ft. | 104-chinook-14.34 lbs. 9-coho- 5.22 lbs. 15-shakers-11 good 4 poor | 0.14 |
| 12. Ocean Cape, Dangerous River | 181-05 | <u>Chief Seattle</u> | Linnea Neuman | 8/21-8/22 | 5¼ hrs. | 3-8 ft. | 1-chinook-12.54 lbs. 20-coho- 8.14 lbs. 2-shakers- 1 good 1 fair | 2.00 |
| 13. Ten-12 mi. off inner bank | 181-25 | <u>Defiance</u> | Linnea Neuman | 7/17-7/22 | 14½ hrs. | 2 ft. | 163-chinook-17.35 lbs. 112-coho- 7.60 lbs. 20-shakers-12 good 8 poor | 0.12 |

| <u>Location</u> | <u>Statistical Area</u> | <u>Vessel</u> | <u>Observer</u> | <u>Dates</u> | <u>Average Fishing Time</u> | <u>Sea Conditions</u> | <u>No. of Fish Caught and Average Wt.</u> | <u>Shaker to Legal Chinook Incidence</u> |
|------------------------------------|-------------------------|----------------------|-----------------|--------------|-----------------------------|-----------------------|---|--|
| 14. Between Lituya Bay & Icy Point | 116-05 | <u>Defense</u> | Craig Juleen | 8/23-8/29 | 14½ hrs. | slight to 2 ft. | 53-chinook-14.31 lbs. 827-coho- 7.11 lbs. 84-shakers-64 good 12 fair 8 poor | 1.58 |
| 15. La Perousse Glacier Area | 116-05 | <u>Chief Seattle</u> | Linnea Neuman | 8/14-8/17 | 10 hrs. | 4-6 ft. | 30-chinook-15.18 lbs. 179-coho- 9.62 lbs. 60-shakers-54 good 4 poor | 2.00 |
| 16. North Pass, Cape Cross Area | 116-05 | <u>Defiance</u> | Linnea Neuman | 7/14-7/23 | 7¼ hrs. | 2 ft. | 14-chinook-14.80 lbs. 133-coho- 7.21 lbs. 20-shakers-15 good 1 fair 4 poor | 1.43 |

COMBINED TOTALS FOR STATISTICAL AREA 116-05 (3 trips)

| | | |
|---|---|---------------|
| Total chinook weighted for 97 landed fish | - | 1,420.83 lbs. |
| Average Weight | - | 14.65 lbs. |

| | | |
|---------------------------------------|---|---------------|
| Total coho weight for 139 landed fish | - | 8,560.95 lbs. |
| Average weight | - | 7.52 lbs. |

Shaker to legal chinook incidence (164 shakers) 1.69

* Note: Area 116.05 had triple or greater the number of shakers when compared to the data collected in the other areas.

COMBINED TOTALS FOR STATISTICAL AREA 113 (7 trips)

| | | |
|--|---|---------------|
| Total chinook weight for 152 landed fish | - | 2,744.76 lbs. |
| Average weight | - | 18.06 lbs. |

| | | |
|---|---|---------------|
| Total coho weighted for 544 landed fish | - | 3,770.77 lbs. |
| Average weight | - | 6.81 lbs. |

Shaker to legal chinook incidence (50 shakers) 0.33

COMBINED TOTALS FOR STATISTICAL AREA 154 (1 trip)

| | | |
|---|---|---------------|
| Total chinook weight for 68 landed fish | - | 1,394.00 lbs. |
| Average weight | - | 20.54 lbs. |

Shaker to legal chinook incidence (10 shakers) 0.15

| | | |
|---------------------------------------|---|---------------|
| Total coho weight for 460 landed fish | - | 3,390.20 lbs. |
| Average weight | - | 7.37 lbs. |

COMBINED TOTALS FOR STATISTICAL AREA 104 (1 trip)

| | | |
|----------------------------|---|---------------|
| Weight for 101 landed fish | - | 1,375.75 lbs. |
| Average weight | - | 13.75 lbs. |

Shaker to legal chinook incidence (32 shakers) 0.32

COMBINED TOTALS FOR STATISTICAL AREA 116-25 (1 trip)

| | | |
|---|---|-------------|
| Total chinook weight for 16 landed fish | - | 238.40 lbs. |
| Average weight | - | 14.90 lbs. |

Shaker to legal chinook incidence (8 shakers) 0.50

COMBINED TOTALS FOR STATISTICAL AREA 181-25 (1 trip)

| | | |
|--|---|---------------|
| Total coho weight for 112 landed fish | - | 851.00 lbs. |
| Average weight | - | 7.60 lbs. |
| Total chinook weight for 163 landed fish | - | 2,828.00 lbs. |
| Average weight | - | 17.60 lbs. |
| Shaker to legal chinook incidence (10 shakers) | | 0.12 |

COMBINED TOTALS FOR STATISTICAL AREA 181-05 (2 trips)

| | | |
|--|---|---------------|
| Total chinook weight for 105 landed fish | - | 1,503.90 lbs. |
| Average weight | - | 14.32 lbs. |
| Total coho weight for 29 landed fish | - | 209.79 lbs. |
| Average weight | - | 7.23 lbs. |
| Shaker to legal chinook incidence (17 shakers) | | 0.16 |

North Pacific Fishery Management Council

Clement V. Tillion, Chairman
Jim H. Branson, Executive Director

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MEMORANDUM

DATE: October 23, 1978

TO: Council Members, Scientific and Statistical Committee
and Advisory Panel

FROM: *Mark Hutton*
Jim H. Branson, Executive Director

SUBJECT: 1978 Clam Research in the Eastern Bering Sea

On Tuesday, October 17, 1978, Mark Hutton attended a meeting in Seattle to; (1) discuss the joint Industry/Government venture on surf clams in the Southeast Bering Sea and (2) discuss preliminary results of the Council's environmental impact studies. The following are summary statements of the two meetings.

1. Steve Hughes, in his accustomed efficient manner, presented in three hours, the preliminary results of the joint Industry/Government venture on surf clams in the southeast Bering Sea for 1978. The agenda (Appendix A) was closely followed and indicates the relative importance attached to each segment of the venture. Approximately 35 industry and government people, including all of the major clam industry representatives, were present.
2. The preliminary results of the venture are contained in Appendix B, prepared by Steve Hughes and Dick Nelson of the National Marine Fisheries Service, Northwest and Alaska Fisheries Center in Seattle, October 1978. The report concludes there are real commercial potentials for the surf clam fishery in the southeast Bering Sea. The report, while concluding that a production fishery is feasible, underlines the need for a comprehensive and workable paralytic shellfish poisoning sampling plan and also continued environmental impact study.
3. Regarding a comprehensive plan for monitoring paralytic shellfish poisoning, a subcommittee was designated to draw up the recommendations for the field season, 1979. The North Pacific Council has been named to that subcommittee and as the major management responsibility for clams will lie with the Council, we will assume an active role in all stages of the planning.

4. A report of the environmental studies conducted during the 1978 field season was presented by Tom Kauwling of Tetra Tech. Tetra Tech has Contract 78-10 with the Council which is "A Study to Determine the Effects of Hydraulic Clam Harvesting in the Eastern Bering Sea." Their report generally indicated that; (a) there were not significant numbers of benthic organisms present in the area of the clam harvest, (b) sediment changes due to clam harvesting were minimal, (c) there were apparent reductions in numbers and species directly after harvesting, (d) target clams uncovered and unharvested were generally healthy and all had reburrowed in the experimental sediment within 30 minutes, and (e) the actual benthic sampling was very difficult due to high plankton blooms and poor visibility, very high tide currents and rough seas.
5. Among those industry representatives present, it appeared that a small commercial fishery is being planned for the 1979 field season. A successful fishery naturally presumes an adequate PSP sampling program and in the opinion of some, a negative declaration of environmental impacts.
6. On the afternoon of October 17th, a smaller meeting was held with Tetra Tech and with members of the Council's Advisory Panel (Don Rawlinson and Ray Lewis), SSC (Bevan later that afternoon) and scientists from the Department of Fish and Game (Guy Thornberg) and the Northwest Fisheries Center (Hughes, Greenwood and Alverson). Video tapes of the harvested area, some preliminary results and some raw data sheets were presented. In general, the failure of Tetra Tech to have confidence in their "in-track post harvesting samples" was of some concern. The degree of confidence placed on a sample coming from within the dredge track appeared related to the circumstantial evidence of video tapes and the actual faunal count of the benthic grab itself. The video tapes we saw and the data sheets we worked with indicated there were some samples that had a high probability of coming from within a dredge track.
7. All those present felt that the sampling program conducted by Tetra Tech was as good as could be hoped for. Their research in detail is to be presented to the Scientific and Statistical Committee at their meeting in Seattle on October 25th, 26th and 27th. At that time it is expected that the scientific value of their data will be evaluated as to its usefulness to the Council and in terms of fulfilling the contract.
8. Regarding the financial summary of the projects, a \$40,000 1978 project balance is expected. This includes a contribution by the North Pacific Council of \$20,000 as a part of the part of the entire \$258,978 projected budget. It does not include our \$107,000 contract with Tetra Tech. The surplus \$40,000 was proposed used for the comprehensive paralytic shellfish poisoning plan for 1979.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

SUPPORT BUILDING
JUNEAU 99801

JAY S. HAMMOND, GOVERNOR

AGENDA ITEM 1 of NOV 1978

October 24, 1978

Mr. Mark Hutton
North Pacific Fisheries Management Council
P.O. Box 3136 DT
Anchorage, Alaska 99510

Dear Mark:

In lieu of an interim report for contract 78-8, "Graphical and Printed Summaries of Troll Salmon Fishery Data from the Alaska Trollers Association 1977 Troll Logbook Program," this letter is to apprise you of our progress on the project, and to request your agreement to a number of minor technical alterations to Article I, Section C: Statement of Work, tasks 1 through 5.

After months of frustrating delays, the project is well underway, and I expect the deliverables to be completed no later than January 31, 1979. Printing may take up to 6 weeks longer, but I can see no problem in meeting the March 17 deadline. We have hired Fritz Funk, a quantitative fisheries scientist with extensive experience in statistical analysis, computer programming and graphics, and he has completed a project systems design and a preliminary data review. In detail, the following has been accomplished:

1. The 1977 troll logbook data file, entered and edited under the direction of Ray Hadley of the University of Alaska Sea Grant Program, was obtained and subjected to some additional editing procedures. The few minor inconsistencies and errors which surfaced have been corrected.
2. Software to digitize an outline of the Southeast Alaska coastline is complete. The Extended Jurisdiction Section Tektronix plotter will be used for the digitizing, which should be completed in a few days. The digitized map is required for map plots to be produced in tasks 1 and 3 (see Article I. C, p. 3 of the contract).
3. The data has been reviewed to determine the geographic, temporal and numeric range of catch and effort. Several programs and program packages were used. This information was needed to determine appropriate troll summary areas, and to examine the feasibility of proposed summary statistics.

October 24, 1978

4. Ten preliminary report formats have been drafted for the printed reports required in tasks 2 and 5.

Final preparations include the installation and testing of utility polygonal geographic data processing subroutines. Writing of the report generation and plotting programs should begin next month.

Study and preliminary analysis of the data suggests a number of minor modifications to the tasks listed in Article I. C, p. 3. They are:

Task 1: Map plots of effort by week would be far too sparse to be meaningful. Summary time periods must depend to some extent on commercial fishing regulations (e.g. time-area closures) to be meaningful. We propose altering Task 1 to read:

"The contractor will produce plots of trolling effort, superimposed on a map of Southeast Alaska (map plots), by appropriate time period..." (change underlined).

Effort levels, broken down by area and week, will be displayed with the CPUE plots of Task 4.

Task 2: For reasons outlined above, and in the interest of producing a readable series of summaries, we propose eliminating bi-weekly and monthly reports from this task. They would add little, if any, information. Comment listings (sub-task j) will be extensively edited since many are meaningless when taken out of context.

Task 4: Troll catches of sockeye and chum salmon are very small. Catch per troll-hour plots would not be practical for these species. CPUE plots should be done only for large chinook, medium chinook, undersized chinook (shakers), coho and pink salmon. We propose to augment task 4 including plots of surface seawater temperature and average wind speed, if practical.

A new task is proposed:

Task 6: In cooperation with Dr. Bruce Wing, National Marine Fisheries Service, Auke Bay Laboratory, produce graphical displays of the relative importance of the various salmon feed species, by troll summary area and appropriate summary period.

The text of the final report will of necessity be relatively brief, and most of the printed reports and plots probably should appear as appendices.

Mark Hutton

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I believe these modifications will improve the quality of the final report. However, we haven't poured the concrete yet, so don't hesitate to let me know if you don't agree.

Sincerely,



Ivan Frohne, Senior Biometrician
Division of Commercial Fisheries