

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Clarence G. Pautzke  
Executive Director

DATE: November 27, 1996

SUBJECT: Observer Program

ESTIMATED TIME

1/2 HOUR

**ACTION REQUIRED**

Receive status report on modified pay-as-you-go observer program and related issues.

**BACKGROUND**

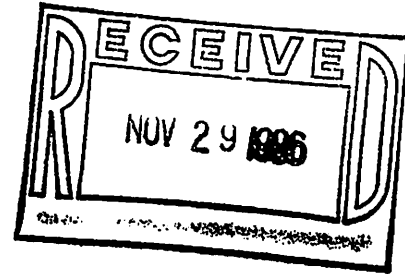
Last April the Council withheld final action on the proposed modified pay-as-you-go observer program until costs could be estimated better. The Council rolled over the existing program through the end of 1997, or until replaced by a long-term program. The plan amendments necessary to extend coverage through 1997 were submitted to Secretarial review on June 27, 1996, and were approved on October 4.

At this current meeting, only a status report was scheduled. NMFS has requested that the Council delay substantive discussion and further action until April 1997 to allow them time to resolve several pending issues in developing the modified pay-as-you-go program (C-2(a)). NMFS also anticipates that we will need to consider a regulatory amendment in April to extend the interim program beyond 1997.



AGENDA C-2(a)  
DECEMBER 1996  
**UNITED STATES DEPARTMENT**  
**National Oceanic and Atmospheric**  
*National Marine Fisheries Service*  
*P.O. Box 21668*  
*Juneau, Alaska 99802-1668*

November 22, 1996



Mr. Richard B. Lauber  
Chairman, North Pacific Fishery  
Management Council  
605 W. 4th Avenue  
Anchorage, Alaska 99510-2252

Dear Rick,

At its December 1996 meeting, the North Pacific Fishery Management Council (Council) is scheduled to receive a status report on NMFS's progress toward developing a new North Pacific Groundfish Observer Program (NPGOP) to supersede the North Pacific Fisheries Research Plan, which has been repealed. The intent of this letter is to briefly inform the Council of several initiatives we are pursuing and to suggest that the Council delay further debate and discussion on this agenda item until we are prepared to present a comprehensive approach for the future of the NPGOP.

Currently, we are exploring several options for the procurement of observer services that would reduce the potential for conflicts of interest, provide incentives for quality observers to remain with the program, and improve the connection between observers and NMFS. These options likely would increase costs. These costs will need to be balanced against the expectations for observer data supporting management, science, and compliance activities.

We are pursuing NMFS baseline funding for the NPGOP as well as additional staff resources. Currently, Federal funding of this program is contingent totally on pass through funding from several sources. This approach is not acceptable for a program that is so fundamental to the management of the North Pacific fishery resources. To be fully functional, the NPGOP must be provided with additional full time employee positions to address requirements for field monitoring of observer performance and industry/observer interactions, as well as to backfill staffing needs of the Observer Program Office.

We have initiated a review of observer data collection methods and associated catch estimation procedures. Ongoing review of these methods and procedures is necessary to assure that the program continues to meet expectations of scientists, managers, and the industry.



Notwithstanding other work priorities that are anticipated under the new Magnuson-Stevens Act, we anticipate staff will be prepared to present a proposal for the NPGOP at the Council's April 1997 meeting. At that time, the Council also will need to consider a regulatory amendment to extend the effective period of the interim observer program beyond 1997.

Sincerely,



Steven Pennoyer  
Administrator, Alaska Region

October 16, 1996

MEMORANDUM FOR: F/AK - Steven Pennoyer

FROM: WC3 - Robert J. Henderson

SUBJECT: Applicability of the Service Contract Act to Fisheries Observers

Your memorandum of October 2, 1996 requests information concerning application of the McNamara-O'Hara Service Contract Act (SCA) to fisheries observers procurements. The North Pacific Fishery Management Council apparently believes that an agency has a choice whether or not to apply the SCA to a particular procurement or class of procurements, and that we chose to apply it to the North Pacific groundfish observer procurement.

The SCA, and its implementing language in Subpart 22.10 of the Federal Acquisition Regulation, statutorily requires that service contracts over \$2,500, performed in the United States, are subject to the SCA. The application of the SCA is not a matter for decision or choice, but a mandatory requirement.

We did question the Department of Labor regarding SCA geographical coverage of the North Pacific groundfish observer services, requesting they determine whether or not the services were performed in the "United States", based on the SCA definition of "United States." As you note in your memo, the Department of Labor's response was that the SCA would be applicable to those portions of the work performed within the 12 nautical mile zone, but would not apply to services offshore of that zone. Our determination to then apply the SCA minimum wage rates to the entire procurement was a decision to simplify the process; we could not have made the opposite determination - that the SCA would not apply to any of the services - because that would not conform to the statutory requirement to apply the SCA to the inshore portions of the work.

You have also requested a listing of all government procurements for observers, nationwide, and whether or not the SCA has been applied. I have obtained the requested information for the

Department of Commerce, but there is no nationwide database available to provide this information for other Federal agencies.

The Service Contract Act and Department of Labor Wage Rate Determinations have been included in the following Department of Commerce contracts:

CONTRACT NUMBER	DESCRIPTION	CONTRACTING OFFICE
50EANF200038	NE otter trawl, coastal trawl, gillnet and beam trawl observers	Eastern Administrative Support Center (EASC)
50WCNF606016	Miscellaneous scientific support services for SEFSC; includes observers for 2 marine mammal surveys	Central Administrative Support Center (CASC)
50ABNF900006	Foreign Fisheries Observers	Western Administrative Support Center (WASC)
50ABNF000036	Gillnet Observers	WASC
50ABNF100008	Foreign Fisheries Observers	WASC
50ABNF100047	PWS Gillnet Observers	WASC
50ABNF100073	Driftnet Fisheries Observers	WASC
50ABNF300063	NP Domestic & Foreign Research Vessel Observers	WASC

Additionally, two offices are working on new procurements for observer services. EASC is in the process of planning for re-solicitation of their NE otter trawl, coastal trawl, gillnet and beam trawl observer contract, and have requested a DOL wage rate determination for those services. WASC has requested a DOL wage rate determination for the North Pacific groundfish observers requirement.

The Service Contract Act and Department of Labor Wage Rate Determination was not included in Contract No. 50ABNF600106 for the NMFS Southwest Region's drift gillnet observer program. This contract was negotiated and awarded on an urgent basis, without sufficient time allowed to obtain a Wage Rate Determination. The follow-on competitive solicitation for these services will include the Service Contract Act and a Department of Labor Wage Rate Determination.

I hope I have provided the information you need in order to satisfactorily respond to the Council's questions. While the SCA

might raise the cost of obtaining observer services, we have no choice but to incorporate the SCA and the DOL wage rate determination in our contracts. If it would be helpful, either Heide Sickles or I would be willing to arrange a meeting between the Council and local Department of Labor representatives.

If the Council wishes to pursue this matter more formally, they may request a hearing by the Administrator, Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC, 20210.

cc: F/AKC2 - W. Karp

ARNI THOMSON  
C-2 obs.

17 October, 1996

TO: Distribution

FROM:

Westward Region Shellfish Staff:

Pete Probasco, Regional Supervisor

Doug Pengilly, Regional Shellfish Research Coordinator

Al Spalinger, Regional Shellfish Management Coordinator

Donn Tracy, Bering Sea/Aleutian Islands Shellfish Research Biologist

MONTHLY SALARY COSTS  
Pages 14 + 15

RE: Proposal for a State-funded Observer Program

(Note: See Appendix 1A, Direct Costs Observers - By Fishery )  
Page 29

Enclosed is a draft proposal to develop a State-funded Crab Fishery Observer Program. Although many details and issues related to this proposal still need to be more fully developed and resolved, the concept outlined in this proposal is the approach that ADF&G will take to the Alaska Board of Fisheries (BOF) when it reviews observer coverage in the Aleutians brown king crab, Bering Sea Korean hair crab, and tanneri/couesi fisheries during their October 26-28 Work Session. We believe that this approach addresses the concerns and needs of the BOF, the Bering Sea/Aleutian Islands crab industry, and ADF&G. We request your consideration of the approach outlined in this proposal and welcome your comments.

**Distribution (17 October):**

Board of Fish and Advisory Committees: Laird Jones (BOF), Dutch Harbor Advisory Committee, Homer Advisory Committee, Kodiak Advisory Committee, Pacific Northwest Crab Industry Advisory Committee

Crab Industry Representatives: Alaska Crab Coalition, Alaska Fisheries Conservation Group, Kodiak Vessel Owner's Association, United Fishermen's Marketing Association

Observer contractors: Alaskan Observers, Data Contractors, Frank Orth and Associates, NWO Inc, Saltwater Inc.

University of Alaska Observer Training Center: Paula Cullenburg

Vessel owners or operators: Paul Duffy, Steve Hall, Jerry Nelson, Alan Oakly, Dick Powell, Brian Walker

**cc:** Robert Clasby, Paul Larson, Doug Eggers, Gordon Kruse, Earl Krygier, Ken Griffin, Rance Morrison, Mike Ward, George Pappas, Larry Boyle, John Hilsinger, Scott Marshall, Tom Kron

1.

# Proposal for State-Funded Crab Observer Program in the Westward Region

## I. Summary

We present an outline plan for a State-funded State Crab Fishery Observer Program in the Westward Region's Bering Sea/Aleutian Islands and deep-water crab fisheries. The ultimate goal is to develop a program through which ADF&G can flexibly deploy observers at needed levels in each of those fisheries and thereby maintain and increase the role of at-sea observers in the management and research of Westward Region crab fisheries.

At-sea observers on crab fishing vessels have become essential to ADF&G as a primary means for gathering the data that is used for research, in-season management, and development of management measures, as well as for enforcement of regulations. The Alaska Board of Fisheries (BOF) is reconsidering existing regulations that either require or allow for 100% observer coverage for all fishing vessels participating in certain Westward Region fisheries. One approach that the BOF is now considering is to have partial observer coverage levels for those fisheries stipulated in regulation.

Consideration of partial observer coverage by the BOF reflects the BOF's concern with the costs incurred by vessel operators that carry observers, not a judgment on the utility of observer data. It is unlikely that partial observer coverage levels determined by the BOF as a response to the financial costs to vessel operators would result in coverage levels that are appropriate to ADF&G's present or future data gathering needs. The partial observer coverage scenario for catcher vessels presently being considered by the BOF is neither logistically feasible nor adequate for data gathering needs.

Given the essential nature of at-sea observers to crab fishery management and research, ADF&G should have the flexibility to deploy observers to vessels participating in any of the Westward Region's crab fisheries to levels that are appropriate to meet the changing needs for shellfish resource management and research. The best approach for ADF&G to acquire such flexibility from the BOF is to nullify the issue of costs to vessel operators. That issue can only be negated by developing and implementing a plan for the State of Alaska to assume the costs of observer deployment.

We propose that the State Crab Fishery Observer Program be funded through a cost-recovery fishing program targeting king and Tanner stocks in the Bering Sea/Aleutian Islands. We believe that cost-recovery fishing provides the most feasible means for generating funds and is a more equitable way to distribute costs across the Industry than a landing tax or other "user fee". We also propose that a special State Crab Fishery Observer Program Fund, similar to the



Fish and Game Fund, be established for depositing the cost-recovery receipts to assure that those receipts are used only to fund deployment of Westward crab fishery observers and to allow for carry-over of funds across State fiscal years.

Coincident with the development of a State Crab Fishery Observer Program, we believe that the possibility of permanent seasonal ADF&G employees serving as observers in that program should be thoroughly considered as an alternative to obtaining observers through contractors. ADF&G is currently investigating a "Prime Contractor" system for supplying observers as was suggested by the BOF at their March 1996 meeting. In this proposal, however, we address only the issues related to use of State-employed observers and our outline for implementing a State Crab Fishery Observer Program includes plans for development and use of a corps of State-employed observers.

Total estimated annual costs to the State for employment of observers, travel for observers, new administrative personnel, and other minor operating expenses is roughly \$1.7 million. Using \$0.3 million as a very generous estimate of cost-recovery fishing overhead (largely vessel charter costs), total annual budget for the State Crab Fishery Observer Program is estimated at \$2 million.

## II. Introduction:

At-sea observers are presently required by regulation on all vessels processing king or Tanner crab at-sea throughout Alaska (5 AAC 39.645 (d)) and on all vessels participating in brown king crab in the Aleutians Management Area (5 AAC 39.645 (a)). At-sea observers are also presently required as a special permit condition for all vessels participating in the Westward Region's Korean hair crab and for those vessels targeting C. tanneri, C. angulatus, (5 AAC 35.082 (d) (5)) Lithodes couesi (5 AAC 34.082 (d) (5)) in the Westward Region.

General provisions for onboard observers in fisheries managed by the State of Alaska were adopted by the Alaska Board of Fisheries (BOF) in 5 AAC 39.141:

"The Board of Fisheries finds that, in particular fisheries, observers on board fishing vessels would greatly enhance management, primarily by facilitating information gathering, and by improving regulatory compliance. Onboard observers may be the only practical fishery monitoring, data-gathering, or enforcement mechanism in some Alaska fisheries where a large component of vessels, such as catcher/processors and floating processors, rarely or never enter Alaskan ports. The Board of Fisheries, therefore, finds it necessary to authorize the Alaska Department of Fish and Game to implement onboard observer programs in particular fisheries when the Board determines that it

- (1) is the only practical data-gathering or enforcement mechanism;
- (2) will not unduly disrupt the fishery; and
- (3) can be conducted at a reasonable cost."

The first provision has held in all fisheries for which observers have been required. There has been no indication of the second provision ever being violated. Operators of catcher-vessels carrying observers have recently argued, with some sympathy from the BOF, that the third provision has been violated.

INDUSTRY / ACC. PROPOSAL:

Under a motion adopted by the BOF in March 1996, 100% present observer coverage on catcher-vessels in the Aleutians brown king crab, Area J Chionoecetes tanneri, Westward Lithodes couesi, and Bering Sea Korean hair crab fisheries would be reduced to partial observer coverage effective January 1, 1997 unless ADF&G provides justification for continued 100% coverage by October 28, 1996. The adopted motion proposes that observer coverage will change to a "statistical data gathering tool" in which "statistical sampling would be set up on a fishery by fishery basis and the percent of coverage would be fleet-based." Additionally, the "basic unit of the sample would be the 'normal length of a fishing trip' and observers would rotate from vessel to vessel between trips." Furthermore, "observer coverage would be based on vessel size:

PROPOSAL  
TO REDUCE  
COVERAGE  
& COSTS  
- NOT  
TO INCREASE

0 to 60 feet LOA	10%
60 to 125 feet LOA	20%
More than 125 feet LOA	30%."

Finally, the motion proposes that observer payment be made by vessels through an "Observer Fund Pool" and that observers be supplied by a "prime contractor", which would be identified for each fishery.

It should be noted that **the adopted motion is not a regulation and that regulations cannot be passed at the October 1996 BOF Work Session**. In this regard, the 100% observer coverage in the Aleutians brown king crab fishery is based on a regulation; hence, observer coverage in that fishery can be reduced only by regulation. Nonetheless, the BOF can strongly direct ADF&G to adopt partial observer coverage in the remaining fisheries under consideration and can accept an Agenda Change Request to consider proposals to adopt partial observer coverage regulations for the Aleutians brown king crab fishery at the March 1997 BOF meeting.

Rather than working with the BOF to develop regulatory restrictions on the deployment of observers on fishing vessels. ADF&G should work with the BOF

on ways to unobtrusively obtain flexibility for deploying observers on fishing vessels in all Westward Region crab fisheries. Observer deployments in fisheries exploiting unsurveyed or poorly surveyed stocks and in all new and emerging fisheries are the only means available to ADF&G for acquiring accurate information on effort and catch distribution, fishery performance, bycatch, and relevant life history parameters of the target species. Observer deployments also provide the BOF with information needed to develop and adopt regulations on area closures, fishing seasons, gear restrictions, and harvest strategies. At a time when the capabilities to utilize observer data have been increasing and when the need for increased observer coverage is indicated in some fisheries ( e.g., the St. Matthew and Pribilofs king crab fisheries; Boyle et al. 1996. Alaska Department of Fish and Game Summary of the 1995 Mandatory Observer Program Database. RIR No. 4K96-47, ADF&G, Kodiak AK), regulations stipulating maximum percentage coverage in fisheries would be a step backward. Given that observers on fishing vessels have become a primary source of information for ADF&G's management of crab fisheries, the methods that ADF&G uses to gather such information should not be determined through and unduly constrained by regulatory procedures.

At this time ADF&G cannot ascertain what observer coverage levels would provide the optimal balance between data-gathering needs and the costs to vessel operators. Moreover, given the differences among fisheries, the changing nature of fisheries, and development of new fishery issues, observer coverage levels that are optimal for all fisheries and for any fishery in both the present and the future could never be determined. It is unlikely that the BOF, in a process in which costs to vessel operators must be considered, could determine coverage levels that are "optimal" relative to data gathering needs for all fisheries. The most recent example of this type of pitfall is the preliminary determination of percent coverage discussed by the BOF in March, which has no basis in data gathering needs or statistical sampling.

To maintain and increase the role of at-sea observers in the Westward Region Shellfish management and research programs, ADF&G must acquire an allowance from the BOF to deploy observers on crab-fishing vessels in the Westward Region to whatever level is determined by ADF&G to be necessary or sufficient for data gathering or regulatory enforcement. ADF&G recognizes that a regulation allowing such flexibility in observer coverage in the Region's crab fisheries could only be obtained through development of a State-funded observer program. Towards the goal of gaining greater flexibility and control over deployment of observers in the Bering Sea/Aleutians and Westward deep-water crab fisheries, ADF&G is proposing establishment of a State-funded Crab Fishery Observer Program.

In this document we outline a draft plan for development of a State-funded Crab Fishery Observer Program. Key elements of the plan are:

BASIS  
In Data  
Gathering  
15  
NPFMC

2  
3

1. Development of a program for generating funds to cover expenses for observer pay, observer travel, and associated operating expenses. Although other approaches can be explored, we propose that funds be generated through a cost-recovery fishing program targeting king and Tanner crab stocks in the Bering Sea/Aleutian Islands.
2. Establishment of a special fund for depositing the cost-recovery receipts and from which observer pay, observer travel, and other operating expenses are drawn.

Additionally, were the State to establish and fund a State Crab Fishery Observer Program, it is logical to also consider the use of State (ADF&G) employees as observers in the program as a means to more fully integrate the observers into ADF&G's shellfish research and management program. State-employed observers are not a critical element of the plan and other approaches for hiring and supplying observers to the program, for example a "Prime Contractor" system, exist. The plan presented in this document evaluates the advantages and issues associated with State-employed observers and provides a budget estimate based on the use of State-employed observers.

NOTE: Sections III through V review the background and considerations of the issue that will be addressed by the BOF in October 26-28 1996:

- the value of the observer coverage in Westward Region crab fisheries (III)
- considerations on partial observer coverage and the problems that regulatory partial observer coverage can create (IV)
- how a State-funded program is a solution to the present controversies on observer coverage (V)

Sections VI through XII outline a draft plan for developing and implementing a State Observer Program:

- why a State-funded observer program might use State-employees for observers (VI).
- issues to resolve in the development of a State-employed Observer corps (VII)
- a draft budget for annual operating expenses and startup of the observer program (VIII)
- a proposal to fund a State Crab Fishery Observer Program through cost-recovery fishing (IX)
- a proposal to establish a special fund for cost recovery receipts (X)
- a draft timetable for establishment and implementation of a State Observer Program (XI)

### III. Value of Observer Program

#### Use of data gathered by observers in development of management measures, in-season management, and research

Data collected by observers stationed on fishing vessels provides information that could not otherwise be obtained, including information on the geographic and temporal distribution of fishery effort, on levels and distribution of directed catch and bycatch, on the biological characteristics (e.g., size, sex, and reproductive condition) of discarded bycatch, on fishing methods (e.g., soak times and escape mechanism employed), and on the effects of fishing methods in reducing bycatch. Such data has been relied upon heavily by the BOF to inform development of regulations for Westward Region crab fisheries ever since the BOF developed new seasons, area closures, and gear restrictions for the Bering Sea Tanner crab (C. bairdi and C. opilio) during their February 1993 meeting. Those new regulations were based upon data collected by observers deployed on catcher/processors that revealed the distribution and magnitude of red king crab bycatch that occurred during the C. bairdi fishery within Bristol Bay. Since that time, virtually every consideration by the BOF of regulations pertaining to area closures, season openings, size limits, gear restrictions, and gear conflicts has been directly informed by presentations of observer data (Table 1).

ADF&G also relies heavily on observer data in development of management plans, implementation of management measures, and research. Observer data has been used as input for fishery models. For example, observer bycatch data informed the models used to develop the current Bristol Bay red king crab harvest strategy and will be relied upon in an upcoming NOAA-funded study to estimate handling mortality in historical commercial crab fisheries. Data from pots sampled by observers also provide ancillary information on the condition of stocks that are either poorly surveyed or not surveyed at all. Additionally, formal analytic models ("catch-length models") for use of observer data in stock assessment of unsurveyed or poorly surveyed stocks are being developed. Scheduled radio reports by observers provide fishery managers with timely reports from fishery grounds on effort and catch. Those effort and catch reports need not be limited to reports on directed catch; for example, reports by observers during the Korean hair crab fishery also provide king crab bycatch rates. Observer data provides important information on the geographic and temporal distribution of catch and effort that cannot be recovered from fish ticket data. A notable example here is the use of observer data during legislative hearings on the Bering Sea Korean hair crab fishery vessel moratorium to assess effort, catch, and bycatch within and outside of 5 nm from the Pribilof Islands. Observers on fishing vessels have also provided ADF&G the opportunity for collection of important biological research data during the fishery. Examples here include testing of various escape mechanisms, collection of

morphometric data to estimate size-at-maturity, collection of baseline morphometric data for consideration of gear development, collection of specimens for study of reproductive biology, collection of data for genetic stock identification, and collection of data for assessment of reproductive seasonality. Observer data on catch and effort have been an important source of information for design of ADF&G pot surveys in Bristol Bay and St. Matthew Island; the design of next year's king crab pot survey in the Aleutians will likewise be informed by observer data.

In summary, the presence of observers on board fishing vessels in the Westward Region's crab fisheries has become a management and research tool that complements, and is at least as important as, programs for stock assessment surveys, dockside sampling, and compilation of fish ticket data. The quality of observer data collection and reporting has increased steadily over the last eight years. Data collected by observers on board fishing vessels provide a wealth of information on crab fisheries and stock biology that is still not fully exploited. Addition of new staff and computing facilities in the Westward Region directed towards observer data entry, analysis, and presentation have greatly increased the accessibility of observer data, decreased the turn-around time from collection to reporting, and increased the level of analysis. Recent analyses (Boyle et al. 1996) show that the CPUE estimates based on observer data from crab fisheries are highly accurate. Overall, the State of Alaska's program for onboard observers in shellfish fisheries greatly exceeds the Federal government's groundfish fishery observer program in the level of reporting, documenting of procedures, assessment of statistical accuracy, and accessibility of data.

#### Use of observers in enforcement of fishery regulations

The need for and role of observers in enforcing regulations on sex and minimum size restrictions on catcher-processors and at-sea floating-processor vessels participating in the State's king and Tanner crab fisheries was documented to the BOF at their 1988 through 1991 meetings. However, it should be noted here that even though observer coverage in the BSAI fisheries has provided a valuable enforcement monitoring tool to ADF&G since 1988, **the current and future value of maintaining a flexible observer coverage plan lies more in the utility of observers as a means to gather research and management data.**

Observer presence on board fishing or processing vessels at-sea has provided regulatory enforcement monitoring relative to:

- fishing in closed waters
- gear definition/restriction compliance
- pre-empting fishing grounds; removing gear following closures

- vessels transporting catch/product across registration areas
- vessels transporting catch/product out of state waters
- gear storage compliance
- tank inspection/vessel registration.

#### **IV. Considerations for Partial Observer Coverage**

In Section II (Introduction) a summary was provided of the partial observer coverage scheme that will be considered by the BOF in October 1996. There are problems with interpretation of that scheme, but under any interpretation, this plan is not logistically feasible to implement and would be inadequate for either data gathering or regulatory enforcement monitoring. Unfortunately, it is also a reflection on any attempt to establish a data-gathering sampling design through a regulatory process that must balance costs to vessel owners against the need for information.

The feasibility of implementation and the effectiveness of any partial observer coverage scheme depends on the characteristics of the fishery and on the goals of the observer coverage. Fishery characteristics that are important to consider include:

- the duration of the fishery season;
- the geographic distribution of effort and catch;
- the number of participating vessels;
- the level of fishery effort;
- the number of fishing trips per vessel;
- the duration of fishing trips;
- the variability of fishing practices between vessels;
- the variability of fishing practices for a single vessel over time; and
- the level of knowledge on the fishery, the stock biology, and the stock distribution.

Goals of observer coverage that are important to consider can include:

- regulation and emergency order enforcement monitoring;
- gathering catch and effort data for inseason management;
- tracking bycatch or other conservation concerns;
- gathering data on geographic and temporal distribution of effort and catch for better understanding the fishery dynamics and evaluating stock assessment programs;
- gathering biological data from directed catch and bycatch for stock assessment and research on stock biology; and
- gathering data on fishery practices such as soak times used, gear configurations, and depths fished.

Given all those factors that determine the feasibility and effectiveness of partial observer coverage, it is clear that a "one-size-fits-all" partial observer coverage approach that is applied to all fisheries – or, to any one fishery for all seasons -- would seriously compromise the intent of observer coverage.

Reviewed below are some issues relative to the feasibility of implementation and the effectiveness of the partial observer coverage scheme considered by the BOF for the Aleutians brown king crab, Area J Chionoecetes tanneri/Westward Lithodes couesi, and Bering Sea Korean hair crab fisheries.

1) Problems in feasibility of implementation :

In the scheme for observer coverage being considered by the BOF, the "basic unit of the sample would be 'the normal' length of a fishing trip' and observers would rotate from vessel to vessel." We address the logistical feasibility of ADF&G implementing that scheme in the Korean hair crab fishery. Although "normal trip length" in the fishery can be characterized as roughly 7 and 8 days for the 1994 and 1995 seasons respectively, trip lengths vary widely among trips within seasons (Table 2). Likewise, while the "normal" number of trips per vessel can be characterized as roughly 5 and 4 for the 1994 and 1995 seasons respectively, there is a wide range in the number of trips per vessel within each season (Table 3). Since delivery and departure dates are not coordinated within the fleet, ADF&G would not be able to coordinate rotation of observers from vessel to vessel. Note also that there are no facilities for bunking observers in St. Paul, where the majority of deliveries occur. Hence, if an observer has no vessel awaiting to be rotated to in St. Paul (a very likely event), that observer has no place to go. Also, the already significant problems for rotating observers among vessels in the Korean hair crab fishery would be further compounded by differential coverage levels by vessel size classes.

In the longer Aleutians brown crab and the Area J C. tanneri fisheries the partial observer coverage scheme under consideration suggests that "the number of observed vessels could be adjusted every 30 days, depending on the number of vessels participating in the fishery." A targeted coverage level of 30% (or 20% or 10%, depending on vessel size) per month poses problems in implementation in months when only one or two vessels are participating. In those cases, observer coverage can only be at 0%, 50% or 100%. Over the four Area J C. tanneri fisheries, less than 3 vessels participated per fishery in the majority of months during the 1995 season. If observers are to be deployed in each month that vessels participate in a season for each of these fisheries, observer coverage levels of 100% or 50% will have to be accepted. Still, it is entirely possible that none of the vessels participating during a month will carry observers; that would occur when the only vessels participating in a month are those that continued to fish from the preceding month and were not carrying observers in the preceding month.



10-3020

In summary, given wide ranges in trip lengths, number of trips per vessel, and the right of vessel operators to enter and exit the season at will or as needed during the season. ADF&G could not effectively orchestrate observer coverage to the targeted levels currently being considered by the BOF; this reality is further complicated by a three tiered (10%, 20%, 30%) partial coverage based on vessel size. ADF&G could effectively rotate observer coverage towards target coverage levels only if ADF&G were to coordinate and determine the trip lengths and delivery times of vessels; that, of course, would be in direct violation of provision (2) of the BOF's General Provisions for Onboard Observers (5 AAC 39.141), which states that observer coverage cannot "unduly disrupt the fishery." Target levels in implementation of the partial coverage scheme under consideration would be only nominal levels, having little relationship with actual levels or with the goals of observer coverage.

2) Effectiveness relative to data gathering:

A recent assessment of observer data collected in 1995 (Boyle et al. 1996) indicates that observer pot sample data provides highly accurate and precise CPUE estimates for the observed fleet when pot sampling effort is sufficient. Additionally, that assessment showed that partial observer coverage in fisheries characterized by shorter seasons and limited grounds also provides adequate estimates for the entire fleet, given a sufficient number of observed vessels. On the other hand, in fisheries that are characterized by long seasons, over vast fishing grounds, and with varying levels of participation, it can be anticipated that partial coverage provides poor information on the catch rates of and areas fished by the entire fleet.

It has already been noted that the percent coverage levels by vessel size class has no basis in the needs for data gathering or statistical sampling design. It was also noted that the three tiered partial coverage scheme complicates an already unfeasible scheme for observer deployment and that observer coverage could only be maintained through the fishery by stipulating minimum coverage per month. An assessment of how well a minimum 30% coverage per month, if it could in fact be implemented, would provide data for assessment of trends and levels of directed and bycatch CPUE is presented below.

Using observer confidential interview data collected in the 1995/96 Dutch Harbor and Adak brown king crab fisheries, the mean and standard deviation of legal CPUE was computed for vessels making deliveries by month for each fishery (Table 4). The standard deviation of legal CPUE provides a measure of how variable legal catch rates were among the vessels participating in a fishery within a single month. Bycatch would also show similar variability among vessels. The standard deviation of legal CPUE can also be used to compute the how much estimates in CPUE can vary solely by random sampling of vessels for

partial observer coverage under a minimum 30% coverage per month. That level of imprecision due to random choice of vessels is indicated by the standard error and coefficient of variation (CV) of estimated mean CPUE (Table 4); the mean CPUE plus or minus two CVs provides a rough range of the values of estimated CPUE that could occur due solely to random sampling of vessels for observer coverage. Note that for computation of CPUE from observer pot samples, the precision so indicated does not include additional random error to random choice of pots to sample.

These data show that minimum 30% coverage by month in the 1995/96 Dutch Harbor and Adak brown king crab fisheries would have been insufficient for adequately characterizing catch rates for the entire fleet. CVs of estimated CPUE are generally in excess of 25%, indicating that CPUE computed from observer pot samples could vary by plus or minus 50% or more of the true CPUE due only to the random choice of vessels to carry observers. Recall that that level of imprecision does not account for additional random error due to choice of pots to sample and that CPUE data for bycatch of sublegals, females, and other species comes only from the observer pot samples. It is clear that any trends through time in legal and bycatch CPUE, as well as distribution of effort, would not be detectable under this scenario for observer coverage.

#### V. State-funded observer program as solution

The BOF adopted the draft motion to implement partial observer in the Aleutian brown king crab, the Bering Sea Korean hair crab, and the C. tanneri/L. couesi fisheries in response to the public testimony on the costs of observer coverage to vessel operators. Vessel operators have cited costs of \$7,000 per month for observer coverage (\$210-\$225 per day plus travel) under the present third party contractor system. Public testimony at the March 1996 BOF meeting by participants and would-be participants in the Aleutians brown king crab and Westward C. tanneri fisheries described the costs of observer coverage in those fisheries as a significant portion of a vessel's gross earnings, possibly to such an extent as to prohibit entry into those fisheries. It was those costs to operators of fishing vessels that led the BOF to reassess regulations stipulating full observer coverage in the Aleutians brown king crab fishery and the use of observer coverage in the special-permit fisheries.

Under the present program structure, the issue of observer costs to vessel operators is not likely to end at the October 1996 BOF work session. Regulations adopted by the BOF that stipulate partial observer coverage levels are not likely to be feasible in implementation, to provide adequate coverage for data-gathering, or to fully resolve the issue of costs to vessel operators. The only effective solution to this problem is a program by which observer coverage is funded by the State in conjunction with agreement from the BOF to provide

ADF&G with flexibility in determining levels of observer coverage in all Bering Sea/Aleutian Islands and Westward deep-water crab fisheries.

## **VI. Potential for ADF&G employees as observers**

The present Mandatory Shellfish Observer Program has evolved from a program that was largely oriented towards assuring regulation compliance into a program that is more oriented towards data-gathering to meet management and research needs. As the role of observers continues to become more fully integrated into the Westward Region Shellfish program, a logical progression would be for the observers themselves to become integrated into the Westward Region Shellfish program as ADF&G employees. Establishment of a State-funded Crab Fishery Observer Program would present the opportunity for considering use of ADF&G employees as observers.

If observers -- like the employees that ADF&G deploys to remote sites for monitoring herring and salmon fisheries -- were permanent seasonal ADF&G employees, ADF&G would have control in their hiring, deployment, and performance evaluation. Thus, ADF&G could assume full control over and responsibility for the program, from data collection through data analysis. Under the status quo, ADF&G can influence, but cannot directly control, the deployment of specific observers on specific vessels in specific fisheries. State employment of observers would also provide ADF&G greater control over the quality of the observer workforce. Under the present third party contract system, when reasonable justification for dismissal of a fully certified observer from the program exists, ADF&G is constrained by a lengthy de-certification process that requires endorsement from the ADF&G Commissioner's Office. In contrast, state employed observers would be subject to probationary employment standards identical to those applied to other ADF&G employees. During the first six months of continuous employment, dismissal of those individuals failing to meet job performance standards would be at the discretion of their supervisor. Additionally, individuals completing this probationary period would still be subject to periodic formal job performance reviews by their supervisor, and instances of substandard performance could be directly addressed through disciplinary action or dismissal.

Since the 1988 inception of the observer program through 1995, only 40% of contract observers have remained active in the program for more than one year after their initial employment (Ward, M. 1996. History of the State of Alaska onboard observer program, 1986-1995. A Report to the Alaska Board of Fisheries. RIR No, 4K96-7, ADF&G, 211 Mission Road, Kodiak, AK). High annual turnover in observers diminishes program continuity, familiarity between the ADF&G Shellfish program and observers, and the opportunities for development of an experienced and professional observer workforce. Offering

observers the salary, health coverage, retirement and benefits coverage (see Section VII), and career opportunities available to permanent seasonal ADF&G employees may be a means to decrease employee turnover to the low level seen in the existing ADF&G permanent seasonal workforce.

State-employment of observers could also address concerns raised by BOF members who charged ADF&G with investigating ways to increase observer salary and benefits, while holding costs constant, and ways to assure that State residents receive priority in hiring for observers.

## VII. Issues to resolve for development of a State Observer Corps

Establishment of "State Observer Corps" would present challenges to ADF&G in planning and administration that must be resolved. The apparent benefits of using ADF&G employees as observers must be weighed against the feasibility of establishing a "State Observer Corps" and the indirect costs of administering and maintaining that corps. If the use of ADF&G employees as observers proves either not feasible or too administratively burdensome, the alternative approach of a "prime contractor system" would need to be developed.

Issues related to development of a "State Observer Corps" that need to be considered and resolved include:

1. Establishment of a job class, pay range, duty station, minimum requirements, and training:

A new "Observer" job class would likely need to be created to meet the personnel needs for permanent seasonal crab observers. The job class should be developed such that the average monthly costs for salary and benefits are approximately \$5.0 to 5.5K (i.e., comparable to the regular time for a Fisheries Biologist I stationed in Dutch Harbor). Details on this job class can be worked out around the targeted monthly pay and would likely involve State and Union job class rating specialists. Below are listed the proposed pay range, duty station, minimum requirements and training programs for discussion:

- a) Pay range 14 (comparable to an FB I) with a Anchorage duty station.

- To control costs the Observers would be exempt from sea-duty pay but would receive 15 hours of overtime per pay period. Exemption from premium sea-duty pay for this job-class seems reasonable since the job involves only sea-duty. A possible alternative to this approach would be to examine various pay ranges and their

Monthly  
SALARY

associated sea-duty pay to come up with the targeted monthly salary and benefits.

- Observers would be on salary from the time that they leave Anchorage for an observer trip to the time that they return to Anchorage. Geographic pay differential between Anchorage and Dutch Harbor duty stations offsets travel costs between Anchorage and Dutch Harbor and per diem costs. Round trip air fare and per diem is estimated at \$1,500.

Hourly pay  
scale:  
\$5000 ÷ 175 Hours  
= \$28.00 Per Hour

- 1 mm salary and benefits for Anchorage pay-scale Range 14, Step A with 15 hours OT per pay period is \$4,784 (\$3,425 for salary, \$427 for health insurance, \$932 for Workers' Comp, PERS, SBS, other). 1 mm salary and benefits for Anchorage pay-scale Range 14, Step E with 15 hours OT per pay period is \$5,429 (\$3,933 for salary, \$427 for health insurance, \$1,069 for Workers' Comp, PERS, SBS, other). Those values are comparable to a FB I stationed in Dutch Harbor.

b) Minimum requirements comparable to existing observers and FB I. Two years previous experience as an ADF&G FT II should be evaluated as a possible substitution for the minimum education requirement.

c) Introductory training will be provided by the U of A Observer Training Center (Sea Grant), supplemented by a "practicum" presented by ADF&G staff in Dutch Harbor, annual Marine Vessel Safety, and First Aid training as necessary for Red Cross certification. We anticipate continuance of the Sea Grant program that funds free observer training at the U of A Observer Training Center. The U of A observer training and practicum would be required prior to all first trips for Observers. The practicum would be used to initiate, orient, and evaluate new Observers just prior to their first trip; it would also provide the opportunity for Observer staff to identify and correct any problems, misunderstandings, etc. Marine Vessel Safety and First Aid could be provided either by staff or contracted out in either Dutch Harbor or Anchorage (or perhaps incorporated into the U of A observer training).

2. Safety and insurance for State observers and liabilities under the Jones Act : The State would need to follow the lead of the Federal Government in the legislation written into the Magnuson Act Reauthorization that established safety standards for vessels carrying observers, coverage of observers by government workers' compensation, and exclusion of observers from vessel/employer liability provisions in the Jones Act.

3. Creation of new PCNs:  
We estimate that the number of positions needed for the State observer "pool" would require creation of 50 new PCNs. That requires legislative action.
4. Increased administrative burden on existing on Regional and Observer Coordinator staff: There will be significant increases in administrative duties for the existing Observer Coordinator staff were they to manage a corps of 50 seasonal Observers, including: hiring for and re-activating PCNs; assigning and tracking duties; writing evaluations; budgeting; and arranging travel. We propose an additional full-time Admin. Clerk III and other increases in the Observer Coordination staff operating budget to help with these new responsibilities.
5. Uncertainty of Observer deployment timing and duration :  
In order to fill and retain employees in observer positions, ADF&G must provide reliable minimum employment and reasonable predictability of employment to observers in the face of uncertainty in the timing, duration, and number of necessary observer deployments through a year. That would involve developing schedules of minimum numbers of observers and periods of employment by month or season, depending on fishery. A rough example of drafting such scheduling is provided in Appendix 1. Requiring pre-registration of vessels with a sufficient lead-time prior to participation could facilitate planning observer deployments. Occasional shortfalls due to unpredictable needs may necessitate the use of non-permanent employees.
6. Housing of Observers in Dutch Harbor between trips:  
Housing for a dozen or more Observers during briefings and debriefings may be required at some times. There are currently no bunkhouse facilities sufficient for such increased demand. The costs and benefits of providing per diem for housing during such periods versus the those for providing and maintaining new bunkhouse facilities in Dutch Harbor need to be evaluated.
7. Interim measures and transition to State-employed observers :  
Were the State to develop a "State Observer Corps" there would be a period of transition from the establishment of that corps to the full use of State-employed observers. It must be assured that observers needed during that transition period can continue to be supplied as present through use of third-party contractors and non-permanent ADF&G-employees.

## VIII. Budget for State observer program with State-employed observers

### Annual operating budget.

We have assumed continuance of the existing General Funds for Observer Coordinator staff and support in Dutch Harbor as well as the existing Observer test-fish budget for conducting practicums. We have assumed 275 mm of observer time for a year for our projection. That compares to 200 mm of observer time in 1995 for the crab fisheries covered in this plan. Salary and benefits are based on Anchorage pay-scale Range 14, Step C at regular pay plus 30 hours of OT per month. Airfare and per diem for 170 round-trips between Anchorage and Dutch Harbor are included and are estimated at \$1,500 per trip. Number of observer man-months and Anchorage-Dutch Harbor round trips are based on the draft schedule provided in Appendix 1.

Total annual salary and benefits for observers is estimated at \$1,398.3K (Table 5). Annual travel for observers are estimated at \$255.0K. In addition to the personnel and travel costs for observers, the new annual operating budget includes salary and benefits for the proposed new Admin Clerk III position in Dutch Harbor, annual safety and first aid training for all Observers, new and replacement sampling gear for Observers, office supplies and computer supplies. We have assumed that observer training provided by the U of A Observer Training Center will continue to be funded by Sea Grant at no charge to ADF&G.

Total annual costs (exclusive of cost-recovery fishing overhead; see Section IX) under this scenario are estimated at \$1,736.8K. The estimated cost of one month of observer coverage under the present third-party contractor system that is commonly cited by vessel operators is \$7K/month. At \$7/K/month, \$1,736.8K would provide roughly 248 months of observer time, indicating the potential for a program utilizing State-funded observers to maintain costs comparable to or less than the present third-party contractor system.

### One-time startup costs to initiate State Observer Program

We estimate for startup costs of \$110.7K (Table 6) that are dominated by Observer data collection supplies, survival suits, and EPIRBs (at \$96.5K total). Remaining costs are for office supplies and travel. Travel is provided as a startup cost for Observer Coordinator staff from Dutch Harbor to Anchorage and Kodiak to facilitate the development of the new program. Were it determined that a bunk-house facility would prove more beneficial in the long-term than paying per diem for observers in Dutch Harbor, then expenses for a bunkhouse would need to be included in the startup costs. Costs for a new bunkhouse would be substantial, perhaps on the order of \$0.5K.

## **IX. Funding of State observer program through cost-recovery fishing**

We believe that it is logistically feasible to fund the observer program through a cost-recovery fishing program targeting Bering Sea/Aleutian Islands king and Tanner crab stocks: the Westward Region has had six years of experience in obtaining roughly one-half million dollars annually through cost-recovery fishing in Bristol Bay under the Bering Sea Test Fish Program. Under this approach the State uses its resources to provide the funds to better manage those resources. The major benefit of this approach is that it avoids some of the potential legal and political problems associated with landing taxes or user fees indexed to landings. Obtaining funds in this way is like a tax on the entire industry in the sense that a portion of the resource is removed from the fleet's potential harvest. The approach could be less "painful" to and more equitable across the fleet than a tax if the portion removed from stocks through cost-recovery fishing were negligible (<2%) relative to the aggregate GHL, were small (<5%) relative to the GHL for any opened fishery, and did not threaten the long term viability of any single stock.

The best general approach here would be to direct the cost-recovery fishing on three to four stocks annually, with choices based on prevailing price and stock conditions. That approach is certainly more logistically feasible than fishing on each stock that supports an observed fishery. Directing fishing on a single stock would require less overhead, but could appear excessive and would likely be opposed by components of the fleet that tend to fish only that stock.

Overhead for cost-recovery fishing will be variable, depending on the per-day cost for vessel charters, the price bid by processors for the cost-recovery crab, the duration of charters, the number of stocks fished, and the distance of the stocks from Dutch Harbor. Vessel charter costs have ranged from \$1,650/day to \$5,950/day and have averaged \$3,477/day for the 10 vessels chartered by the Bering Sea Test Fish Program from 1990 through 1996. Cost-recovery receipts averaging \$536,169 have been achieved in less than 2 weeks – often, less than 10 days – of travel and directed cost-recovery fishing on Bristol Bay red king crab during the Bering Sea Test Fish Program. The State can expect to have some advantage in the price bid for cost-recovery crab by providing deliveries of crabs to processors during periods of low availability. In 1990 through 1993, for example, the price bid for red king crab from the Bering Sea Test Fish Program averaged \$5.14/lb. (ranging from \$3.75/lb. to \$6.57/lb.) as compared to the 1990 through 1993 commercial fishery average of \$4.20/lb. (ranging from \$3.00/lb. to \$5.00/lb.). Additionally, there is the possibility that vessel charter costs may be eventually reduced by use of the planned new Fish and Wildlife Protection vessel.



Given all considerations, \$300K per year for vessel charters and pay for onboard ADF&G would be an extremely generous estimate of the cost-recovery fishing overhead costs. If such overhead costs were added to the budget for Observer deployment and administration, the overall receipts needed to fund the annual Observer Program budget through cost-recovery fishing would be roughly \$2.0 million, a value on the order of 1-2% of the total Bering Sea/Aleutian Islands crab fisheries ex-vessel value (Table 7).

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#### X. Establishment of special Observer Program Fund

Establishment of a special fund, similar to the Fish and Game Fund, for depositing the generated receipts would be an important component of a State Observer Program. Such a fund would allow carry-over of any remaining receipts into the next fiscal year and would identify the programs funds as separate from the Region's operating budget. Carry-over of receipts across fiscal years will assure that program funds are available and exist before substantial expenditures are made, provides predictability and stability to the programs budget, and allows for pursuing a wider range of cost-recovery fishing options. Placing the receipts into a special fund that is separate from the Region's operating budget gives credibility to the intent of the receipts; i.e., the money received through either a landing tax, user fee, or cost-recovery fishing can only be used to fund the State Observer Program. Likewise, the establishment of a special fund would protect the Westward Region against budget cuts that are based on artificial inflation of the Region's operating budget, which could severely impact the Region's remaining programs.

Given its importance to the establishment and implementation of a State Observer Program, the feasibility of the special fund needs careful consideration. Issues that need to be addressed are the legal and political potential for establishing such a fund, the approaches to establishing such a fund, and the State laws that govern the moneys that can be deposited in such funds.

#### XI. Time-table for establishment and implementation of State Observer Program

Below we provide a highly ambitious and optimistic draft time table for implementation of the State Observer Program beginning with the opening of Aleutians brown king crab on September 1, 1998. It is based on the assumption that the program is funded by cost-recovery fishing and use of ADF&G employees as observers. With less ambition and optimism, first deployments would be more likely to begin with the September 1, 1999 Aleutians brown king crab fishery.

Draft "best-case" time table to implementation :

1. Present through the remainder of the 1997 legislative session :
  - a. Gain industry, public, BOF, and legislative input and support for the plan through presentations at the Crab Industry-Agency meeting and the BOF Work Session in October and by other contact with of industry, borough, and legislative representatives.
  - b. Finalize budget for cost-recovery fishing program and develop framework for special Observer Program Fund. Develop provisions for safety, workers' comp, and Jones Act exclusion for observers. These must be developed for consideration by the legislature prior to January of 1997. Included here would also be the creation of 50 new PCNs with salary and benefits comparable to a regular time FB I on Dutch Harbor scale. Ideally these would be presented as part of ADF&G's overall budget package for legislative appropriations.
  - c. Continued presence of ADF&G through legislative process through passage of Observer Program finance package and creation of new PCNs.
3. January 1997 through December 1997:
  - a. Development of the new Observer job class.
  - b. (through July 1997) Planning, bid process for cost-recovery fishing charters
3. August 1997- April 1998: Cost-recovery fishing.
4. January 1998 through August 1998: Recruitment and hiring of 50 new Observers.
5. September 1998: First deployment of State observers beginning in Aleutians brown crab fishery; henceforth, all newly deployed observers would be State employees.

Approach for interim prior to full implementation :

Observer coverage would continue status quo through the third-party contractor system until implementation of the State Observer Program. Specific to the fisheries with 100% observer coverage under consideration by the BOF we foresee the following during the interim:

1. Aleutians brown king crab: Continued 100% coverage, based on need to assess reliability of reduced observer coverage for data collection from an unsurveyed stock with potential for over-exploitation and for monitoring the fishery under new regulations related to merging the Adak and Dutch Harbor Areas.
2. Bering Sea Korean hair crab: Continued 100% observer coverage, based on need to continue to assess bycatch of king crab under the newly legislated vessel moratorium provisions.

3. **Deep Sea Tanner and king crab**: Continued 100% observer coverage on vessels targeting Lithodes couesi or C. angulatus, based on low level on knowledge on those species, on the fisheries, and on the potential for over-exploitation. 100% observer coverage should continue in the C. tanneri fisheries until development of management plans stipulating GHs, size-limits based on an evaluation of bycatch and size-at-maturity data, closed seasons and areas, gear configurations (escape mechanisms), and a reliable log-book program.

Table 1. Bering Sea, Aleutian Islands and Alaska Peninsula commercial shellfish issues addressed by the BOF since 1993 where relevant information derived from at-sea observer deployments was presented to board members by department staff.

BOF Meeting	Fishery	Issue	Referenced observer data
Feb '93	Bering Sea <u>C. bairdi</u>	Red king crab bycatch	observer pot sample data (bycatch from bairdi fishery)
Feb '93	Bristol Bay red king crab	Red king crab bycatch	observer pot sample data (bycatch from the directed fishery)
Feb '93	Bering Sea <u>C. bairdi</u>	Tunnel eye restrictions, closed area	observer pot sample data (Bycatch from bairdi fishery)
Feb '93	Bering Sea <u>C. bairdi</u> , <u>C. opilio</u> , king crab; Bristol Bay red king crab	pot limits	observer pot sample data (bycatch), lost pot statistics
Feb '93	Bering Sea <u>C. bairdi</u> , <u>C. opilio</u>	species identification	observer pot sample data (documentation of hybrid Tanner crab retained in respective fisheries); retention of illegal bairdi in opilio fishery
March '94	Bering Sea Korean hair crab	definition of a hair crab pot	observer pot sample data (bycatch)
March '94	Bering Sea Korean hair crab	size limit	observer pot sample data; catch data
March '94	Bristol Bay red king crab	revised pot escape mesh requirement	observer pot sample data (bycatch)
Feb '95	Adak red king crab	stock status	observer pot sample data (bycatch); catch data

22.

Table 1 (cont'd). Bering Sea, Aleutian Islands and Alaska Peninsula commercial shellfish issues addressed by the BOF since 1993 where relevant information derived from at-sea observer deployments was presented to board members by department staff.

BOF Meeting	Fishery	Issue	Referenced observer data
March '96	Bering Sea <u>C. bairdi</u>	continuance of area closure	observer pot sample data (bycatch)
March '96	Bering Sea <u>C. bairdi</u> , <u>C. opilio</u>	Possible conflicts of proposed gear storage with Pribilofs Korean hair crab fishery	observer pot sample data (pot sample locations from Korean hair crab fishery)
March '96	South Peninsula <u>C. tanneri</u>	Possible conflicts of proposed longlining with sable fish fishery	observer pot sample data (pot sample depths from South Peninsula <u>C. tanneri</u> fishery)
March '96	Kodiak /South Peninsula <u>C. tanneri</u>	pot limits	observer pot sample data (bycatch); lost pot statistics
March '96	Adak/Dutch Harbor king crab	Merging of Adak and Dutch Harbor into single Area	observer pot sample data (catch size distribution, vessel effort distribution)
March '96	Aleutians deep water king and Tanner crab	ADF&G to specify size, type and configuration of commercial pots; plus escape mechanisms	observer pot sample data (bycatch, catch size distribution); documentation of escape mechanisms used voluntarily
March '96	Bristol Bay red king crab	revised stock rebuilding strategy	observer pot sample data (bycatch, catch size distribution)
Oct '96	Bristol Bay red king crab	proposed size limit reduction from 6.5" to 6"	observer pot sample data (spatial association of 6" crabs in areas of current vessel effort)

23.

**Table 2. Summary of data on trip lengths for vessels participating in the Bering Sea Korean hair crab fishery, 1994 and 1995 seasons. Data is from observer confidential interviews with vessel captains. Trip length is measured in days.**

<b>Season</b>	<b>1994</b>	<b>1995</b>
Number of trips	49	76
Mean trip length	6.67	5.86
Median trip length	7	6
Mode of trip lengths	8	6
Minimum trip length	0	1
Maximum trip length	12	12

**Table 3. Summary of data on number of trips per season by vessels participating in the Bering Sea Korean hair crab fishery, 1994 and 1995 seasons. Data is from observer confidential interviews with vessel captains.**

<b>Season</b>	<b>1994</b>	<b>1995</b>
Number of vessels	10	21
Mean number of trips	4.9	3.6
Median number of trips	5	3
Modal number of trips	5	3
Minimum number of trips	3	1
Maximum number of trips	8	6

Table 4. Mean and standard deviation of per-vessel legal crab CPUE for vessels making landings by month in the 1995/96 Dutch Harbor Area and Adak Area brown king crab fisheries (September 1995 through June 1996, only) with standard error and coefficient of variation (CV) for estimating mean per-vessel CPUE by month from a minimum of 30% of the vessels making landings by month.

Month Fishery	Sep-95 Dutch	Oct-95 Dutch	Nov-95 Adak	Dec-95 Adak	Jan-96 Adak	Mar-96 Adak	Apr-96 Adak	May-96 Adak	Jun-96 Adak
<b>Total fleet:</b>									
Number of vessels with landings	15	14	8	12	4	5	14	15	11
Mean of vessels' CPUE	4.96	5.03	6.17	5.14	9.41	7.06	4.20	4.64	5.36
Standard deviation of vessels' CPUE	3.86	3.31	4.57	3.78	5.01	2.79	3.16	2.56	3.71
<b>Minimum 30% of vessels:</b>									
Number of vessels	5	5	3	4	2	2	5	5	4
Percent of total vessels	33.33%	35.71%	37.50%	33.33%	50.00%	40.00%	35.71%	33.33%	36.36%
Standard error of mean CPUE	1.41	1.19	2.09	1.54	2.50	1.53	1.13	0.94	1.48
CV of estimated mean CPUE	28.42%	23.57%	33.82%	30.00%	26.61%	21.69%	27.00%	20.18%	27.60%
+/- 2(CV)	+/- 57%	+/- 47%	+/- 68%	+/- 60%	+/- 53%	+/- 43%	+/- 54%	+/- 40%	+/- 55%

25

**Table 5. Annual State Observer Program Operating Budget  
(estimates in \$1,000's)**

<b>Line 100:</b>	275 mm for Observers @ 14C; Anchorage scale, S&B+ 30 hr OT/mo=\$5.1K/mo.)	1,398.3
	12 mm Admin Clerk III at 10E (Dutch Harbor scale, S&B= \$4.5/mo.)	54.0
	<b>Total</b>	<b>1,452.3</b>
<b>Line 200:</b>	170 RT Anc-Dut and 4 d per diem @\$1.5K ea	255.0
	<b>Total</b>	<b>255.0</b>
<b>Line 300:</b>	Phone @ \$1.0K/mo.	12.0
	Marine Vessel Safety training and First Aid @ \$100.00 for 50 Observers	5.0
	<b>Total</b>	<b>17.0</b>
<b>Line 400:</b>	Sampling gear/forms for observers, new and replacement @\$150.00/yr. for 50	7.5
	Office/computer supplies	5.0
	<b>Total</b>	<b>12.5</b>
<b>Line 500:</b>	<b>Total</b>	<b>0.0</b>
<b>Lines 200-500 Total:</b>		<b>284.5</b>
<b>Lines 100-500 Total:</b>		<b>1,736.8</b>



**Table 6. Budget estimate for one-time startup costs for State Observer Program (estimates in \$1,000's).**

<b>Line 100:</b>	<b>Total</b>	<b>0.0</b>
<b>Line 200:</b>	Four RT Dutch-Kodiak for Observer Coordinator staff	4.0
	Two RT Dutch-Anchorage for Observer Coordinator staff	0.2
	Per diem for six one-week trips	3.0
	<b>Total</b>	<b>7.2</b>
<b>Line 300:</b>	<b>Total</b>	<b>0.0</b>
<b>Line 400:</b>	Initial Observer sampling gear purchase (70 sets)	50.0
	Survival suits and EPIRBS (70 sets at \$650.00 ea.)	45.5
	Office furnishings (new Admin Clerk III position)	1.0
	<b>Total</b>	<b>96.5</b>
<b>Line 500:</b>	FAX	2.0
	Computer for new Admin Clerk III	5.0
	<b>Total</b>	<b>7.0</b>
<b>Lines 200-500 Total:</b>		<b>110.7</b>
<b>Lines 100-500 Total:</b>		<b>110.7</b>

Table 7. Estimated ex-vessel values of principal Bering Sea/Aleutian Islands fisheries for 1986/87 through 1995/96 seasons. Estimates are from fish tickets and do not reflect any post-season settlements. Average values include closed seasons.

Season	St Matt Blue	Prib Blue	Prib Red	Bris Bay Red	Adak Brn	Adak Red	D.H. Brn	B.S. bairdi	B.S. opilio	B.S. hair	Total
1986/87	3.2	1.2	closed	45.0	37.5	2.7	5.1	closed	75.7	closed	170.4
1987/88	3.1	2.8	closed	48.7	23.4	4.8	4.0	4.8	100.7	closed	192.3
1988/89	4.0	closed	closed	37.6	28.8	8.0	4.5	20.3	110.7	closed	213.9
1989/90	3.5	closed	closed	50.9	30.3	4.6	6.3	45.3	102.3	1.2	244.4
1990/91	5.7	closed	closed	101.2	15.9	2.8	5.1	44.5	162.6	0.5	338.3
1991/92	9.0	closed	closed	51.2	15.2	2.9	2.8	47.3	156.5	2.8	287.7
1992/93	7.4	closed	closed	40.0	10.1	6.5	3.3	58.8	171.9	NA	298
1993/94	9.7	closed	13.0	55.1	11.2	2.7	1.9	31.6	192.4	5.3	322.9
1994/95	15.0	closed	8.0	closed	20.3	1.1	6.9	28.5	180.0	4.0	263.8
1995/96	7.1	3.9	2.9	closed	9.7	0.1	5.0	11.7	85.6	5.7	131.7
10 year average	6.8	0.8	2.4	43.0	20.2	3.6	4.5	29.3	133.8	2.0	246.3
5 year average	9.6	0.8	4.8	29.3	13.3	2.7	4.0	35.6	157.3	3.6	260.8

$\$260 \text{ million} \times 20 = \$5.2 \text{ million}$

Appendix 1a. Draft scheduling of observer deployments in Bering Sea crab fisheries exclusive of deep-water fisheries.

OBSERVERS ON CP'S & FLOATING PROCESSORS ONLY

Month	Fisheries	Deployed observers	mm per observer	Total mm	Anc-Dut round trips
Sept	St. Matthew, Pribilofs	20	0.5	10	20
Nov-Dec	Korean hair, Bristol Bay red king, bairdi	30	1.5	45	30
Jan-Mar	oplio	20	2	40	20
<b>Total:</b>				<b>95</b>	<b>70</b>

MAJOR FISHERIES 250 BOATS FISHING

(95 mm x \$7,000 = \$665,000 - Direct Costs - Observers)

Appendix 1b. Draft scheduling of observer deployments in Aleutians king crab fisheries and other deep-water king and Tanner fisheries. Proposed number of deployed observers per month are based on the midpoint of minimum monthly vessel participation in the 1991/92-1995/96 Adak/Dutch Harbor brown king crab fishery and the maximum monthly vessel participation in the 1991/92-1995/96 Adak/Dutch Harbor brown king crab fishery summed with the monthly vessel participation in the 1995 Westward deep-water king and Tanner fisheries.

Estimated number of Anchorage to Dutch Harbor round trips for observers in the year is 100.

(100% COVERAGE ON CATCHER BOATS)

Month	Deployed observers	mm per observer	Total mm
Sept	15	1	15
Oct	15	1	15
Nov	15	1	15
Dec	15	1	15
Jan	5	1	5
Feb	5	1	5
Mar	10	1	10
Apr	20	1	20
May	20	1	20
June	20	1	20
July	20	1	20
Aug	20	1	20
<b>Total:</b>			<b>180</b>

ONLY 15 - 20 BOATS FISHING IN THESE FISHERIES

THE LARGEST PORTION, 2/3 OF OBSERVER COSTS

(180 mm x \$7000 = \$1,260,000 - Direct Costs - Observers)