

M E M O R A N D U M

TO: Council, SSC and AP members

FROM: Jim H. Branson
Executive Director

DATE: September 16, 1987

SUBJECT: Bering Sea/Aleutian Islands Crab Management Plan

ACTION REQUIRED

Review and approve draft crab FMP for public review.

BACKGROUND

In March 1986 the Council voted to suspend Tanner crab regulations by emergency rule because of the Tanner crab FMP's continuing administrative and procedural problems. NOAA-General Counsel had questioned the legality of the FMP in light of MFCMA National Standards since it was doubtful that the plan could prevent overfishing. The Council directed the plan team to prepare a discussion paper exploring the management alternatives for this fishery.

Following a review of the team's discussion paper and after receiving public testimony, the Council appointed a Crab Management Committee in September 1986 to develop a new comprehensive FMP for both king and Tanner crab fisheries in the Bering Sea. In December 1986 the Council requested the Secretary to withdraw the Tanner crab FMP until a new crab FMP could be prepared which he did on April 29, 1987. The State of Alaska has been managing all king and Tanner crab fisheries off Alaska since November 1986.

The Crab Management Committee and Plan Team have developed a new Bering Sea/Aleutian Islands Crab FMP over the past year. It combines king and Tanner crab management under a single FMP, and eliminates the procedural problems which made the old Tanner crab plan ineffective. The FMP authorizes the state to take the lead in managing the crab fisheries and establishes procedures for federal oversight. The Committee met with the plan team on September 14 to review the latest draft, minor revisions were made and the new draft was sent to you last week for review.

The Central Office of NMFS would like to receive the new FMP and supporting documents as soon as possible so the new plan can be put into effect prior to the September 1988 opening of the king crab season. This requires an accelerated review schedule at the Council level, however it appears that we can accommodate NMFS's request (see Item D-2(a)). The Council needs to review and approve the draft FMP for public review at this meeting. The necessary supporting documents (i.e., Environmental Assessment/Regulatory Impact Review) are being prepared and with the FMP will constitute the public review package. A special meeting of the SSC will be necessary in late-October to review the analytical documents prior to public review in November. Following this schedule the Council can take final action on the FMP package at its January 1988 meeting.

BERING SEA/ALEUTIAN ISLANDS CRAB FMP WORK SCHEDULE

August 1987 Crab Team completes draft FMP; prepares EA, RIR, draft implementing regulations, etc.

September 14 Crab Management Committee meets to discuss latest draft of the FMP. Prepares report to the Council.

September 22-25 Council receives report from Crab Management Committee. Council reviews draft FMP and approves for public review.

October 20(?) SSC meets to review draft FMP package.

November 7 Draft FMP package distributed for a 35-day public review. Includes the FMP, draft EA and RIR.

December 14 Public Comment period ends.

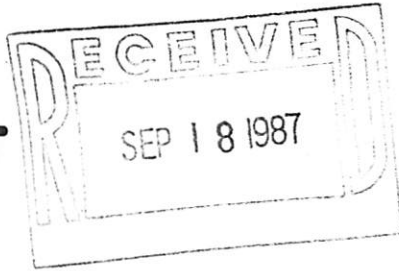
January 18-20,1988 Council reviews Crab FMP package; takes final action.

February 20 FMP package submitted for Secretarial review.

August 1988 FMP package approved and implemented by Secretary.

September 1988 Bering Sea/Aleutian Islands king crab fishery begins.

NOTE: There will likely be several additional working meetings of the Crab Management Committee and Plan Team during this period which do not appear on this schedule.



**North Pacific
Fishing Vessel
Owners' Association**

September 17, 1987

Mr. Jim Campbell, Chairman
North Pacific Fishery Management Council
P.O. Box 103136
411 West 4th, Suite 2D
Anchorage, AK. 99510

RE: Draft Crab Plan

Dear Jim:

A very substantial group of fishing industry representatives including crabbers, longliners, trawlers and at-sea processors has been following the activities of the NPFMC Crab Committee with a growing sense of alarm. An outline of our comments on the third draft plan is attached, with signatures. Please note that two Crab Committee members, seven associations, the Coalition for Open Ocean Fisheries, and sixteen major industry participants have joined in this effort.

Through detailed comments on successive drafts we have encouraged the Committee to develop a plan which incorporates standards and procedures adequate to protect nonresident fishermen under federal principles. Virtually all of our comments have been rejected, and the resulting plan abandons our interests to the discretion of the State of Alaska. As a result, we are obliged to insist on exclusive federal management of EEZ crab fisheries in the Bering Sea and Gulf of Alaska.

If adopted, the current draft plan would delegate to the State of Alaska critical authority to change size limits, select guideline harvest levels, set seasons, and conduct inseason management, without establishing meaningful criteria or procedures for action. The "frameworked" sections of the plan are so vague that virtually any action would be authorized. As a result the affected industry would be unable to reasonably predict management decisions, or to participate effectively in the management process. The Council would be unable to exercise oversight of crab management. Meaningful review of management actions by the Secretary of Commerce or the courts would be impossible. Abstract principles like those set out in the Magnuson Act national standards are of little relevance unless they are applied to a well-defined decision matrix.

Mr. Jim Campbell
September 17, 1987
page 2

A second major concern is the proposed involvement of the Alaska Board of Fisheries. The Board is made up entirely of Alaska residents - nonresidents fishermen have no voting representatives there. It is not bound by standards designed to promote the national interest. It does not have the resources or any obligation to provide to the affected public the predecisional scientific analyses required for fair and effective management under federal principles. By contrast the Magnuson Act process, implemented by the Council and the Secretary of Commerce, is specifically designed to provide these necessary elements of due process.

Nonresident fishermen have waited eleven years since enactment of the Magnuson Act for implementation of a federal king crab plan - with increasing frustration. If adopted the currently proposed plan would delegate critical fishery management authority to a single state, denying nonresident fishermen the protections guaranteed by the regional management system established by federal law. We respectfully request that the Council refrain from releasing the current draft plan for public review. The plan should be further developed to give adequate guidance for substantive management decisions by federal authorities. If the "frameworked" sections cannot be greatly improved, specific size limits, seasons, and harvest guideline levels should be established and amended as necessary through the Magnuson Act process. Should the state in fact refuse to assist in the implementation of such a plan, NMFS/NOAA should be encouraged to redeploy its resources to provide the needed manpower. Alternatively, the Council should encourage Congress to provide the needed funding.

In recognition of the national interest in fishery resources of the EEZ, federal law provides for regional management by the Councils and the Secretary of Commerce. The interests of the State of Alaska are adequately protected by its majority membership on the North Pacific Fishery Management Council. Nonresidents have voting representatives on the Council and its advisory committees, and enjoy the protections of the national standards, other provisions of the Magnuson Act, and other applicable federal law; they should not be obliged to make further compromises. In our view it is the duty of the Council and the Secretary of Commerce to exercise exclusive management authority over crab stocks in the EEZ. This authority should not be delegated to the State of Alaska.

Sincerely,



Thorn Smith

SUMMARY - INDUSTRY COMMENTS
THIRD DRAFT CRAB FMP
September 8, 1987

Nonresident crab, longline, and trawl fishermen favor exclusive federal management of crab stocks in the EEZ off Alaska. A summary of our comments on the third DRAFT crab plan follows:

1. The makeup of the North Pacific Fishery Management Council reflects a compromise which guarantees the State of Alaska a strong voice in fishery management while providing protection for nonresidents through the Magnuson Act and other applicable federal law. This critical commitment should be honored;

2. Nonresident fishermen do not have the resources to review and appeal state statutes and regulations which might affect their interests. Such review is the responsibility of federal fishery management authorities;

3. The management unit for any federal crab management plan must include the Gulf of Alaska, which has traditionally been fished by nonresident as well as resident fishermen. It is in the Gulf that nonresident fishermen are most likely to need protection - they were recently obliged to bring a lawsuit to invalidate state regulations inimical to their interests there;

4. The proposal to "promote economic stability" by "banking" legal-size crabs of several year classes is highly questionable, given natural mortality rates. Maximum benefits might better be derived by annually harvesting all of the legal-size crabs not necessary for reproduction. This issue should be studied carefully before a management strategy is selected;

5. All management measures should be specified in the plan or frameworked, for implementation by the Secretary of Commerce with advice from the Council;

6. The "frameworked" management measures in the draft plan do not meet guideline standards for the frameworking concept, and are inadequate for plan implementation without amendments, regulatory predictability, or exemption from Office of Management and Budget review;

7. No management measures affecting EEZ fisheries should be left to the exclusive discretion of the state;

8. The Alaska Board of Fisheries should not manage fisheries conducted in the EEZ. The Board is composed entirely of Alaska residents - nonresident fishermen are not represented. The Board has a duty to manage state resources for the benefit of Alaska residents,

rather than in the national interest. The Board is not bound by management standards like those established by the Magnuson Act, and has neither an obligation nor the staff to make available to the public the predecisional biological, environmental and socioeconomic impact analyses necessary for fair and rational management. Many Alaskans have recently been critical of the Board, the Governor has launched an inquiry into its activities, and a bill calling for its elimination and replacement by a professional management commission has been introduced in the State Senate;

9. Basic concepts of substantive and procedural due process require management of crab stocks under the standards and procedures set forth in the Magnuson Act and other applicable federal law. Nonresident fishermen are represented by voting members on the Council and Advisory Panel, and scientists from Washington and Oregon sit on the Scientific and Statistical Committee. Federal statutes, regulations, and Executive Order 12291 require that predecisional scientific analyses of proposed regulatory impacts be made available to the public before regulations are adopted. These safeguards are absolutely necessary for the protection of the interests of nonresident fishermen; and

10. All appeals of crab management actions should be to the Secretary of Commerce or his delegate.

THE PROPOSED PLAN CONSTITUTES AN ABANDONMENT OF FEDERAL CRAB MANAGEMENT AUTHORITY AND IS UNACCEPTABLE.

Council request that NMFS/NOAA, and if necessary, the Congress, provide adequate resources for federal crab management off Alaska.

Thom Smith

NPFMC Crab Committee

James [unclear]

North Pacific Fishing Vessel
Owners' Association

Barry Fisher

Midwater Trawlers Association

Norman Petersen

Pacific Independent Trawlers
Association

Konrad Uri (TK)

Highliners' Association

Stanley Simonsen

Golden Age Fisheries

Ray O. Lovvick

Glacier Fish, Inc.

Robert [unclear]

Westward Trawlers

H. Frank

Natural Resources Co. Int'l

April Hartt

F/V Norseman II

Walter Peruya

PROfish International

Thomas Parks

F/V Katie K

John R. Boggs

Deep Sea Fisheries, Inc.

Audly Petersen

NPFMC Crab Committee

Edward J. Evans

Alaska Factory Trawlers Association

Robert [unclear]

Fishing Vessel Owners Association

Pete Stranger

American High Seas Fisheries
Association

Chris Hansen (TK)

Coalition for Open Ocean Fisheries

Ray E. Johnson

F/V Polar Sea

Martin [unclear]

Arctic Storm, Inc.

Joseph [unclear]

Stewart Fisheries

Peter Block

Northern Deep Sea Fisheries

Robert [unclear]

F/V Rosie G

Guy A. Baker

Arctic Alaska Seafoods

Francis [unclear]

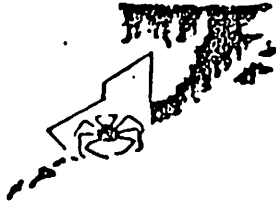
Arctic Alaska Seafoods

Sam O. Gille

Glacier Fish, Ltd.

Alaska Crab Coalition (A.C.C.)

(206) 547-7560
3901 Leary Way (Bldg.) N.W.,
Suite #6
Seattle, WA 98107
FAX (206) 547-0130



September 14, 1987

TO: Larry Cotter, Chairman
NPFMC Crab Management Committee
North Pacific Fishery Management Council
P.O. Box 103136
Anchorage, Alaska 99510

FROM: Arni Thomson, Executive Director
Alaska Crab Coalition &
NPFMC Crab Management Committee

RE: SUMMARY OF ALASKA CRAB COALITION COMMENTS ON THE DRAFT
CRAB FMP FOR THE BERING SEA/ALEUTIAN ISLANDS

A handwritten signature in cursive script that reads "Arni Thomson". The signature is written in dark ink and is positioned to the right of the "FROM:" field.

This paper is intended as a summary review of only the key issues in the draft FMP, which have also been the contentious points within the NPFMC appointed industry committee developing the plan. The draft plan has been revised for the third time this summer and it will be presented to the NPFMC and the industry for comment in late September. Additional comments and review will continue through the spring of 1988. The FMP is scheduled for implementation in the late fall of 1988.

Essentially, day-to-day operational management of the crab fisheries of the Bering Sea/Aleutian Islands will be changed very little under the FMP. The State of Alaska has exercised effective control over king crab fisheries in the EEZ since 1959, without an FMP. It has also managed Tanner crab fisheries since they began, under a Federal Tanner Crab FMP from December 1978 to November 1986. The Administrator permanently suspended the FMP this spring. In

PAGE TWO
CRAB FMP COMMENT

In suspending the FMP, the NOAA Administrator found it violated Magnuson Act National Standards relative to conservation and management of Tanner crab resources (See enclosure, Federal Register No. 61092-6201).

The issue of State vs. Federal management of crab fisheries is a heated one, that falls within the regional controversy of Alaskanization vs. Seattlization of fisheries. In this case, the proponents of exclusive Federal management are using this time-worn emotional issue to recruit supporters to their side of the issue, although it is not the real issue. This polarizing political tactic is becoming a serious irritant to responsible Alaskan, Washingtonian and Oregonian representatives of the NPFMC, whose integrity has been subjected to criticism, along with that of the Council and the State of Alaska.

Against the historical background of the regional controversy in the management of fisheries in the EEZ off Alaska, one and a half years ago, the ACC took the lead in requesting the revision of crab management with an emphasis on the the role of the State of Alaska. The ACC, now representing 73 crab boats (20% Alaskan residents) is comprised primarily of non-residents. Therefore, other Seattle based fishing associations have sharply criticized the ACC for its position. At the same time, they have developed lengthy formal critiques of the FMP for its "deference" to the State of Alaska based primarily on arguments of discrimination and Board of Fisheries incompetence. Some time ago, the ACC asked its legal counsel, Ted Kronmiller to develop a legal memorandum

specifying legal prohibitions in the U.S. Constitution, the Magnuson Act and the State of Alaska Constitution regarding discrimination against non-resident fishermen (enclosure).

Recent comments developed primarily by a trawlers coalition for the Administrator and the NPFMC this summer and most recently on September 8th, conceal, but nonetheless reflect a more deep rooted concern: concern that "deference" to the State of Alaska in the management of crab fisheries could set a precedent for groundfish fisheries. The State of Alaska has a reputation for conservative fisheries policies which can be used as a protective barrier to increasing harvesting pressure in both crab and groundfish fisheries.

Therein lies the reason the ACC has requested a vigorous role for the State in crab management. Historically, the State has placed a high priority on the crab fisheries. In addition, it appears that the continuation of viable crab fisheries throughout the 1980's will require a conservative management regime willing to incorporate the use of time and area closures and necessary mobile gear restrictions. Rapid management responses are also required to meet unforeseen stock fluctuations and annual and seasonal climatic variations. Timeliness is difficult to accomplish within the Federal NMFS bureaucracy, which promises to be further impeded by constricting budgets.

Reviewers of the Crab FMP should bear in mind that the regional argument and accusations of State incompetence are being posed to conceal concern the new FMP represents an overall conservative shift in fisheries policy and improved regulation of bycatches in groundfish fisheries.

SIGNIFICANT NEW ASPECTS OF THE BS/AI CRAB FMP:

1. It includes both Tanner and king crab species; one plan for both fisheries will hopefully simplify management practices.

(p. 5-1) For the first time, (if the plan is approved) non-residents will have a defined system of federal appeals on new regulations, early closures, etc. in the Bering Sea king crab fisheries that previously only existed in the tanner crab fisheries (under the old FMP).

2. It encompasses the Bering Sea and Aleutian Islands, and excludes the Gulf of Alaska. (p. 5-3,4) This is in recognition of these being two separate and distinct geographical, political and socioeconomic complexes (different areas with different players). If the fishermen in the Kodiak and Peninsula areas wish to join in at a later date, they are welcome to do so. The goal is to eventually have a plan that meets the unique needs and conditions of the BS/AI crab fisheries.

3. It gives more authority to the State of Alaska on "in-season adjustments" i.e. closures and extensions, and new regulations. This allows for more rapid responses in season, since it will eliminate mandatory federal review. Ted Kronmiller, the ACC attorney has developed a legal opinion (enclosure) that addresses the issue of discrimination and identifies precise Magnuson Act and State of Alaska protections for non-resident fishermen.

* 4. It will provide for development of an "Industry Advisory Group" to advise the Board of Fisheries and ADF & G on crab management policies (to include non-residents). This provision to be written into the forthcoming draft.

MAJOR ISSUES IN THE NEW BS/AI CRAB FMP (and the alternatives).

This section includes COMMENTS on Crab Management Committee actions as of the May 19th meeting in Anchorage.

1. General explanation of the FMP and its implementation (p. 2-1,2,3).

COMMENT: (p. 2-3) Note ADF & G to continue to coordinate with NMFS on crab surveys to maintain data base on crab stocks.

- * 2. General nature of "federal oversight" in the FMP (p. 3-1).

- A. All existing State regulations under the FMP not in conformance with the Magnuson Act are to be replaced by Federal statutes.

COMMENT: This process would take at least 1 year to complete and would delay implementation of the FMP that long and with it, defined federal oversight for non-resident fishermen. It is also an expensive process.

- B. Discretionary review of questionable State statutes by the Secretary (of Commerce).

COMMENT: This option has been approved by NOAA General Counsel, ADF & G and the Committee. It is considered to be the most efficient. This section to be amended in the next draft to include an open comment period of one year for industry requests for review.

- * 3. Federal oversight to insure Magnuson Act consistency and conformance to National Standards contained in the Act.

- A. Appeals process for Board of Fisheries new regulations (voted on at annual shellfish meetings) (p. 9-1). The FMP calls for representatives of the NMFS and NPFMC legal staffs to sit in on the annual Board of Fisheries shellfish meetings.

1. Two appeals processes could be activated at the same time, through both State and Federal systems ("parallel appeals system") (p. 9-4).

COMMENT: This alternative could be confusing, although it is preferred by NOAA. An appeal would be difficult to track through both systems.

2. One appeals process, with NMFS only reviewing unsuccessful appeals to the State ("serial appeals system").

COMMENT: This alternative has been approved by the Committee, and it is preferred by ADF & G. It is simplistic and can be initiated by fishermen without the aid of an attorney. Readers should bear in mind at this point, that reasons for appealing State regulations can be far ranging in scope i.e. if you want to challenge CPUE or survey data, and so forth. However, NMFS review is only activated to determine possible violations of the Magnuson Act. NMFS will not set aside a State decision because it prefers to manage fisheries in a different way.

A complete explanation of the State of Alaska management structure is contained in the Appendix beginning (p. 11-2) with a description of the Appeals system on (p. 11-6).

- B. Appeals system for ADF & G inseason actions i.e. early closures (p. 10-1).

1. Fisherman has 10 days from the date of an action to appeal in writing to the NMFS Regional Director.
2. Fisherman also has the option to initiate an appeal through the State.

4. Description of the management unit (p. 5-1,2,3,4.)

This is to be revised in the next draft and clarified.

5. Primary management objectives (p. 7-1):

- A. Emphasis on the reproductive potential of crab stocks.
- B. Emphasis on coordination of State and Federal participation and the long term prevention of overfishing.

COMMENT: The Committee approved combining the two objectives. In addition, the issue has been referred to NMFS and ADF & G to develop more detailed objectives.

- * 6. Table of management responsibilities (p. 8-2).

This table illustrates the separation of powers in a simple format.

7. Guideline harvest levels (p. 8-2.2).

A. Current methodology and practices.

B. An innovative approach that calls for using whatever combination of methods that provide the most accurate estimate of stocks. Specific exploitation rates are not given.

COMMENT: This section has been flagged for additional discussion and review.

8. Gear restrictions (p. 8-5).

Existing regulations will remain in place as is the case with other State regulations applicable to the management area.

9. The question of harvesting females (p. 8-5,6).

The issue has been deferred for further clarification and discussion, with the Committee not generally favorable to consideration of harvesting females.

10. Fishing seasons (p. 8-25,26,27).

The Committee has voted in favor of the State retaining authority to adjust season dates. This facilitates annual adjustments, if needed, which are almost prohibitive if under federal control, which requires a formal amendment to the FMP, a year long process itself.

11. Permit requirements (p. 8-31).

A. Federal permits

COMMENT: This issue has been deferred for a NOAA opinion as to the need for such a permit if a State permit is required under the FMP.

B. State permits

COMMENT: The Committee has approved continuing the State permits for crab fisheries.

12. Observers (p. 8-32).

A. Defer to any State observer program provided it is consistent with the Magnuson Act.

B. Federal oversight that would also allow for a State observer program.

COMMENT: The Committee has approved the second alternative, with the specification that the "Commissioner of ADF & G can also order observers aboard (crab) vessels."

This section is also subject to continuing review by NOAA and will be developed further pending interaction with recently published draft of NMFS Observer Policy.

The State now has the necessary regulations in place to initiate an observer program on crab catcher processors

CONCLUSION: Development of a comprehensive fishery management plan is a lengthy and arduous undertaking. There are many facets to such a plan. It can clearly be seen in this review, contrary to general opinion in some fishing circles, that management of BS/AI crab fisheries is by no means being placed totally under the control of the State of Alaska with no protections for non-residents. Defined federal oversight is being provided of both the Board of Fisheries and the Alaska Department of Fish and Game.

86 24927

Billing Code

THE NATIONAL ARCHIVES
THE NATIONAL SERVICE
FILES FROM THE AVAILABLE
FILED IN THE NATIONAL ARCHIVES
FJP 8510 22
OCT 30 4 53 PM '86
OCT 30 4 53 PM '86
IN THE OFFICE
OF THE FEDERAL
REGISTER

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 671

[Docket No. 61092-6201]

Tanner Crab Fishery Off the Coast of Alaska

AGENCY: National Marine Fisheries Service (NMFS), NOAA, Commerce.

ACTION: Emergency interim rule.

SUMMARY: The Secretary of Commerce (Secretary) issues this emergency rule to repeal the regulations implementing the Fishery Management Plan for the Commercial Tanner Crab Fishery Off the Coast of Alaska (FMP). This action is necessary because of serious operational difficulties in implementing the FMP, which cause probable violations of the national standards of the Magnuson Fishery Conservation and Management Act and other applicable Federal law. The intended effect of the repeal of the regulations is to suspend Federal management of the Tanner crab fishery pending study of long-term alternatives to management under the present FMP.

EFFECTIVE DATE: From 0001 hours local time, November 1, 1986, until 2400 hours local time, January 29, 1987.

only to protect Tanner crab stocks. For the same reason NMFS may not permit extension of a season if a Tanner crab stock should prove more abundant than was anticipated before the beginning of the fishing year.

In certain situations the regulations implementing the FMP fail to provide for timely Federal coordination with the State's management actions and may result in violations of National Standard 1 of Magnuson Act section 301(a), by failing to prevent overfishing. The implementing regulations also violate National Standard 2 in that conservation and management measures are based upon other than the best scientific information available. Compliance with National Standards 5, 6, and 7 is also called into question as the implementing regulations fail, where practicable, to promote efficiency in the utilization of fishery resources; fail to account for variations and contingencies in fisheries; and fail, where practicable, to minimize costs and avoid unnecessary duplication. A discussion of how current measures fail in this regard is contained in the preceding paragraph. In addition, the problems just described call into question conformance of the FMP's regulations with Executive Order 12291.

NMFS concurs with the Council's March 1986 recommendation that NMFS repeal the regulations implementing the FMP pending a study of long-term alternatives to management of the fishery under the present FMP. After repealing Federal regulations by this emergency action, management of the Tanner crab fishery would be undertaken in the FCZ by the State to the extent regulated vessels are registered under the laws of the State. This action would

September 8, 1986

MEMORANDUM

Re: Legal Prohibitions on Discrimination by the State of Alaska Against Nonresident Fishermen

Background

The North Pacific Fishery Management Council ("Council") is currently considering various options for the management of the King Crab resource by the State of Alaska in the Fishery Conservation Zone ("FCZ"). Currently, nonresident fishermen are engaged in King Crab fishing off the coast of Alaska.

Issue

Whether the State of Alaska may lawfully discriminate against nonresident fishermen in the management of King Crab.

Discussion

The State of Alaska may not lawfully discriminate against fishermen on the basis of residency. Any regulation of King Crab in the FCZ would be subject to Federal and State constitutional prohibitions on discriminating against nonresidents. Furthermore, and less importantly, if management by the State of Alaska is subject to a fishery management plan prepared pursuant to the Magnuson Fishery Conservation and Management Act ("Magnuson Act"), the explicit ban found in National Standard 4 on discriminating between residents of different States would apply. (16 U.S.C. § 1851(a)(4)).

Constitutional Protections

Discrimination by Alaska against nonresident fishermen

would be barred by various provisions found in the United States Constitution. First, under the Commerce Clause (Article I, Section 8), States are not permitted to discriminate against interstate commerce, particularly where the object or effect of the legislation is to protect local economic interest against competition from across State lines. See Bibb v. Navajo Freight Lines, Inc., 359 U.S. 520 (1959). Second, the Privileges and Immunities Clause (Article IV, Section 2), has been interpreted to prohibit discrimination by one State against citizens of another State, where fundamental rights, such as the right to pursue a livelihood, are involved. See Hicklin v. Orbeck, 437 U.S. 518 (1978). This is especially true when the reason for the discriminatory provision is State economic protectionism. See Sup. Ct. of N.H. v. Piper, 470 U.S. _____, 84 L.Ed. 2d 205, 214 n.18 (1985). Finally, the basic protection afforded under the Privileges and Immunities Clause is also found in the Equal Protection Clause (14th Amendment), which, unlike the Privileges and Immunities Clause, applies to corporations, as well as to individuals. See Metropolitan Life Insurance Co. v. Ward, 470 U.S. _____, 84 L. Ed. 2d 751, 760 (1985); Elkins v. Moreno, 435 U.S. 647 (1978).

The Alaska State Constitution also contains an equal protection clause (Article I), which has been interpreted as prohibiting discrimination between residents and nonresidents, based solely on the object of assisting one class over another. See Lynden Transp., Inc. v. State, Sup. Ct. Op. No. 1120 (File No. 2100, 532 P.2d 700 (1975). In Brown v. Anderson, 202 F.

Supp. 96 (D. Alas. 1962), a case dealing with nonresident fishing restrictions, the court held that placing restrictions on nonresident fishermen on the basis of residency violated the Alaska State Constitution equal protection clause.

Magnuson Act Protection

Under National Standard 4 of the Magnuson Act, fishery conservation and management measures prepared pursuant to a fishery management plan are prohibited from discriminating between residents of different states.*/ Consequently, if the State of Alaska regulates King Crab pursuant to a fishery management plan, the protection afforded nonresidents by National Standard 4 will be available. However, it must be emphasized that, even without such statutory protection, constitutional guarantees against discrimination would prevail.

*/ In fact, the National Oceanographic and Atmospheric Administration has interpreted National Standard 4 as "an extension of the federal 'privileges and immunities' clause." 50 C.F.R. Part 602, Appendix A to subpart B (Standard 4).

DRAFT

FOR

BERING SEA/ALEUTIAN ISLANDS

KING AND TANNER CRAB

FISHERY MANAGEMENT PLAN

September 16, 1987

North Pacific Fishery Management Council
P.O. Box 103136
Anchorage, Alaska 99510

✓

✓

TABLE OF CONTENTS

1.0	INTRODUCTION	1-1
2.0	PROCEDURES FOR FMP IMPLEMENTATION	2-1
3.0	FINDING OF CONSISTENCY	3-1
4.0	DEFINITIONS OF TERMS	4-1
5.0	DESCRIPTION OF FISHERY MANAGEMENT UNIT	5-1
6.0	TOTAL ALLOWABLE LEVEL OF FOREIGN FISHING AND JOINT VENTURE PROCESSING	6-1
7.0	GOALS AND OBJECTIVES FOR DOMESTIC FISHERY.	7-1
7.1	Principal Management Goals	7-1
7.2	Management Objectives	7-1
7.2.1	Biological Conservation Objective	7-2
7.2.2	Economic and Social Objective	7-4
7.2.3	Gear Conflict Objective	7-7
7.2.4	Habitat Objective	7-9
7.2.5	Vessel Safety Objective	7-10
7.2.6	Due Process Objective	7-11
8.0	MANAGEMENT MEASURES	8-1
8.1	Category 1--Federal Management Measures Fixed by the FMP	8-3
8.1.1	Maximum Sustainable Yield Specification	8-3
8.1.2	Optimum Yield Specification	8-4
8.1.3	Legal Gear	8-5
8.1.4	Pot Limits	8-5
8.1.5	Sex Restrictions	8-5
8.1.6	Registration Areas	8-6
8.1.7	Permit Requirements	8-17
8.1.8	Observer Requirements	8-18
8.1.9	Bycatch Restrictions	8-18
8.1.10	Limited Access	8-18
8.2	Category 2--Framework Management Measures	8-19
8.2.1	Minimum Size Limits	8-19
8.2.2	Guideline Harvest Levels	8-21
8.2.3	In-season Adjustment	8-27
8.3	Category 3--Management Measures Deferred to Board	8-29
8.3.1	Reporting Requirements	8-29
8.3.2	Fishing Seasons	8-30
8.3.3	Gear Placement and Removal	8-34
8.3.4	Gear Storage	8-34
8.3.5	Vessel Tank Inspections	8-35
8.3.6	Gear Modifications	8-35

9.0	PROCEDURE FOR COUNCIL/NMFS PARTICIPATION IN THE ALASKA BOARD OF FISHERIES' PRESEASON ACTIONS AND NMFS REVIEW TO DETERMINE CONFORMANCE OF THE REGULATIONS WITH THE FMP, MAGNUSON ACT, AND OTHER APPLICABLE FEDERAL LAW	9-1
	9.1 Prior to the Board of Fisheries Meeting	9-1
	9.2 At the Board of Fisheries Meeting	9-1
	9.3 After the Board of Fisheries Meeting	9-2
10.0	PROCEDURE FOR APPEAL TO THE SECRETARY OF COMMERCE TO SET ASIDE AN IN-SEASON ACTION OF THE STATE	10-1
	APPENDICES	A-1
	A National Standards of the Magnuson Fishery Conservation and Management Act	A-1
	B State of Alaska Management Structure	B-1
	C Biological and Environmental Characteristics of the Resource	C-1
	D Description of the Fisheries	D-1
	E Habitat Concerns	E-1
	F Literature Cited	F-1

1.0 INTRODUCTION

The king and Tanner crab populations of Alaska have had a history of extensive commercial exploitation for 20 or more years. That history is characterized by spectacular peaks and valleys in crab abundance and catch, and by the discovery of previously unexploited stocks.

The Magnuson Fishery Conservation and Management Act (16 U.S.C. 1801, et seq.) (Magnuson Act), subsection 302(h)(1), requires that a fishery management plan (FMP) be prepared for any fishery that requires conservation and management. On December 7, 1984, the North Pacific Fishery Management Council (Council) adopted findings regarding fishery management policy which addresses the need for Federal management of fisheries off Alaska. The history of uncertainty in the biology of king and Tanner crabs off Alaska, and the interstate nature and heavy capitalization of the fleet fishing in those fisheries, particularly in the Bering Sea, create a situation which demands the Federal management oversight contemplated by subsection 302(h)(1) of the Magnuson Act and particularly Findings 2, 3, 6, and 8 of the Council, as follows:

2. The fishery resources off Alaska are the property of the United States and should be managed for the benefit of everyone in the U.S. in accordance with the provisions of the Magnuson Act.

3. The common property nature of fishery resources tends to cause overcapitalization in the industry, increases the chances of resource depletion, and decreases the incentive for conservation of the resource by the users.

6. The lack of timely and adequate data has hampered decision-making and management to the detriment of the resource and the economy.

8. The existing administrative process of management should be more timely and responsive and regional fisheries management and policy development should be fully embodied in the Council as intended by the Magnuson Act.

Pursuant to subsection 302(h)(1), the Council has responsibility for preparing FMPs and amendments to FMPs for the conservation and management of fisheries in the Exclusive Economic Zone (EEZ) off Alaska.

In January 1977, the Secretary of Commerce (Secretary) adopted and implemented a Preliminary Fishery Management Plan (PMP) for the foreign king and Tanner crab fisheries in the eastern Bering Sea. Under the PMP, no foreign fishing for king crab was allowed and restrictions were placed on the foreign Tanner crab fishery. After this initial action, attempts were made to coordinate

Federal management of the crab fisheries with the State of Alaska (State). This decision was based on a desire to optimize the use of limited State and Federal resources, prevent duplication of effort, and make maximum use of the existing State regime.

The State has managed king crab fisheries inside and outside its territorial waters since statehood in 1959. It also managed domestic Tanner crab fisheries since their inception in the Bering Sea in 1968 and in the Aleutians in 1973. The Alaska Board of Fisheries (Board) is responsible for State management of the crab resources. The State's regulatory system provides for extensive public input, ensures necessary annual revisions, is flexible enough to accommodate changes in resource abundance and resource utilization "patterns," and is familiar to crab fishermen and processors. The State has made a substantial investment in facilities, communications, information systems, vessels, equipment, experienced personnel capable of carrying out extensive crab management, and research and enforcement programs.

From December 6, 1978, until November 1, 1986, the Tanner crab fishery in the Bering Sea and Aleutian Islands (BS/AI) area and the Gulf of Alaska was managed under the FMP for the Commercial Tanner Crab Fishery off the Coast of Alaska. The FMP was approved by the Secretary and published in the Federal Register on May 16, 1978, (43 FR 21170) under the authority of the Magnuson Act. Final implementing regulations applicable to vessels of the United States were published on December 6, 1978,

(43 FR 57149). Final implementing regulations applicable to vessels of foreign nations were published on December 19, 1978, (43 FR 59075, 43 FR 59292). The FMP was amended nine times, most recently on September 12, 1984, (49 FR 35779). To achieve its conservation and management objectives and to effectively coordinate management with the State, the FMP adopted many of the management measures employed by the State.

In October 1981, the Council and the State adopted a joint statement of principles for the management of domestic king crab fisheries in the BS/AI area. This agreement formed the basis for interim management during development of the BS/AI king crab FMP. A notice of availability of the FMP was published on July 19, 1984, (49 FR 29250). A final rule was published on November 14, 1984, (49 FR 44998). Although the Federal regulations implementing framework provisions of the FMP were effective December 2, 1984, full implementation of actual management measures under the FMP was deferred pending acceptance of the delegation of authority by the Governor of Alaska. In a letter dated June 20, 1986, the Governor declined the delegation of authority. His principal objections to the delegation were: excessive Federal oversight, uncertainties in the regulatory approval process, unnecessary governmental duplication, and concerns for the degree to which discretionary authority of the Board would be constrained.

At its March 1986 meeting, the Council voted to suspend the implementing regulations for the Tanner crab FMP because it did not provide for management based on the best available scientific information, provide for timely coordination of management with the State, or conform to several of the Magnuson Act's national standards. Following the March meeting, the Council published management alternatives for public comment. The three major alternatives were: (1) State management with no Federal FMP, (2) an FMP that delegates management to the State; or (3) an FMP with direct Federal management. Three overriding concerns were evident in the public comments reviewed by the Council in September. Any management arrangement must provide efficient and effective management, conservation of the crab stocks, and fair access by all user groups to management's decision-making. The Council, at its September 24-26, 1986, meeting, appointed a workgroup of both industry representatives and Council members to develop a comprehensive management approach for crab fisheries off Alaska that would address these concerns.

On November 1, 1986, the National Oceanic and Atmospheric Administration (NOAA) promulgated an emergency interim rule, at the request of the Council, to repeal the regulations implementing the Tanner crab FMP for a period of 90 days (November 1, 1986, through January 29, 1987, (51 FR 40027)).

On November 20, 1986, the Council workgroup met and recommended repeal of the Tanner crab FMP and its implementing regulations.

The workgroup directed the Council's crab plan team to draft a new FMP that includes both king and Tanner crabs, limits its scope to the BS/AI area, and defers management to the State to the maximum extent possible.

At its December 1986 meeting, the Council voted to request extension of the emergency interim rule repealing regulations implementing the Tanner crab FMP for a second 90-day period (January 30 through April 29, 1987). The Council also accepted the recommendation of the Council workgroup to begin preparation of a new king and Tanner crab FMP that would replace both previous FMPs for the BS/AI area, but leave king and Tanner crab fisheries in the Gulf of Alaska under State management for the present time. The Council also determined that the 180-day duration of the emergency interim rule was insufficient to complete a study of management options, prepare a new FMP, and complete the Secretarial review process. The Council, therefore, requested the Secretary to prepare and implement a Secretarial amendment repealing the Tanner crab FMP and its implementing regulations, to allow time for preparation, approval, and implementation of a new FMP for king and Tanner crab in the BS/AI area, and to prevent reinstatement of the Tanner crab FMP implementing regulations which did not conform to the Magnuson Act national standards. A final rule was published on May 11, 1987, (52 FR 17577) implementing the Secretarial Amendment repealing the Tanner crab FMP effective April 29, 1987.

2.0 PROCEDURES FOR FMP IMPLEMENTATION

The Secretary (through the Council and the National Marine Fisheries Service (NMFS) Alaska Regional Office) and the State have established the following protocol which describes the roles of the Federal and State governments:

1. The Council will develop an FMP (and future amendments) to govern management of king and Tanner crab fisheries in the EEZ, prescribing objectives, standards, and any management measures found by the Secretary to be necessary for effective management. The State will promulgate additional regulations applicable to all vessels registered with the State governing the fisheries in the EEZ that are consistent with the FMP, Magnuson Act, and other applicable Federal law. The FMP contains three types of management measures: (1) specific Federal management measures that are implemented by Federal regulations and require an FMP or regulatory amendment to change, (2) framework type management measures with criteria set out in the FMP that the State must follow when implementing changes in State regulations, and (3) measures that are neither rigidly specified nor frameworked in the FMP, and which may be freely adopted or modified by the State, subject only to an appeals process or other Federal law.

2. Representatives from each the Council, NMFS, and NOAA General Counsel will participate in the State's development of

regulations for management of king and Tanner crab in the BS/AI area.

The Secretary will initially review measures adopted by the State to determine if they are consistent with the FMP, the Magnuson Act and its national standards.

3. The Secretary will issue Federal regulations to supersede any State regulations that violate the FMP, the Magnuson Act, or other applicable Federal law. The Secretary will consider appeals that a State regulation does not comply with the Magnuson Act, the FMP, or other applicable Federal law (see chapter 9).

4. The Alaska Department of Fish and Game (ADF&G) will have responsibility for developing the information upon which to base State fishing regulations with continued assistance from NMFS in conducting crab surveys. In carrying out this responsibility, ADF&G will consult actively with the NMFS, NOAA General Counsel, the plan team, and other fishery management or research agencies in order to prevent duplication of effort and assure consistency with the Magnuson Act, the FMP, or other applicable Federal law.

5. The FMP will provide that the Commissioner of the ADF&G, or his designee, in consultation with the NMFS Regional Director, or his designee, may open or close seasons or areas by means of emergency orders prescribed under State regulations. Interested

persons may appeal these actions to the Secretary who will evaluate State emergency orders for compliance with the Magnuson Act, the FMP, or other applicable Federal law. If the Secretary determines that the State action is in violation of the above, the Secretary will issue a Federal regulation to supersede the State emergency order regulation in the EEZ (see chapter 10.0).

Lynn

6. Access to the State king and Tanner crab regulatory process, particularly for nonresidents, will be provided by an advisory group to be established. This group will be made up of fishermen, processors, and other interested individuals, and will meet at appropriate times, in advance of the State Fisheries regulatory cycle. It will provide an industry forum to review stock status information, and fisheries management issues and to develop industry advice to the State. It will convey its views to the State through written reports and testimony presented during the State's regulatory deliberations.

7. The State will modify its own regulatory procedure by providing written explanations of the reasons for its decisions concerning management of crab fisheries and, with representatives of the council, will hold at least one annual public hearing in Seattle, Washington.

**3.0 FINDING OF CONSISTENCY OF EXISTING STATE REGULATIONS WITH
THE FMP, THE MAGNUSON ACT, AND OTHER APPLICABLE FEDERAL LAW**

Prior to implementation of the FMP, state laws and regulations are subject only to discretionary review by the Secretary. Between the effective date of the regulations implementing this FMP and the next regularly scheduled meeting of the Board or other State fisheries regulatory body concerning crab management, any member of the public may petition any existing regulation to the State and, if unsuccessful, to the Secretary, in accordance with the procedure set forth in Chapter 9 herein. If the Secretary finds, on the basis of an appeal, that any existing State law or regulation is not in conformance with the Magnuson Act, the FMP, or applicable Federal law, he shall publish proposed and final rules in the Federal Register superseding the State laws or regulations in the EEZ.

4.0 DEFINITIONS OF TERMS

The following terms are used extensively throughout this fishery management plan.

Maximum sustainable yield (MSY) is an average over a reasonable length of time of the largest catch which can be taken continuously from a stock under current environmental conditions. MSY should normally be presented with a range of values around its point estimate.

Where sufficient scientific data as to the biological characteristics of the stock do not exist, or the period of exploitation or investigation has not been long enough for adequate understanding of stock dynamics, the MSY will be estimated from the best information available.

Threshold is the minimum size of a stock that allows sufficient recruitment so that the stock can eventually reach a level that produces MSY. Implicit in this definition are rebuilding schedules. They have not been explicitly specified since the selection of a schedule is a part of the OY determination process. Interest instead is on the identification of a stock level below which the ability to rebuild is uncertain. The estimate given should reflect use of the best scientific information available. Whenever possible, upper and lower bounds should be given for the estimate.

Optimum yield (OY) is the amount of crab that may be legally landed under the requirements of this FMP and under the laws of the State of Alaska that have not been superseded by the Secretary pursuant to this FMP, not to exceed 200 million pounds of king crab, 108 million pounds of Chionoecetes bairdi Tanner crab, and 333 million pounds of Chionoecetes opilio Tanner crab in any one year.

Fishing year is defined as January 1 through December 31.

Registration year is defined as June 28 through June 27 for king crab, and August 1 through July 31 for Tanner crab.

Guideline harvest level (GHL) is the proposed level of harvest, established preseason, to be allowed for a species or species group of crab for each registration area or district or section. The sum of GHLs represent the total allowable catch (TAC), unless individual GHLs are modified by necessary preseason or in-season adjustments due to fisheries performance indicators.

5.0 DESCRIPTION OF FISHERY MANAGEMENT UNIT

This management plan applies only to the king crab (*Lithodes* and *Paralithodes*) and Tanner crab (*Chionoecetes*) fisheries in the BS/AI area. Other crab may be added at a later time. The BS/AI area is defined as those waters of the EEZ lying south of the Bering Strait, east of the U.S.-U.S.S.R. convention line of 1867, and extending south of the Aleutian Islands for 200 miles between the convention line and Scotch Cap Light (164°44'36"W. longitude) (Figure 5.1).

The BS/AI area contains several stocks of king and Tanner crab that are discrete from stocks in the Gulf of Alaska. In addition, the physical environment of this area possesses attributes distinguishable from crab grounds in the Gulf of Alaska. There are also notable differences in management regulations between these two large geographic areas. Stocks of king and Tanner crab in the Gulf of Alaska are not included in this management unit and will be managed by the State until the Council prepares an FMP for those stocks. However, because it is anticipated that State regulatory measures in the Gulf of Alaska will conform to the standards and objectives of the FMP within the BS/AI area, and the same regulatory agencies and processes will also manage the stocks occurring beyond the management unit, close management coordination for all stocks of king and Tanner crab subject to U.S. jurisdiction should result. Thus, the FMP conforms with the Magnuson Act National Standard 3 which requires

that "to the extent practicable ... interrelated stocks of fish shall be managed as a unit or in close coordination." This FMP should foster coordination of management both inside and outside of the management unit.

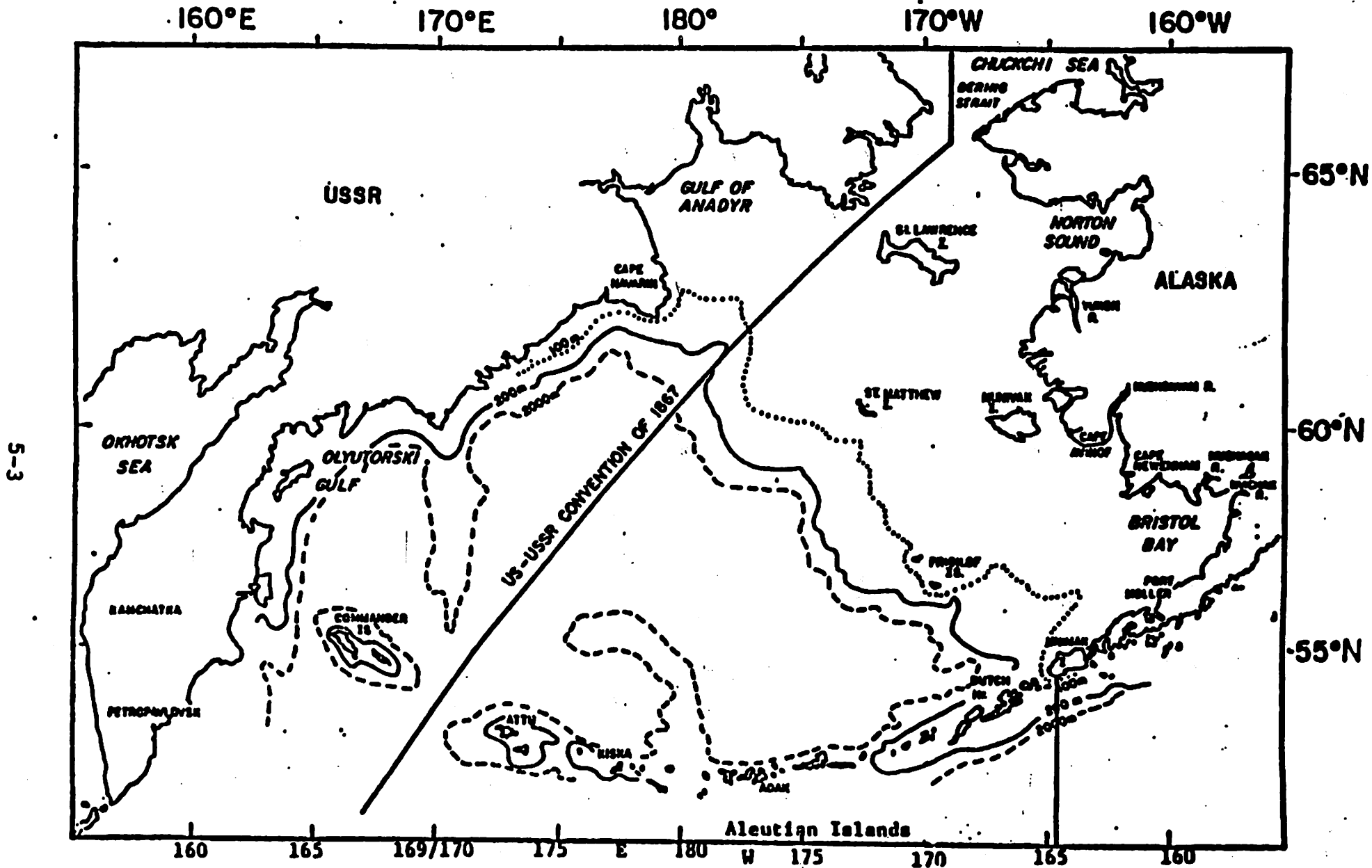


Figure 5.1 -Geographical locations in the eastern Bering Sea and Aleutian Islands.

The Council considered the following in determining the boundaries for the management unit.

1. Crab fisheries outside and inside the BS/AI management unit are clearly different in a number of important respects. First, the Gulf of Alaska fisheries rely on single species while the BS/AI fisheries are concerned with multiple species (i.e. mainly red king crab in the Gulf of Alaska vs. red, blue, and brown king crab in the BS/AI area, and C. bairdi in the Gulf of Alaska vs. C. opilio and C. bairdi in the BS/AI area). Second, there is a difference in composition of resident and nonresident fishermen between the two areas (the Gulf of Alaska fisheries have been conducted mostly by Alaska residents and the BS/AI fisheries mostly by residents of Washington and Oregon). Third, the composition and mix of vessel size classes is different in the two areas; the BS/AI area is traditionally fished by larger vessels. Fourth, a greater proportion of the king and Tanner crab fisheries in the Gulf of Alaska occur within State waters than do the king and Tanner crab fisheries in the Bering Sea.

2. Given the complex network of biological, geographical, industrial, socioeconomic, and political components within the king and Tanner crab fisheries off Alaska, the management unit is as large as possible under one FMP at this time. The EEZ within the BS/AI area is the largest fishery management unit off Alaska (approximately 728,310 square statute miles). In comparison, it

is larger than the EEZ along the entire east coast of the United States, which is approximately 445,000 square statute miles.

3. The State had been managing the king and Tanner crab fishery in cooperation with a Federal Tanner crab FMP. That FMP was repealed in 1987 and a king crab FMP was never made effective. The impetus for developing a combined king and Tanner crab FMP for the BS/AI area, under circumstances where a State agency has been managing the fishery in a highly professional manner, was principally in response to some crab fishermen who argue that Federal management is necessary to afford them protection from perceived discriminatory treatment under State management. The deferral of much authority to the State meets the needs of other crab fishermen satisfied with existing State management who do not desire Federal management, which they perceive to have been too inflexible and too unresponsive in the past to properly manage the fisheries.

6.0 TOTAL ALLOWABLE LEVEL OF FOREIGN FISHING AND JOINT VENTURE PROCESSING

The domestic fishing and processing capacity for king and Tanner crabs greatly exceeds the sum of the GHUs of stocks from the BS/AI area. Pursuant to the Magnuson Act, Section 201(d), there is no allowable level of foreign fishing or joint venture processing for the fisheries covered by this FMP. Domestic, foreign and joint venture bycatch of king and Tanner crab in trawl fisheries is currently controlled by limiting catches of these "prohibited species" by the BS/AI groundfish FMP and will be closely coordinated with implementation of this FMP and with stock conditions within the BS/AI area.

7.0 GOALS AND OBJECTIVES FOR DOMESTIC FISHERY

The Council, in cooperation with the State, is committed to develop a long-range plan for managing the BS/AI crab fisheries that will promote a stable planning environment for the seafood industry and will maintain the health of the resources and environment.

The management system will conform to the Magnuson Act's national standards as listed in Appendix A and the comprehensive Statement of Goals adopted by the Council on December 7, 1984.

7.1 Principal Management Goal

Maximize the overall long-term benefit to the nation of BS/AI stocks of king and Tanner crabs by coordinated Federal and State management, consistent with responsible stewardship for conservation of the crab resources and their habitats.

7.2 Management Objectives

Within the scope of the principal management goal, several specific objectives have been identified. These relate to stock condition, the economic and social objectives of the fishery, gear conflicts, habitat, weather and ocean conditions affecting safe access to the fishery, and access of all interested parties to the process of revising this FMP and its implementing

regulations. Each of these objectives incorporates relevant management measures into strategies designed to meet that objective. Neither the objectives nor the strategies is mutually exclusive. Several management measures may contribute to more than one strategy, and several strategies and objectives may mesh in any given management decision on a case-by-case basis.

7.2.1 Biological Conservation Objective:

Manage king and Tanner crabs consistent with responsible stewardship for conservation of the crab resource. Maintenance of adequate reproductive stock takes precedence over economic considerations.

Strategies for Meeting Biological Conservation Objective

Management strategies to attain the biological conservation objective may include the following management measures:

Guideline Harvest Level

In-season Adjustments

Fishing Seasons

Minimum Size Limits

Sex Restrictions

Gear Restrictions

Gear Placement and Removal

Gear Storage

The overall, long-term benefit of king and Tanner crab stocks to the nation is maximized only within certain biological constraints. One major constraint is the need to avoid adverse effects on reproductive potential of each stock. Maintenance of adequate brood stock for reproduction is critically important to maintaining healthy crab populations and fisheries upon them. In aggregating species, particularly crabs, it is essential to maintain population abundances above threshold levels to prevent reproductive failure. At lower abundances there is significant risk that stocks may never recover or that recovery will not occur for decades. To minimize the chances of this event, exploitation rates will be reduced when population abundances fall from peak to average to depressed levels. In addition, fisheries will be closed at stock sizes at or below threshold levels. In-season adjustments of closure dates will be necessary to maintain stocks above threshold.

Other biological management constraints include the need to avoid harvest during sensitive periods such as molting and mating, to minimize adverse impacts of handling on survival of females and growth of sublegal males, to limit deadloss, and to minimize adverse effects on other species. Each of these constraints deals with adverse fishery impacts on unharvested portions of the stock or other incidentally-caught species.

Satisfying these constraints will help to ensure that stocks are maintained at levels sufficient to permit directed fisheries. Management measures which may satisfy these constraints include: gear restrictions to reduce capture of females or sublegal males in crab pot gear, adjustment of minimum size limits to reduce adverse effects on sublegal males, in-season closures to avoid unanticipated molting or mating crabs, and adjustment of fishing seasons or modification of gear placement and storage areas to limit the incidental catch of other species or to avoid catching crabs during their biologically-sensitive periods.

7.2.2 Economic and Social Objectives:

Maximize the overall long-term economic and social benefit to the nation of BS/AI stocks of king and Tanner crabs by coordinated Federal and State management, while taking into consideration economic stability in the crab industry, returns to all sectors of the national economy which benefit from harvest of the crab resource, the local economic and social impacts, and opportunities for subsistence and personal use in the king and Tanner crab fisheries.

Strategies for Meeting Economic and Social Objectives.

The following list of management measures either singly or in combination, and the data gathered in the field and from

required reports, provide crab fisheries managers with the tools to devise strategies to meet these objectives.

Those types of management measures which can contribute to strategies for attainment of these economic and social objectives include:

Guideline Harvest Levels

Sex Restrictions

Minimum Size Limits

Fishing Seasons

In-season Adjustments

Legal Gear

Gear Modifications

Observers

Registration Areas

Fishing Seasons

Reporting Requirements

Gear Placement and Removal

For example, managers may determine optimal harvest levels by setting GHGs based on the best population estimate of male crabs that are subject to harvest, by setting a minimum size limit, and by applying a suitable exploitation rate. Thus the combination of a minimum size limit, a males-only sex restriction, and conservative exploitation rates can work together to meet the economic objective of this FMP.

Season and gear restrictions also can be used to meet the economic objective. Seasons can be set to avoid capture of crabs during the sensitive periods of their life history when they are migrating inshore, releasing their young, molting, and mating.

Nonselective gear such as tangle nets could subject a high mortality on female and sublegal male crabs. This can be avoided by designating only pots and ring nets as legal gear.

Fishing seasons may be set to maximize economic benefit from a given GHJ by maintaining a high quality of product and maximize meat yield from crabs. Thus, it might be desirable to avoid softshell periods for economic considerations, even if impacts on reproductive potential are insignificant. The extent to which seasons might be modified would depend upon other economic trade-offs and consideration of the other, noneconomic objectives.

Separate seasons may be set for commercial and noncommercial fishermen to assure access to the resources by both user groups. For example, fishing seasons for subsistence or personal users might be scheduled prior to commencement of commercial seasons. Another likely management strategy might be to prohibit the placement of commercial gear in nearshore areas frequented by the noncommercial fishermen. In many instances, these nearshore areas may be the only fishing grounds accessible

to these users. In addition, GHs for commercial harvest could be modified to provide for subsistence and personal-use opportunities for crab fishing.

7.2.3 Gear Conflict Objective: Minimize Costs to the Fishery caused by Gear Conflict.

Management measures developed for the king and Tanner crab fisheries will take into account the interaction of those fisheries, and the people engaged in them, with other fisheries.

Strategies for Meeting Gear Conflict Objective.

Management measures which can contribute to strategies for attainment of this gear conflict objective include:

Fishing Seasons

In-season Adjustments

Gear Modifications

Gear Placement and Removal

Gear Storage

Using the management measures listed above, strategies for improving economic efficiency through reduction of gear conflict may include, without limitation:

a. Scheduling king and Tanner crab fisheries so that they will mesh compatibly with the seasons set for other commercial fisheries, taking into account vessel and worker availability, processing capacity, and availability of enforcement personnel;

b. Ensuring the compatibility of different types of fishing gear and activity on the same fishing grounds. The king and Tanner crab fisheries are conducted with pots, which are stationary gear. Many of the other fisheries in the fishery management unit, both domestic and foreign, are conducted with mobile trawl gear. Seasons, gear storage, and fishing areas must be arranged for both types of gear to eliminate, insofar as possible, conflicts between gear types and preemption of fishing grounds by one form of gear over another;

c. Ensuring that management measures take into account the management of the groundfish fisheries, and the associated bycatch of king and Tanner crab in those fisheries.

7.2.4 Habitat Objective: Preserve the Quality and Extent of Suitable Habitat to Ensure Attainment of Biological and Economic Objectives.

Strategies for Meeting Habitat Objective.

Management measures which can contribute to strategies for attainment of this habitat objective include:

Legal Gear
Gear Modifications
Fishing Seasons
Gear Storage

The quality and availability of habitat supporting the BS/AI area king and Tanner crab populations is important and is necessary to support any economic benefit derivable from them. Fishery managers should strive to ensure that optimal habitat is available for juveniles and breeding, as well as the exploitable segments of the population. The BS/AI habitat of king and Tanner crabs, the significance of their habitat to the fishery, and the potential effects of changes in that habitat on the fishery are described in Appendix E of this FMP.

Those involved in both management and exploitation of crab resources should actively review actions by other human users of the BS/AI area to insure that their actions do not cause

deterioration of habitat. Any action by a State or Federal agency potentially affecting that habitat in an adverse manner should be reported to the Council for possible action under subsection 302(i) of the Magnuson Act. The Council should also consider the effect on crab habitat of its own management decisions in other fisheries.

7.2.5 Vessel Safety Objective: Promote Access to the Fishery for Vessels Appropriate to the Fishery that are Prevented From Fishing due to Weather or Ocean Conditions.

Strategies for Meeting Vessel Safety Objective.

Management measures which can contribute to strategies for attainment of this vessel safety objective include:

Fishing Seasons

In-season Adjustments

Gear Placement and Removal

Gear Storage

The purpose of the amendment to the Magnuson Act is to allow for adjustments to the seasons, use of gear storage areas, and some restrictions on gear placement and removal, both to reduce the economic pressure on fishermen to fish no matter what the weather and to allow them to go out and harvest the stock at the optimum level even if they could not fish during the

scheduled opening. This objective will contribute to the overall long-term benefit to the nation by allowing for a more efficient and productive fishery with lower expenditure of resources and loss of resources.

7.2.6 Due Process Objective: Ensure that Access to the Regulatory Process and Opportunity for Redress are Available to All Interested Parties.

Strategies for Meeting Due Process Objective.

In order to attain the maximum benefit to the nation, the interrelated-biological, economic and social, habitat, and vessel safety strategies outlined above must be further defined and balanced against one another. Those strategies cannot be articulated, however, without a continuing dialogue between fishery managers, fishery scientists, fishermen, processors, consumers, and other interested parties.

Access to the FMP development and regulatory process in order to convey one's views can be had through membership in a Council work group, testimony on the record before the Council's Advisory Panel or Scientific and Statistical Committee, or before the Council itself, conversations with members of the plan team or officials of regulatory agencies, and by commenting on the draft FMP, any subsequent amendments and the regulations proposed for their implementation. Tools for challenge of FMP provisions

include not only the Magnuson Act and the standards it contains, but also the National Environmental Policy Act, the Administrative Procedure Act, the Regulatory Flexibility Act, and the Paperwork Reduction Act.

This FMP is unique in that it defers much of day-to-day crab management to the State. Because of this distinction from other FMPs, special means of access to the regulatory process at the State level and special means of redress of perceived wrongs by the State are necessary.

Chapters 9 and 10 of this FMP contain the procedures for challenge of State law or regulation regarding management of these fisheries alleged not to conform to the Magnuson Act, this FMP or any other applicable Federal law. Any preseason action taken by the State may be challenged by first appealing to the State and, if unsuccessful, to the Secretary. Any in-season action taken by the State may be appealed directly to the Secretary, and/or to the State. Note that the Secretary will review only those State actions which are alleged to violate the Magnuson Act, this FMP, or other applicable Federal law.

8.0 MANAGEMENT MEASURES

This section describes the management measures which may be used to achieve the FMP's management objectives. While some measures are appropriate to one or several objectives, it is important that the minimum necessary set of measures be employed. Most of these management measures are currently used by the State to manage the king and Tanner crab fisheries. Three categories of management measures are described (Table 8.1): (1) those that are specifically fixed in the plan, implemented by Federal regulations, and require an FMP or regulatory amendment to change, (2) those that are framework type measures which the State can change following criteria set out in the FMP, (3) those measures that are neither rigidly specified nor frameworked in the FMP. The measures in (2) and (3) above, may be adopted as State regulations subject only to the appeals process outlined in the FMP (see Chapters 9 and 10).

The description of the following management measures is not intended to limit the State and Federal Governments to only these measures. However, the implementation of other management measures not described must be consistent with the FMP, the Magnuson Act, and other applicable Federal law, and after consultation with the Council.

Table 8.1. Management measures used to manage king and Tanner crabs in the BS/AI management unit by category.

Category 1 (Fixed in FMP)	Category 2 (Frameworked in FMP)	Category 3 (Discretion of State)
MSY Specifications	Minimum Size Limits	Reporting Requirements
OY Specifications	Guideline Harvest Levels	Fishing Seasons
Legal Gear	In-season adjustments	Gear Placement and Removal
Pot Limits		Gear Storage
Sex Restrictions		Vessel Tank Inspections
Registration Areas		Gear Modifications
Permit Requirements		
Observers		
Limited Access [Reserved]		
Bycatch Restrictions [Reserved]		

All management measures contained in this FMP must be consistent with the national standards of the Magnuson Act and other applicable Federal law. This FMP relies to a great extent on the State for management of the crab fisheries. To ensure that State management in the EEZ is consistent with this FMP, the national standards and other applicable Federal law, a review and appeals process has been established (Chapters 9 & 10).

8.1 Category 1--Federal Management Measures Fixed By The FMP

8.1.1 Maximum Sustainable Yield Specification

Maximum sustainable yield (MSY) has been estimated for each species of king and Tanner crab covered in this FMP and is shown in Table 8.2.

Table 8.2. MSY estimates (average catches in millions of pounds) for king and Tanner crab stocks in the BS/AI management unit (year range in parentheses).

<u>Species</u>	<u>Bristol Bay</u>	<u>Pribilof Islands</u>	<u>St. Matthew</u>	<u>Norton Sound</u>	<u>Dutch Harbor</u>	<u>Adak</u>	<u>Bering Sea</u>
Red king crab	35.4 (53-86)			1.0 (77-86)	9.7 (61-86)	7.6 (60-85)	
Blue king crab		4.9 (73-86)	3.4 (77-86)				
Brown king crab					1.4 (81-86)	6.3 (81-85)	
<u>C. bairdi</u> ^{1/}					0.7 (73-85)	0.2 (73-85)	31.6 (67-85)
<u>C. opilio</u> ^{1/}							52.3 (77-85)

^{1/} Assumes foreign fishery caught only C. bairdi prior to 1977, and only C. opilio after that time.

8.1.2 Optimum Yield Specification

The OY shall be designated as the amount of crab that may be legally landed under the requirements of this FMP and under the laws of the State of Alaska that have not been superseded by the Secretary pursuant to this FMP, not to exceed 200 million pounds of king crab and 108 million pounds of C. bairdi Tanner crab and 333 million pounds of C. opilio Tanner crab in one year. The upper limit for king crab is based on the sum of the highest historical harvest levels for the management unit. Base periods of 1960 to 1986 were selected to cover the wide range of king crab harvests experienced during the development of the domestic fisheries. The upper limits for each species of Tanner crab represent estimates of peak populations. The upper limit for C. bairdi is derived from 1976 NMFS survey abundance estimates and the upper limit for C. opilio is derived from 1975 OCS survey abundance estimates (King and Tanner Crab Fisheries of the Eastern Bering Sea PMP, 1977). The lower end of the range for king crab and each species of Tanner crab is set at zero to reflect the possibility that a scheduled fishery may not open if stocks are at a low level. The OY so determined is 0 to 200 million pounds for king crab and 0.0 to 108 million pounds for C. bairdi Tanner crab and 0.0 to 333 million pounds for C. opilio Tanner crab in the BS/AI.

8.1.3 Legal Gear

Legal gear for commercial king and Tanner crab fisheries is limited to pots (traps) and ring nets. Trawls and tangle nets are prohibited because of the high mortality rates which they inflict on nonlegal crab. An escape mechanism is required on all pots which will terminate a lost pot's catching and holding ability within 6 months.

8.1.4 Pot Limits

Pot limits restrict economic efficiency and are likely to discriminate against larger vessels. Therefore, pot limits are not authorized in the management unit.

Although no limits to the number of pots used by any vessel are authorized, pot limits have been used in other crab fisheries as a conservation tool to control effort and, thus, to better monitor the fisheries. However, to enforce compliance with vessel pot limits by fishermen would require some type of monitoring system to ascertain the total number of pots being fished from a given vessel.

8.1.5 Sex Restrictions

The commercial harvest of female king or Tanner crab is prohibited. Harvesting females of either species has not been an

issue since the industry has shown no desire to harvest females. Mature female king crab, and mature female Tanner crab to an even greater extent, are smaller than males of the same age from the same location and the proportion of recoverable meat is much less.

Most west coast crab fisheries are allowed to take only male crab, a restriction that is assumed to contribute to maximum reproductive potential. The database to support or reject an extensive harvest of female king or Tanner crab, however, is poor. The accumulative effects of a female harvest and the subsequent environmental impacts are not demonstrable at this time and may be indeterminate without actually harvesting females.

8.1.6 Registration Areas

The Fishery Management Unit historically has been divided by the State into four king crab registration areas--Bering Sea, Bristol Bay, Adak, and Dutch Harbor and one Tanner crab registration area--Westward (Figure 8.1). Kodiak, South Peninsula and Chignik are also part of the State's Westward registration area but not part of the management unit in this FMP. These registration areas also serve as statistical areas and may be further divided into fishing districts, subdistricts, and sections for purposes of management and reporting. Registration areas are characterized by relatively homogeneous

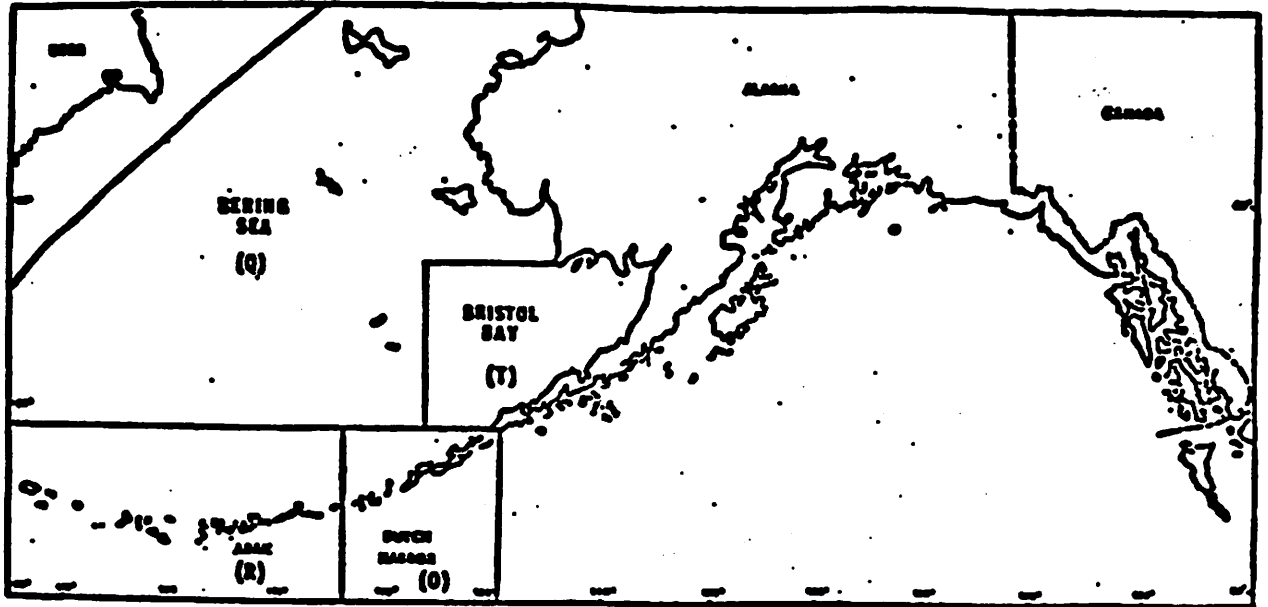


Figure 8.1 Bering Sea and Aleutian Islands Management Unit Showing State of Alaska Registration Areas for King Crab. The entire management unit consists of one registration area for Tanner crab--the Westward Area (J).

established fisheries on stocks of crab that have as adults, at most, insignificant transfer between areas. They tend to be fished by the same general class of boats from year to year, with seasons varying somewhat from area to area because of natural causes such as differences in timing of molting and breeding. Geographic remoteness from processing plants and support facilities may further characterize some areas.

Registration of vessels is required for fishing in a registration area, and may be required for fishing districts within a registration area. The registration requirement allows estimation of fishing effort and the rate at which the resource will be harvested.

District, subdistrict, and section boundaries can be changed on the basis of any of the following criteria: (1) if the area contains a reasonably distinct stock of crab that requires a separate GHL estimate to avoid possible overharvest, (2) if the stock requires a different size limit from other stocks in the registration area, (3) if different timing of molting and breeding requires a different fishing season, (4) if estimates of fishing effort are needed before the season so overharvest can be prevented, or (5) if part of an area is relatively unutilized and unexplored and if creation of a new district will encourage exploration and utilization.

The State has designated Tanner crab registration areas as superexclusive and nonexclusive, and king crab registration areas as superexclusive, exclusive, and nonexclusive. A vessel registered for a superexclusive registration area may not be used to take crab in any other registration area during the registration year. A vessel registered for an exclusive registration area may not be used to take king crab in any superexclusive registration area or any other exclusive registration area during the registration year. A vessel registered for one or more nonexclusive king crab registration areas may also be registered for only one exclusive registration area and no superexclusive areas. There presently are no superexclusive areas in the management unit and the FMP does not designate any superexclusive registration areas within the BS/AI area.

Therefore, king and Tanner crab registration areas within the management unit are designated as either exclusive or nonexclusive. Fishermen can register for any exclusive area and are not restricted in their choice. Fishermen often consider potential harvest, proposed prices, and distances between the fishing grounds and processing facilities when making their selection. Historically, exclusive registration areas are relatively small, contain known concentrations of crab, are close to shore, and have well developed fisheries. Non-exclusive registration areas are usually quite large, have developing

fisheries, and may contain some sections that are both underutilized and unexplored.

The use of exclusive designations as a conservation and economic measure aids in dispersing the fishing effort while still allowing the majority of the fleet the opportunity to harvest the majority of the crab. Exclusive registration areas can protect the overall diversified fishery activities of the participating vessel classes and maintain their economic stability.

Exclusive registration areas can assist in preventing economic dislocation of segments of the industry dependent on an individual registration area's crab stocks, particularly if the character of the fishing fleet and the related industry participants depending upon the registration area's potential production would not allow movement to another registration area. The most significant conservation purpose served by exclusive areas is the reduction of the opportunity for "pulse" type fishing effort, which tends to either overexploit discrete stocks or require overly conservative management that prevents full utilization of all available segments of the total crab stocks within the registration area.

Factors considered when designating areas as exclusive registration areas are as follows:

1. The extent to which such designation would help provide all crab vessels with a reasonable opportunity to participate in the fishery in a given portion of the management unit.

2. The extent to which the designation would help to avoid sudden economic dislocation.

3. The extent to which the designation would encourage efficient use of vessels, gear, and processing facilities.

4. The extent to which the economic benefits conferred by the designation would be offset by economic costs and inefficiencies.

5. The extent to which other management measures could yield the results desired from the designation.

The Bering Sea and Adak registration areas are designated as nonexclusive for all three species of king crab. The Bristol Bay registration area is designated an exclusive registration area for all three species of king crab. The Dutch Harbor registration area is designated an exclusive area for red and blue king crab and nonexclusive for brown king crab.

For Tanner crab, the westward Tanner crab registration area is the only registration area within the Management Unit. It is designated nonexclusive.

Registration areas (statistical areas), Districts and Sections within the BS/AI Management Unit.

Bering Sea Registration Area (Statistical Area Q): has as its southern boundary a line from $54^{\circ}36'$ N. lat., 168° W. long., to $54^{\circ}36'$ N. lat., 171° W. long., to $55^{\circ}30'$ N. lat., $173^{\circ}30'$ E. long., as its northern boundary the latitude of Point Hope ($68^{\circ}21'$ N. lat.), as its eastern boundary a line from $54^{\circ}36'$ N. lat., 168° W. long., to $58^{\circ}39'$ N. lat., 168° W. long., to Cape Newenham ($58^{\circ}39'$ N. lat.), and as its western boundary a line from $55^{\circ}30'$ N. lat., $173^{\circ}30'$ E. long., to $65^{\circ}32'$ N. lat., $168^{\circ}55'$ W. long., to $68^{\circ}21'$ N. lat., $168^{\circ}55'$ W. long. (the U.S.-Russian Convention line of 1867).

(a) Pribilof District: waters of Statistical Area Q south of the latitude of Cape Newenham ($58^{\circ}39'$ N. lat.).

(b) Northern District: waters of Statistical Area Q north of latitude of Cape Newenham ($58^{\circ}39'$ N. lat.).

(1) Norton Sound Section: waters east of 168° W. long., and north of latitude of Cape Romanzof ($61^{\circ}49'$ N. lat.) and south of the latitude of Cape Prince of Wales ($65^{\circ}36'$ N. lat.);

(2) Saint Matthew Island Section: waters north of the latitude of Cape Newenham ($58^{\circ}39'$ N. lat.) and south of the latitude of Cape Romanzof ($61^{\circ}49'$ N. lat.);

(3) Saint Lawrence Island Section: all remaining waters of the district.

Bristol Bay Registration Area (Statistical Area T): has as its northern boundary the latitude of Cape Newenham ($58^{\circ}39'$ N. lat.), as its southern boundary the latitude of Cape Sarichef ($54^{\circ}36'$ N. lat.), as its western boundary 168° W. long. and includes all waters of Bristol Bay.

Adak Registration Area (Statistical Area R): has as its eastern boundary 171° W. long., as its western boundary a line from 52° N. lat., $168^{\circ}35'$ E. long. to $55^{\circ}30'$ N. lat., $173^{\circ}30'$ E. long. (the U.S.-Russian Convention line of 1867), as its northern boundary $55^{\circ}30'$ N. lat., and as its Pacific Ocean boundary, the 800 fathom depth contour.

(a) North Amlia District: all Bering Sea waters of Statistical Area R east of the longitude of North Cape on Atka Island ($174^{\circ}09'$ W. long.), north of the latitude of Cape Utalug ($52^{\circ}06'$ N. lat.) including all waters of Nazan Bay.

(b) South Amlia District: Pacific Ocean waters of Statistical Area R east of the longitude of Cape Kigum on Atka

Island ($175^{\circ}20'30''$ W. long.) and south of a line from Cape Kigum to Cape Utalug on Atka Island, to the westernmost point of Amlia Island 171° W. long.

(c) North Atka District: all Bering Sea waters of Statistical Area R east of longitude of Cape Kigum on Atka Island ($175^{\circ}20'30''$ W. long.) west of the longitude of North Cape on Atka Island ($174^{\circ}09'$ W. long.) and northerly of a line from Cape Kigum to Cape Utalug on Atka Island excluding all waters of Nazan Bay.

(d) Adak District: all waters of Statistical Area R west of the longitude of Cape Kigum on Atka Island ($175^{\circ}20'30''$ W. long.), and east of $179^{\circ}15'$ W. long.

(e) Petrel Bank District: waters of Statistical Area R west of $179^{\circ}15'$ W. long., east of 179° E. long., south of $55^{\circ}30'$ N. lat., and north of $51^{\circ}45'$ N. lat.

(f) Western Aleutians District: all waters of Statistical Area R west of $179^{\circ}15'$ W. long., excluding the Petrel Bank district.

Dutch Harbor Registration Area (Statistical Area O): has as its northern boundary the latitude of Cape Sarichef ($54^{\circ}36'$ N. lat.), as its eastern boundary the longitude of Scotch Cap Light, and as its western boundary 171° W. long., as its seaward boundaries the

800 fathom depth contour, excluding the waters of statistical area Q.

(a) Akun District: all waters of Statistical Area O east of $165^{\circ}34'$ W. long., and north of the latitude of Jackass Point ($54^{\circ}06'35''$ N. lat.).

(b) Akutan District: all Bering Seawaters of Statistical Area O west of $165^{\circ}34'$ w. long., east of the long. of Koriga Point on Unalaska Island ($166^{\circ}59'50''$ W. long.) and north of a line from Erskine Point on Unalaska Island to Jackass Point on Akun Island.

(c) Egg Island District: all Pacific Ocean waters of Statistical Area O east of the longitude of Udagak Strait on Unalaska Island ($166^{\circ}15'$ W. long.) south of a line from Erskine Point on Unalaska Island ($53^{\circ}59'$ N. lat, $166^{\circ}16'45''$ W. long.) to Jackass Point on Akun Island, then to $54^{\circ}06'35''$ N. lat., $164^{\circ}44'45''$ W. long., including the waters of Beaver Inlet and Udagak Strait.

(d) Unalaska District: all Bering Sea waters of Statistical Area O west of the longitude of Koriga Point on Unalaska Island ($166^{\circ}59'50''$ W. long.) east of Cape Tanak on Umnak Island (168° W. long.) and north of a line from Kettle Cape on Umnak Island ($53^{\circ}16'40''$ N.lat., $168^{\circ}07'$ W. long.), to Konets Head on Unalaska Island ($53^{\circ}19'$ N. lat., $167^{\circ}51'$ W. long.).

(e) Western District: all Bering Sea waters of Statistical Area O west of the longitude of Cape Tanak on Umnak Island and all Pacific Ocean waters of king crab Registration Area O west of the longitude of Udagak Strait ($166^{\circ}16'$ W. long.) and south of a line from Kettle Cape on Umnak Island ($53^{\circ}16'40''$ N. lat., $168^{\circ}07'$ W. long.) to Konets Head ($53^{\circ}19'$ N. lat., $167^{\circ}51'$ W. long.) on Unalaska Island, excluding the waters of Udagak Strait and Beaver Inlet.

Westward Registration Area (Statistical Area J): all Bering Sea waters east of 172° E. long., and all waters between the longitude of Scotch Cap Light ($164^{\circ}44'36''$ W. long.) and east of 172° E. long. and shoreward of the 400 fathom depth contour.

(a) Eastern Aleutian District: all waters of Statistical Area J between the longitude of Scotch Cap Light and 172° W. long., and south of $54^{\circ}36'$ N. lat.

(b) Western Aleutian District: all waters of Statistical Area J west of 172° W. long. and south of $54^{\circ}36'$ N. lat.

(c) Bering Sea District: all Bering Sea waters of Statistical Area J north of $54^{\circ}36'$ N. lat.:

(1) Southeastern Subdistrict: all waters of the Bering Sea District east of 168° W. long., and south of 58° N. lat., including waters of Bristol Bay;

(2) Pribilof Subdistrict: all waters of the Bering Sea District west of 168° W. long., and south of 58° N. lat.;

(3) Northern Subdistrict: all waters of the Bering Sea District north of 58° N. lat.

(A) Norton Sound Section: all waters east of 168° W. long. and north of the latitude of Cape Romanzof;

(B) General Section: all waters of the Northern Subdistrict not included in Norton Sound.

8.1.7 Permit Requirements

No Federal permits are required. This FMP assumes that all crab fishermen are registered and permitted under the laws of the State, and as such, while fishing in the EEZ are subject to all State regulations that are consistent with the FMP, Magnuson Act, and other applicable Federal law.

Commercial fishing for king crab and Tanner crab in the management unit may be conducted only in accordance with a State fishery permit. Such permits are subject to enforcement sanctions issued pursuant to Federal and State procedures.

8.1.8 Observer Requirements

Observers are necessary aboard some crab fishing and/or processing vessels to obtain needed information such as catch per unit of effort, species composition, size and age composition of the catch, proportion of softshell crab being handled, and other important information required to manage the crab stocks in the BS/AI area.

All vessels fishing for king or Tanner crab, and/or processing king or Tanner crab within the BS/AI area, are required to take aboard an observer, when so requested by the Director, Alaska Region, NMFS. The State may also establish an observer program, but the two programs should be coordinated and not overly burdensome.

8.1.9 Bycatch Restrictions

This FMP establishes no measures to control or limit bycatch of king crab or Tanner crab in other fisheries within the management unit. Only the Council and the Secretary have authority to implement such measures under this FMP.

8.1.10 Limited Access

This FMP establishes no measures to limit access to king crab or Tanner crab fisheries within the management unit. Only

the Council and the Secretary have authority to implement limited access measures in the fisheries managed under this FMP.

8.2 Category 2--Framework Management Measures

8.2.1 Minimum Size Limits

The FMP authorizes the State to make adjustments in size limits, under the State's regulations, provided those regulations are consistent with, and based on, the criteria and objectives described above.

Minimum size limits prohibit the retention of crabs below a given carapace width size and are required because pot fishing gear is relatively nonselective in operation. This, combined with the sex restrictions and exploitation rates on legal crabs in the range of 10 to 60 percent, serves to maintain exploitation rates on the total stock at relatively low levels for many species.

Minimum size limits are commonly used in managing crab fisheries, and are important in meeting both the biological and economic objectives of this FMP. In setting minimum size limits, the State must use the following biological and/or economic rationales. The biological rationale is based on this FMP's principal management goal. The use of the estimated average size of maturity is intended to allow crabs to mate at least once

before being subjected to harvest. Evidence available for king crabs suggests that recently matured males may not enter into mating activity until one or two years after attaining maturity, while studies on Tanner crabs suggest that this period of delay does not exist. Thus, minimum size limits may be set at various intervals above the average size of maturity depending on a species life history pattern. In addition, the rate of growth after maturity enters into the estimation of minimum size limits. This has resulted in variable minimum size limits depending on the species and area inhabited. For example, minimum size limits vary between 4.75" and 6.5" for red king crabs, between 5.5" and 6.5" for blue king crabs, and between 5.5" and 6.0" for brown king crabs in the BS/AI area.

Prior to the use of legal minimum size limits, minimum size of crabs landed was probably dictated by industry economics, and to a large extent economics continues to play an important role. The biological minimum size limit for the Tanner crab species C. opilio has been 3.1", based on information on size of maturity and reproductive behavior. However, the average minimum size of crab landed since the inception of the domestic fishery has been in the range of 4.0" to 4.5". This reflects the desire for larger crabs by the processing sector. Past requests for lowering the minimum size limit for the Tanner crab species C. bairdi from 5.5" to 5.0" have met with resistance, also because of market requirements for a larger crab.

Minimum size limit regulations interact closely with GHL regulations (see Section 8.2.2 below). The minimum commercial size limit has been determined for each area by using the size when 50 percent of the male population is sexually mature and adding the estimated dimensional growth of males up to a two year period. This ensures each male the opportunity to reproduce at least once before becoming vulnerable to the fishery. The minimum size limit serves to denote the fraction of the total male stock that is subjected to exploitation. The GHL for a given season and area is established by applying an appropriate exploitation rate to the commercial fraction of the males defined as legal by the minimum size limit in effect.

8.2.2 Guideline Harvest Levels

The term GHL corresponds to the term TAC used in the BS/AI groundfish FMP. GHL is used in this FMP in lieu of TAC because the State has used this term and this management measure allows for State management decision-making within a framework of Federally-approved criteria. GHL is critical to attainment of the primary goal of this FMP.

GHLS are preseason estimates of the allowable catch based on the most recent information available relating to stock status. They provide the industry with an indication of the size of harvest to expect. However, the GHL may be adjusted based on in-season information pertaining to fishery performance or stock

status. Each year the State establishes annual GHLS for each species of king and Tanner crab for each area, district, subdistrict, and section located within the management unit, in consultation with crab scientists from the NMFS Northwest and Alaska Fishery Center and the NMFS Alaska Regional Office. Previous GHLS remain in effect until new ones are established. Seasons may be closed when the GHL is reached, or earlier or later based on current in-season information on fishery performance or on changes in stock condition. If the sum of the GHL for either king or Tanner crab falls outside the OY range established in this plan, the Secretary may follow the procedure described in Section 9 of this FMP and issue Federal regulations to supersede any State action inconsistent with this FMP, or the Council may amend the FMP.

As with the king crab fishery, Tanner crab fishery GHLS are expressed in terms of weight of legal crabs for each regulatory area. For the C. opilio fishery, GHLS have been estimated for various sizes of crabs since the legal size is presently smaller than the industry's acceptable size. The State relies heavily on NMFS trawl surveys for estimating GHLS for the Bering Sea portion of the BS/AI area. The exploitation rate for C. bairdi has been 0.4. This was determined in the early days of Tanner crab management based on exploitation experience with red king crab, and has continued to this day. The exploitation rate for 4-inch C. opilio, the size that has generally been accepted by industry, has been 0.58. This exploitation rate was based on analyses by

Somerton and Low (1977) which used yield per recruit methodology. There has been a trend toward a lower market size limit for C. opilio in recent years and the exploitation rate for these smaller size limits has been adjusted according to yield per recruit analysis. These figures have been modified by indices of egg production (percent fullness of egg clutch), recruitment outlook, bycatch amounts taken in other fisheries, and the size-age structure of the legal segment of the population. The State has also used pot index surveys for some areas, such as the Eastern Aleutians, to estimate GHLS by comparing the percentage increase or decrease in relative abundance from the current survey to previous surveys. The GHLS is then adjusted to reflect the relative index of the current survey. Adjustments have been made based on indices of egg production, recruitment outlook, and/or the size-age structure of the legal segment of the population.

Exploitation rates cannot be calculated for data-limited situations in which no estimates of stock abundance are available. Therefore, the table of exploitation rates presented later (Table 8.4) cannot be multiplied by population abundance to generate GHLS in these cases. In these cases, then, GHLS are calculated using less quantitative methodology than those computed on populations for which abundance estimates exist. However, some of the same factors that are used to specify the precise exploitation rate for populations of known abundance are also applicable here. These include: (1) historical catch per

unit of effort (CPUE); (2) size and/or age structure of the population, if onboard catch or dockside landing samples are available; (3) sex ratios in the current population, if onboard catch samples are available; (4) anticipated size limits used in managing the fisheries; (5) status of related stocks; (6) mortality of king and Tanner crab due to non-target fisheries; (7) year-to-year variability in harvest; and (8) risk of adverse socioeconomic impact to user groups. In severe data-limited situations, rough estimates of socioeconomic impacts, historic CPUE, and harvest variability may be the only data available upon which to base decisions.

Despite data limitations, the management goal and objectives for fisheries on these stocks are identical to those specified earlier in this FMP. Each year, progress toward the management goal is evaluated using the best information available. Based upon this progress, GHLS are lowered or raised for the next fishing season. For example, if recent CPUE and commercial catches are well below historic averages, the GHLS might be lowered to decrease fishing mortality for the next few years. Reduced exploitation rates should promote an increase in stock size because of enhanced survival. As CPUE increases over the years, increases in the GHLS can then be considered once again.

Because data are limited when population size estimates are unavailable, trends in abundance cannot be anticipated. In such cases, management decisions must be based more upon recent

fishery performance than upon anticipation of future fishing success. Therefore, a greater degree of conservatism will be necessary to prevent irreversible adverse impacts on reproductive potential when depressed stocks are declining. Also because of this lack of data necessary to predict abundance trends, the increases in GHLS for rebuilding stocks may lag increases in stock abundance. In recognition of these management difficulties for data-limited situations, attempts will be made to collect data necessary to estimate abundance for all major crab stocks within budgetary limitations.

Future developments may lead to refinements in GHLS estimates. It is hoped that recruitment can one day be predicted for all of the Tanner and king crab populations from data on stock size environmental conditions and abundance of other species. However, for the present, GHLS which represent the best available information will be used along with in-season monitoring to manage the king and Tanner crab fisheries of the BS/AI area.

The GHLS are based on the best estimate of the exploitable population available, which may include any of the following sources of data: in-season harvest data, historical harvest data, or preseason survey data. The GHLS for an area is determined by applying an exploitation rate based on population size of legal crabs above a minimum biological size. The GHLS may

also be based on a size limit above the biological size for economic reasons determined by the market for crabs.

Table 8.4. Exploitation rates of legal crab given relative population size.

<u>Population Size</u>	<u>Exploitation Rate, %</u>
<u>< Threshold</u>	0
Depressed	<u>≤ 20</u>
Average	20 - 40
Peak	40 - 60

The actual GHL is determined by applying an exploitation rate from Table 8.4 to the population established above. The actual exploitation rate will fall in the appropriate specified range (Table 8.4). Selection within the range will be based on the following criteria:

1. historical CPUE,
2. size and/or age structure of the population,
3. sex ratios in the current population,
4. anticipated size limits used in managing the fisheries,
5. estimates of current population and its accuracy,
6. reproductive potential of the current population,
7. current natural mortality rates,
8. current growth rates,

9. crab mortality due to non-target fisheries,
10. year-to-year variability in harvest,
11. the risk of socioeconomic harm to authorized users of the crab.

This provision is established with the intent of allowing managers to determine the optimal harvest rates subject to established objectives and consistent with the most current analytical procedures and information.

For populations determined to be at or below the threshold, the season will be closed for conservation purposes. These thresholds will be established for each fishery using best available data.

8.2.3 In-season Adjustment

After registration areas are opened, seasons set, minimum sizes and GHs established pre-season, events can occur in-season which would detract from, or even destroy, the management scheme and the resultant economic benefit to the nation. When a pre-season prediction proves to be incorrect or when an unplanned event occurs which affects pre-season predictions, compensatory in-season adjustments must be made to keep the management system on track toward the principal goal of this FMP. In-season adjustments can assist in attainment of the FMP's principal goal through the use of any combination of the biological

conservation, economic and social, gear conflict, habitat, or vessel safety strategies discussed above.

The State monitors the condition of king and Tanner crab stocks through the use of such data and information as are practically available, both preseason and in-season. When the State, in close consultation with the NMFS, finds that continued fishing effort would jeopardize the viability of king or Tanner crab stocks within a registration area, the registration area or a portion of the registration area is closed by emergency order. In determining whether to close a registration area, the State must consider all appropriate factors to the extent there is information available on such factors. Factors to be considered include: (1) the effect of overall fishing effort within the statistical area encompassing the registration area, (2) catch per unit of effort and rate of harvest, (3) relative abundance of king or Tanner crab within the area in comparison with preseason expectations of the ADF&G and NMFS, (4) such GHs as may be promulgated by State regulations, (5) the proportion of soft shell king or Tanner crab being handled and proportion of deadloss, (6) general information on the condition of the king or Tanner crab stocks within the area, (7) information pertaining to the MSY of king or Tanner crab within the registration area, (8) timeliness and accuracy of catch reporting by buyers, fishermen or vessel operators within the registration area to the extent that such timeliness or accuracy may reasonably be expected to

affect proper management, and (9) adequacy of subsistence harvests within the registration area.

Decisions to adjust seasons and areas in-season must be recorded and justified in writing to NMFS. The written justification must reflect the information relied upon in reaching the in-season decision.

The FMP authorizes the State to make in-season adjustments, under the State's regulations, provided those regulations are consistent with and based on the considerations specifically listed in the FMP.

8.3 Category 3--Management Measures Deferred to State

8.3.1 Reporting Requirements

As the commercial Alaskan king and Tanner crab fisheries have grown over recent years, so has our knowledge of these species. Information gained through scientific surveys, research, and fishermen's observations have all led to a better understanding of the biology, environmental requirements, and behavior of the crab stocks. Since fishery managers monitor harvest rates in season to determine areas of greatest fishing effort, thereby preventing overharvest of individual crab stocks, the current State catch and processing report requirements are an essential component in achieving the objectives of this FMP.

This information must be provided for all crabs harvested in the EEZ of the BS/AI area, and in adjacent State waters whether the catch is landed in or outside of Alaska.

Assuming that all vessels participating in the fishery are registered with the State, only State reporting requirements are necessary. Therefore, reporting requirements shall be deferred to the State.

8.3.2 Fishing Seasons

Fishing seasons have been used to protect king and Tanner crab during the molting, mating, and growing periods of their life cycle. Normally the fisheries have been closed during these sensitive periods to protect crab from mortality caused by handling and stress when shells are soft, and to maximize meat recovery by delaying harvest until the shells have filled out. Fisheries conducted during sensitive biological periods have been, and should be in the future, carefully designed to prevent any irreparable damage to the stocks.

Traditionally, closed seasons have been set to maximize the reproductive potential of the king and Tanner crab populations based on one or more of the following conditions:

1. Protection of the breeding population of male crab as they segregate into discrete schools prior to and during their annual migrations into shallow water breeding grounds.

2. Consideration of molting periods so that the shells have hardened enough to permit handling with minimal mortality and damage with increased product quality.

3. Protection of the population during sensitive periods of the life cycle of the crab, including egg hatching by females.

At times, seasons have been set that conflict with some of the preceding conditions. Such openings historically have been based on one or more of the following considerations:

1. Provision for an exploratory fishery.

2. Compensation for particularly adverse environmental conditions, such as sea ice covering the fishing grounds.

The biologically sensitive period in the life cycle of both king and Tanner crab within the management unit is generally from late winter to early summer. Part of the Tanner crab fishery has occurred during the mating period, although the timing of seasons for individual stocks may vary. Very little information is available on the sensitive period for brown king crab. Crab harvests occur over a short period of time. Therefore, there is

an opportunity to look beyond strictly biological conditions when setting season openings.

Within the confines of the biological constraints, the open fishing season has been set to optimize the economic efficiency of the industry in utilizing the king and Tanner crab resources. Some of the applications that have been used to achieve better economic efficiency are:

1. To minimize the amount of crab dying prior to processing (deadloss), and thus discarded. Deadloss has been found to increase if crabs are in softshell condition, if they are held for long time periods, if holding tanks are contaminated with fresh or warm water, or if crabs are handled too often.
2. To produce the best possible meat recovery rate.
3. To minimize fishing during severe weather conditions.
4. To minimize the cost of industry operations.
5. To coordinate the king and Tanner crab fisheries with other fisheries that are making demands on the same harvesting, processing, and transportation systems. Seasons can be timed relative to one another to spread fishing effort, prevent gear saturation, and allow maximum participation in the fisheries by all elements of the crab fleets.

6. To reduce the cost of enforcement and management before, during, and after an open season, as affected by the timing and area of different king and Tanner crab seasons, and as affected by seasons for other resources.

Seasons are often closed before the scheduled closure date based on in-season assessments of fishing performance and stock strength compared to preseason estimates of GHGs. Close monitoring of the fishery as it progresses provides for closures when the GHG is reached, or at such other times as indicated by in-season fishery performance or stock status information. The GHGs are often adjusted by the State based on preseason surveys, changes in CPUE, and any other methods available, including observers on fishing or processing vessels, and interviews with fishermen.

King and Tanner crab seasons may be combined to minimize handling mortality, to maximize efficiency, and to reduce unnecessary administrative and enforcement burdens. This objective is secondary, however, to optimal utilization of each species.

The setting of fishing seasons to achieve management objectives of the FMP shall be deferred to the State.

8.3.3 Gear Placement and Removal

Placement of gear on the fishing grounds before and after a season can be allowed within certain limits. Such early placement or late removal may be justified in light of (1) its lack of biological impacts, (2) enforcement problems and costs borne by the public and the industry, (3) lack of potential gear conflict, and (4) the unavailability of unloading facilities and gear storage areas.

Regulations which allow gear placement on the grounds prior to, and immediately following, some highly competitive crab fisheries grew out of the need to provide additional time to haul gear to and from the fishing grounds because of limited storage and loading and unloading facilities available to the entire fleet.

The FMP defers gear placement and removal requirements to the State.

8.3.4 Gear Storage

Gear storage on the fishing grounds has been historically allowed within certain limits. Although crab pots are generally stored on land, storage in a nonfishing condition in ice-free water areas of low crab abundance may be justified in light of: (1) expected biological impacts; (2) the potential enforcement

costs to the public; (3) the costs to vessel owners of storage on land; (4) the availability of other land and sea storage areas; and (5) the possibility that it would lead to potential gear conflict.

The FMP defers gear storage requirements to the State.

8.3.5 Vessel Tank Inspections

Vessel tank, or live-hold and freezer, inspections normally are required before the opening of a king or Tanner crab fishing season if justified in light of: (1) enforcement requirements, (2) the ability of the vessels to move easily between the fishing grounds and the location of inspection centers, (3) the time necessary for the vessels to transport their gear from storage areas to fishing grounds, (4) the fuel consumption that the inspection requirement will cause, and (5) the equity of allowing all participants to start the fishery at substantially the same time.

The FMP defers tank inspection requirements to the State.

8.3.6 Gear Modifications

Pots and ring nets are the legal gear for capturing crab in the BS/AI area. Multiple attached pots are allowed in the brown king crab fishery. Various devices may be added to pots to

prevent capture of other species. Escape areas may be incorporated or mesh size adjusted to allow female and sublegal male crab to escape. An escape mechanism is required on all pots which will terminate a pot's catching and holding ability in case the pot is lost (see Section 8.1.3).

The actual design specification required for pots and ring nets is deferred to the State.

**9.0 PROCEDURE FOR COUNCIL/NMFS PARTICIPATION IN STATE OF ALASKA
PRESEASON FISHERIES ACTIONS AND NMFS REVIEW TO DETERMINE
CONFORMANCE OF THE REGULATIONS WITH THE FMP, MAGNUSON ACT,
AND OTHER APPLICABLE FEDERAL LAW**

**9.1 Prior to the Board of Fisheries or Other State Crab
Regulatory Meeting.**

Commencing on the effective date of the regulations implementing this FMP, and until the next regularly scheduled Board meeting concerning crab regulations, or other State crab regulatory meeting, any member of the public may appeal any existing regulation to the State and, if unsuccessful, to the Secretary, and any Alaska Statute to the Secretary, in accordance with the procedure set forth below. Secretarial review is limited to whether the challenged statute or regulation conforms to the FMP, the Magnuson Act, or other applicable Federal law.

**9.2 At the Board of Fisheries or Other State Crab Regulatory
Meeting.**

Before the meeting of the Board or other State crab regulatory body (the Board meeting has historically taken place in March or April), the public has an opportunity to petition the State for new regulations or repeal of existing regulations. Copies of all proposals will be available to the public and to NMFS and the Council. Representatives of NMFS, NOAA's Office of General

Counsel, and the Council will meet with the State and will be able to participate in the State's discussions and deliberations. However, these representatives will not vote on the various management measures.

9.3 After the Board of Fisheries or Other State Crab Regulatory Meeting.

After the meeting, the procedure for review of the resulting crab regulations follows two paths. Members of the public aggrieved by the State's refusal to adopt or repeal regulations pursuant to their petitions may appeal to the Superior Court pursuant to the State Administrative Procedure Act, as more fully described in Appendix B hereto. A member of the public who objects to a crab regulation must first appeal to the State through this procedure, and must receive an adverse ruling prior to appealing to the Secretary. An appeal to the State is not limited to a challenge that the proposed regulation is not consistent with the FMP, the Magnuson Act, and other applicable Federal law. The Secretary will consider only comments on WHETHER THE NEW REGULATIONS COMPLY WITH THE PLAN, THE MAGNUSON ACT AND OTHER APPLICABLE FEDERAL LAW. The Secretary need not respond to comments that merely object to a regulation or state that an alternate regulation is better unless the respondent ties the objection to the correct standard of review. This is to allow the Secretary to disregard frivolous comments and to encourage interested persons to participate fully in the State procedures before seeking Federal intervention.

The second path of review will be a Secretarial review of the measures adopted by the Board to determine if they are consistent with the Magnuson Act and its national standards, the FMP and its objectives, and other applicable Federal law. During this review, the Secretary will consider comments submitted by the Council for 20 days after the end of the Board or other State crab regulatory meeting.

If, either as a result of its own review and its review of comments received, or as a result of an appeal of an adverse decision in the State appeal process, the Secretary makes a preliminary determination that a regulation does violate the FMP, the Magnuson Act, or other applicable Federal law, then the Secretary will: (1) publish in the Federal Register a proposed rule that complies with the FMP, the Magnuson Act, and other applicable Federal law, together with the reasons for the rule, and request comments for 30 days, and (2) provide actual notice of the proposed rule to the Council and the Alaska Commissioner of Fish and Game. The State will have 20 days to request an informal adjudicatory hearing.

If, after reviewing public comments and any information obtained in an informal hearing, the Secretary decides that the State regulations in question do not violate the FMP, the Magnuson Act, or other applicable Federal law, the Secretary will publish in the Federal Register a withdrawal of the proposed rule, and so notify the State and the Council.

If the State withdraws or states that it will not implement the regulation in question, the Secretary will publish in the Federal Register a withdrawal of the proposed rule. The State may choose to withdraw its rule as a result of its own appeals procedure or because of the review procedure set up under this FMP.

If, after reviewing public comments and any information obtained in an informal hearing, the Secretary decides that the regulations in question do violate the FMP, the Magnuson Act, or other applicable Federal law, the Secretary will publish in the Federal Register a final rule that supersedes the State regulation in the EEZ. Such rules are Federal regulations, which will comply with Federal rulemaking procedures and be enforced as Federal law.

If preseason changes are made at a Board or other State crab regulatory meeting which takes place later in the year than anticipated here based on past history, or if a season is to be set earlier in the year than usual so that there is not time to follow the procedure described in this chapter and have any final Federal rule that may be necessary in effect before the start of the season, the Secretary will notify the Council and the Commissioner of Fish and Game that he will use an expedited review procedure, possibly including deletion of the requirement for initial appeal to the State, and explain what the procedure is. In the expedited review, the Secretary will provide for comment by the Council (or a committee of the Council) and the

Commissioner of Fish and Game if at all possible. However, if necessary, the Secretary can immediately publish in the Federal Register an interim final rule that supersedes in the EEZ any State regulation that the Secretary finds does not comply with the FMP, the Magnuson Act, or other applicable Federal law, and ask for comments on the interim final rule.

10.0 PROCEDURE FOR APPEAL TO THE SECRETARY OF COMMERCE TO SET
ASIDE AN IN-SEASON ACTION OF THE STATE

For the purposes of this chapter, an in-season appeal is an appeal of any action by the State, other than an action taken by the State that NMFS had already reviewed in the process described above. It includes an appeal of an action of the Board, the ADF&G, or of the State legislature. The in-season appeal process is limited similarly to the preseason review process, in that THE SECRETARY WILL ONLY CONSIDER APPEALS THAT THE STATE REGULATION DOES NOT COMPLY WITH THE FMP, THE MAGNUSON ACT, OR OTHER APPLICABLE FEDERAL LAW. For example, where State in-season, discretionary action is alleged to violate a Magnuson Act National Standard, a management measure fixed in the FMP, or fails to follow the criteria set forth in the FMP for a decision under a frameworked management measure, an appeal to the Secretary would be appropriate. The Secretary will not consider appeals that merely state that the appellant does not like the regulation or prefers another. The latter argument is to be presented to the State.

If a person believes that an in-season action of the State violates the FMP, the Magnuson Act, or other applicable Federal law, the person must, within 10 days of the issuance of the in-season action, submit to the Secretary in writing a description of the action in question and the reasons that it violates the FMP, the Magnuson Act, or other applicable Federal

law. The Secretary will immediately provide a copy of the appeal to the Council and the Commissioner of Fish and Game. If time permits, he will allow them five days for comment on the appeal. If the Secretary determines that there is not sufficient time available for this review, he will seek comments by telephone from the Commissioner of Fish and Game and from the Council's Crab Review Committee.

State crab regulations grant certain rights to appeal in-season area closures. An interested person may wish to pursue State appeal procedures along with the procedure described here.

If, after review of the appeal and any comments from the Commissioner of Fish and Game and the Council, the Secretary determines that the challenged action is consistent with the FMP, the Magnuson Act, and other applicable Federal law, he will so notify the appellant, the Commissioner of Fish and Game, and the Council.

If, after review of the appeal and any comments of the Commissioner of Fish and Game and the Council, the Secretary finds that the in-season action violates the FMP, the Magnuson Act, or other applicable Federal law, and that for good cause he must immediately issue Federal regulations that supersede State regulations in the EEZ, he will publish in the Federal Register the necessary final Federal rule and request comments on the rule.

If, after review of the appeal and the comments of the Commissioner of Fish and Game and the Council, the Secretary makes a preliminary determination that the action may be inconsistent with the FMP, the Magnuson Act, or other applicable Federal law, but that Federal regulations that supersede the State regulation in the EEZ need not be implemented immediately, he will follow the same process that he would follow if he had determined that a preseason action would violate the FMP, the Magnuson Act, or other applicable Federal law (see Chapter 9). That is, he would publish a proposed rule in the Federal Register and request comment, provide the State with an opportunity for an informal adjudicatory hearing, and either withdraw the proposed rule or publish a final rule that supersedes the State rule in the EEZ. This would be a Federal action and would comply with Federal rulemaking procedures.

APPENDICES

Appendix A

National Standards of the Magnuson Fishery Conservation and Management Act

1. Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.
2. Conservation and management measures shall be based upon the best scientific information available.
3. To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.
4. Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (a) fair and equitable to all such fishermen, (b) reasonably calculated to promote conservation, and (c) carried out in such a

manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

5. Conservation and management measures shall, where practicable, promote efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

6. Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

7. Conservation and management shall, where practicable, minimize costs and avoid unnecessary duplication.

Appendix B

State of Alaska Management Structure

Institutions: The State Organizational Act of 1959 provided for Alaska Statutes, Title 16, which deals with Alaska Fish and Game Resources. Article 1 provides for a Department of Fish and Game whose principal executive officer is the Commissioner of Fish and Game. The Commissioner is appointed by the Governor for 5 years.

The Commercial Fisheries Division was established to manage all commercially harvested fish species in Alaska. The Division is headed by a director who supervises four regional supervisors. The regions are further separated into management areas. Area management biologists are responsible for collecting catch data and monitoring fisheries in their areas.

A Subsistence Section within the Commissioner's Office was recently established to document subsistence needs and utilization and to make recommendations for developing regulations and management plans to ensure subsistence use preference.

The enforcement of fish and game laws and regulations is provided by ADF&G and the Alaska Department of Public Safety (ADPS). The fish and wildlife protection officers of the ADPS

operate independently of the ADF&G, although communication between the two departments is maintained and activities are coordinated.

Jurisdiction: ADF&G asserts management authority over all migratory fish and shellfish species which enter and leave territorial waters of the State, including the migratory fish and shellfish taken from State waters which are indistinguishable, in most instances, from those taken from adjacent high seas areas. Regulations governing migratory fish and shellfish cover both areas and are enforced by the State's landing laws. These landing laws prohibit the sale or transportation within State waters of migratory fish and shellfish taken on the high seas unless they were taken in accordance with State regulations.

The Fisheries Regulatory Process: The Alaskan system has a seven-member Board, composed of fishermen and other businessmen appointed by the Governor, which considers both public and staff regulatory proposals in deciding on regulatory changes.

The Board is required by law to meet or hold a hearing at least once a year in each of the following areas of the State in order to assure all people of the State ready access to the Board: (a) Upper Yukon-Kuskokwim-Arctic, (b) Western Alaska (including Kodiak), (c) Southcentral, (d) Prince William Sound (including Yakutat), and (e) Southeast.

Since the late 1960s, the Board, and before it, the Board of Fish and Game, has held a minimum of two meetings annually to adopt changes in the fisheries regulations. The fall Board meeting, usually held in early December, considers proposals for changes in sport fishing regulations and in commercial and subsistence finfish regulations. A spring Board meeting, usually held in late March or early April, considers commercial and subsistence shellfish regulatory proposals.

Regulations which may be adopted by the Board cover seasons and areas, methods and means of harvesting, quotas, and times and dates for issuing or transferring licenses and registrations.

Advisory committees, composed of people concerned about the fish and game resources of their locality, serve as local clearinghouses and sources of proposals for Board consideration.

Following submission of public proposals, ADF&G staff members review the proposals and redraft the wording, when necessary, to conform to the style required. ADF&G also submits proposals for the Board's consideration.

In adopting new regulations, the Board follows Alaska's Administrative Procedure Act. This act has several requirements: At least 30 days prior to the adoption of new regulations, a notice giving the time and place of the adoption proceedings, reference to the authority under which the regulations are

proposed, and a summary of the proposed action, must be published in a newspaper of general circulation and sent to all interested people who have asked to be informed of the proposals. During the proceedings, the public must be given an opportunity to testify on the proposed changes. If a new regulation is adopted, it must be submitted to the Lieutenant Governor through the Attorney General's office. Thirty days after being filed with the Lieutenant Governor, the new regulation becomes effective. Because of these requirements, new regulations usually do not become effective until about 2 months after being adopted by the Board.

Regulatory flexibility is given to the Commissioner of Fish and Game and to his authorized designees to adjust seasons, areas, and weekly fishing periods by emergency order.

The requirements outlined in the preceding paragraph do not apply in the case of emergency regulations, which may be adopted if needed for the immediate preservation of public peace, health, safety, or general welfare. An emergency regulation remains in effect 120 days unless it is adopted as a permanent regulation through the procedure described above. Emergency regulations have the same force and effect as permanent regulations. The Board has delegated authority to the Commissioner to adopt emergency regulations where an emergency exists as described in AS 44.62.250.

Appeals to the Board of Fisheries

Reconsideration of issues during a meeting - During a Board meeting, any Board member may move to reconsider an issue regardless of how the member voted on the original issue. Board Policy #80-78-FB requires that the motion be made prior to the adjournment of the meeting, that the motion be supported with new evidence, unavailable at the time of the original vote and that public notice be given as to when reconsideration will occur.

Petitions to the Board - Under Section AS 44.62.220, an interested person may petition the Board for the adoption or repeal of a regulation. Upon receipt of a petition requesting the adoption, amendment or repeal of a regulation, the Board shall, within 30 days, deny the petition in writing or schedule the matter for public hearing. The Board and the Board of Game adopted a Joint Board Petition Policy which limits the scope of petitions they are willing to act upon outside of the normal regulatory cycle. The Joint Board recognized that in rare instances extraordinary circumstances may require regulatory changes outside this process. Therefore, it is the policy of the Board and the Board of Game that petitions will only be accepted if the problem outlined in the petition results in a finding of emergency. In accordance with State policy (AS 44.62.270), emergencies will be held to a minimum and rarely found to exist. Alaska Statute 44.62.250 specifies that in order to adopt emergency regulations, the agency must find that it is

necessary for the immediate preservation of the public peace, health, safety, or general welfare. If such a finding is made, the agency adopting the emergency regulation shall submit a copy to the Lieutenant Governor for filing and for publication in the "Alaska Administrative Register" notice of adoption shall be given within five days of the adoption. Failure to give notice within ten days automatically repeals the regulation. For fish and game regulations, the Boards determined that an emergency is an unforeseen, unexpected event that either threatens a fish or game resource, or an unforeseen, unexpected resource situation where a biologically allowable resource harvest would be precluded by delayed regulatory action and such delay would be significantly burdensome to the petitioners since the resource would be unavailable in the future.

Appeals to the Commissioner of Fish and Game

Petitions - Board Policy #79-53-FB delegates authority to the Commissioner to adopt emergency regulations, during times of the year when the Board is not in session. The Commissioner may adopt, in accordance with the Administrative Procedure Act (AS 44.62), an emergency regulation where an emergency exists as described in AS 44.62.250. All emergency actions shall, to the full extent practicable, be consistent with Board intent. The Commissioner is further required to consult, if possible, with members of the Board to obtain their views.

In-season Management Actions - Within 5 days after the closure of any registration area, an individual holding a king or Tanner crab permit issued by the Commercial Fisheries Entry Commission or the owner of any vessel registered to that area may formally request the commissioner to reopen the area. The commissioner shall personally review pertinent information on the condition of king crab within the area, and shall formally announce his decision within 14 days of the request.

SAAC 34.035(d), 35.035(d).

Judicial Review - The APA in Section 44.62.300 provides for court review of regulatory actions of the Board or commissioner. An interested person may get a judicial declaration on the validity of a regulation by bringing an action for declaratory relief. All actions are to be brought in the Superior Court. The court may declare the regulation invalid for a substantial failure to comply with required administrative procedures (AS 44.62.010-44.62.320) or, in the case of an emergency regulation or order of repeal, upon the grounds that the facts recited in the statement do not constitute an emergency under AS 44.62.250.

Appendix C

Biological and Environmental Characteristics of the Resource

Life History Features.

This section summarizes the habitats and life history of king and Tanner crab in the BS/AI area. More detailed information can be found in the following:

Adams, Albert E., 1979. Life history of the snow crab Chionoecetes opilio, a literature review. Univ. of AK Sea Grant Rep. 78-13, 141p.

Fukuhara, Francis M., 1985. Biology and fishery of the southeastern Bering Sea for red king crab (Paralithodes camtschatica, Tilesius). Northwest and Alaska Fisheries Center Proc. Rep. 85-11, 170p.

Somerton, D.A., 1981. Life history and population dynamics of two species of Tanner crab, Chionoecetes bairdi and C. opilio, in the eastern Bering Sea with implications for the management of the commercial harvest. Ph.D Dissertation, Univ. of WA, 220p.

Description of Habitat Types.

The Bering Sea covers a flat, relatively featureless shelf whose southern boundary extends from near Unimak Pass to Cape Navarin, and from a deep-water basin bounded by the shelf and the Aleutian Island Arc. The Bering Sea has certain characteristic features which make it different from other corresponding regions in higher latitudes (see Table C.1 from Favorite and Laevastu, 1981). The Aleutian Island Arc contains a narrow shelf that drops off rapidly to the Bering Sea on the north and the North Pacific Ocean to the south. Seasonal changes are more moderate than over the Bering Sea shelf. Ocean currents flow through the passes between the Islands, and south of the chain the narrow shelf is washed by a westward current which is stronger in the eastern part; on the Bering Sea side this current is missing.

The waters of the Bering Sea can be partitioned (Kinder and Schumacher, 1981 a, b) during the summer by transition zones which separate four hydrographic domains (Figure C.1). The hydrographic domains are distinguished by bottom depth and seasonal changes in their vertical density structure. During the winter this structure is absent or much less apparent under the ice. Beginning in the nearshore area, the coastal domain includes waters less than 50 m in depth that due to tidal and wind mixing do not stratify seasonally. A frontal zone of transition separates the coastal domain from the middle shelf domain. In the middle shelf domain, over bottom depths of 50 to

TABLE C.1

Characteristic features of the eastern Bering Sea shelf ecosystem

Characteristic features of the eastern Bering Sea shelf ecosystem

Characteristic features	Consequences
<i>Physical features</i>	
Large continental shelf	High standing stocks of biota High fish production Large food resources for mammals
High latitude area	Nutrient replenishment with seasonal turnover Environmental distribution limits for many species Large seasonal changes Seasonal presence of ice Accumulation of generations
Large seasonal changes	Seasonally changing growth Seasonal migrations Possibility of large anomalies
Ice	Presence of ice-related mammals Migration of biota (in and out) caused by ice Limited production in winter Outmigration of biota
Cold bottom water	Higher mortalities and lower growth of benthic and demersal biota Accumulation of generations
High runoff	Low salinities (near coasts) High turbidities
Stagnant circulation	Presence of euryhaline fauna Local biological production Local pelagic spawning
<i>Biological features</i>	
High production and slow turnover Fewer species (than in lower latitudes) Large numbers of marine mammals and birds Pronounced seasonal migrations	High standing stocks Few species quantitatively very dominant High predation by apex predators Great local space and time changes of abundance
<i>Fisheries resource features</i>	
Pollack dominant semidemersal species Yellowfin sole dominant demersal species Herring and capelin dominant pelagic species Abundant crab resources	Flexible feeding and breeding habits, special environmental adaptation Abundant benthos food supply Important forage species in the ecosystem Large, relatively shallow shelf Few predators on adults, special environmental adaptation
Abundant marine mammals	Abundant food supply, no enemies, insignificant hunting. Compete with man for fishery resources
<i>Man-related features</i>	
Fisheries development rather recent	Ecosystem in near-natural state, not yet fully adjusted to effects of extensive fishery
Little-inhabited coasts	Ample space for breeding colonies of mammals and birds Very limited local fisheries, no pollution

Favorite, Felix and Taivo Laevastu, 1981. Finfish and the environment. In Hood, D.W. and J.A. Calder (eds.): The eastern Bering Sea shelf: oceanography and resources, Vol. 1. Univ. of Washington Press, Seattle, Washington: 597-610.

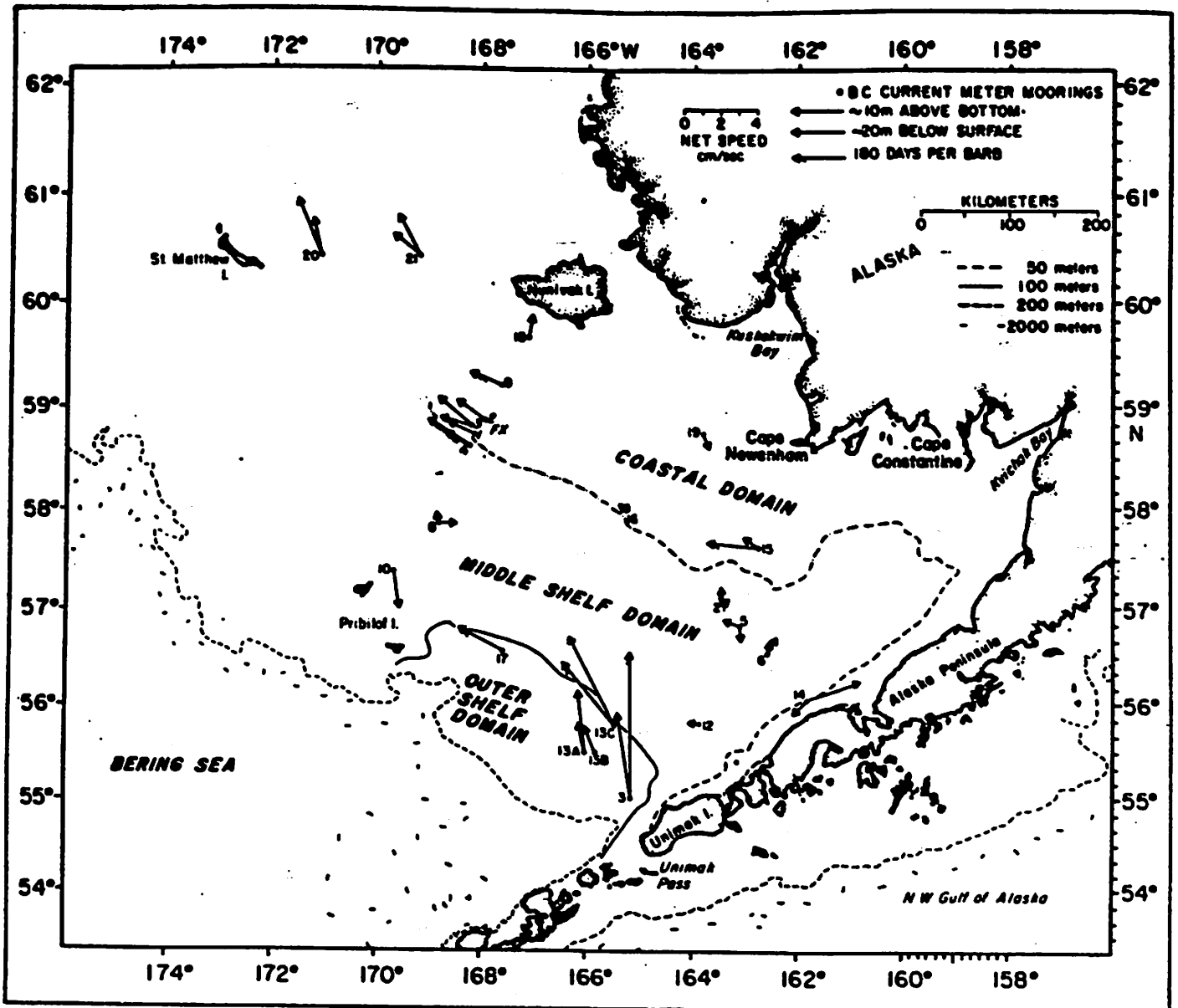


Figure C.1 Mean flow. The mean for all records at each mooring site is shown. Coastal and outer regime moorings generally had statistically significant means, while middle shelf sites did not. The domains refer to hydrographic structure (preceding chapter), but the domains and flow regimes are nearly coincident.

Kinder, T.H. and J.D. Schumacher, 1981. Circulation over the continental shelf of the southeastern Bering Sea. In Hood, D.W. and J.A. Calder (eds.): The eastern Bering Sea shelf: oceanography and resources, Vol.1. Univ. of Washington Press, Seattle, Washington: 53-76.

100 m, seasonal stratification sets up during the ice-free season, and warmer, less saline waters overlie colder and more saline bottom waters. This stratification persists until broken down by winter cooling and storms. A broad transition or frontal zone separates the middle shelf zone from the outer shelf domain. This latter domain, in water depths from 100 to 170 - 200 m, is characterized by well-mixed upper and lower layers separated by a complex intermediate layer containing fine density structure. In general, the outer shelf waters intrude shoreward near the bottom, while middle shelf waters spread seaward above them. Beyond the outer shelf domain, the shelf break front separates shelf waters from the oceanic domain, with its more saline, less aerobic waters overlying the Bering Sea slope and deep basin.

Net circulation in the Bering Sea is generally sluggish. However, moderate to strong tidal and wind-driven currents can be established over the shelf. Nearshore coastal currents from the Gulf of Alaska shelf flow into the Bering Sea through Unimak Pass and then apparently continue northeastward along the Alaska Peninsula. Within Bristol Bay, the flow becomes counterclockwise and follows the 50 m depth contour toward Nunivak Island. In the middle shelf domain (water depths from 50-100 m), currents are weak and variable, responding temporarily as wind-driven pulses. In the outer shelf domain, a mean northwestward flow exists along the shelf edge and upper slope following depth contours.

With respect to the physiographic regimes and hydrographic domains of the Bering Sea, king crabs cross boundaries during seasonal and spawning migrations from one domain to another. Shelf dwellers, during the winter period king crabs move shoreward during the late winter and early spring and congregate on molting and spawning shoals. Crabs may occupy shoals from 50 to less than 20 fathoms at this time of year. Other crab species (Chionoecetes sp.) also make similar off-on shelf migrations for spawning and molting.

Habitat Areas of Particular Concern.

With the possible exception of the ice-covered surface layer of the shelf during winter, there is not an area of the Bering Sea, water depth, or time of year when one or several species of commercial importance are not present at some life stage. It is difficult without better information to designate particular habitats that can be spatially and temporally defined as holding substantially more important resource values than other areas.

Habitat can also be partitioned according to depth both between crab species and among different life history stages of a given species. Shallow inshore areas (less than 50 m depth) are very important to king crab reproduction. King crabs move into these areas in the spring to molt and mate. King crabs lay eggs in the spring which are carried on the female for 12 months and

hatch out the next spring as pelagic larvae. These weakly swimming larval stages are distributed according to their own buoyancy, vertical swimming abilities, and the currents, mixing, or water stratification on their nursery grounds. Generally, the larval stages occupy the upper mixed layer of the water column, often at or near the sea surface, until they grow and molt into more actively swimming larvae stages that are able to seek a preferred depth of rearing habitat. Larvae develop into glaucothe after molting through six larvae stages. Glaucothe settle to the benthic environment usually in nearshore shallow areas with significant cover (macroalgae, cobbles, shale, debris). The area north and adjacent to the Alaska peninsula (Unimak Island to Port Moller) and the eastern portion of Bristol Bay are locations known to be particularly important for king crab spawning and probably for juvenile rearing (Personal Communication, Dr. Jerry E. Reeves, Northwest and Alaska Fisheries Center, Resource Ecology & Fisheries Management Division, 7600 Sand Point Way, NE., Bin C15700, Seattle, WA 98115).

Appendix D

Description of the Fisheries

The king crab fishery in the BS/AI area has gone through rapid development in the last 25 years (Table D.1). After a short-lived, small-scale American fishery in the late 1940s and 1950s, Japan and the Soviet Union began heavy exploitation of the resource in the late 1950s and early 1960s. Those activities have been supplanted by an entirely American fishery which has had more than enough capacity to harvest and process the total resource since the late 1960s.

The domestic Tanner crab fishery in the BS/AI area has undergone rapid development only in recent years (Table D.2). Both C. bairdi and C. opilio are harvested in the Bering Sea and C. bairdi is harvested in the waters off the Aleutian Islands. The first reported catch of C. bairdi within the management unit was 17,900 pounds taken incidental to the Bering Sea king crab fishery in 1968. C. bairdi soon became a target species, and by 1976 approximately 22.9 million pounds were landed from the BS/AI area. A Japanese fishery for C. opilio was displaced by a completely domestic fishery in 1981. The first reported catches of C. opilio occurred in 1978 with about 1.7 million pounds landed. As C. bairdi stocks declined, C. opilio harvest increased rapidly, and since 1980, C. opilio harvests have exceeded C. bairdi total harvests for the management unit.

Table D.1 Historical catch by registration area for the BS/AI King Crab Fishery (in thousands of pounds), 1950 to 1986.

<u>Year</u>	<u>Dutch Harbor</u>	<u>Adak W.Aleutian</u>	<u>Bering Sea</u>	<u>Bristol Bay</u>	<u>Foreign</u>
1950	NF	NF	NF	NF	0
1951	NF	NF	NF	NF	0
1952	NF	NF	NF	NF	0
1953	NF	NF	NF	2,000.0	11,356.0
1954	NF	NF	NF	2,329.0	8,086.0
1955	NF	NF	NF	1,878.0	8,693.0
1956	NF	NF	NF	1,896.0	8,308.0
1957	NF	NF	NF	588.0	8,548.0
1958	NF	NF	NF	7.0	8,136.0
1959	NF	NF	NF	NF	11,602.0
Subtotal				8,698.0	64,729.0
Average				1,449.6	9,247.0
<hr/>					
1960-61	NF	2,093.7	NF	598.0	24,611.0
1961-62	533.0	4,776.0	NF	459.0	40,404.0
1962-63	1,536.0	8,006.5	NF	74.0	49,516.2
1963-64	3,893.0	17,903.7	NF	747.0	56,671.0
1964-65	13,761.0	21,193.8	NF	910.0	63,076.0
1965-66	19,196.0	8,040.4	NF	1,762.0	41,405.0
1966-67	32,852.0	5,883.1	NF	997.0	43,998.0
1967-68	22,709.0	16,948.9	NF	3,102.0	32,528.0
1968-69	11,300.0	19,874.8	NF	8,687.0	27,681.0
1969-70	8,950.0	19,055.4	NF	10,403.0	14,113.0
<hr/>					
Subtotal	114,730.0	123,776.3		27,739.0	394,003.2
Average	12,747.6	12,377.6		2,773.9	39,400.3

Table D.1. Historical catch by resistration area for the BS/AI King Crab Fishery (in thousands of pounds), 1950-1986.

<u>Year</u>	<u>Dutch Harbor</u>	<u>Adak W. Aleutian</u>	<u>Bering Sea</u>	<u>Bristol Bay</u>	<u>Foreign</u>
1970-71	9,652.0	16,557.0	NF	8,559.0	12,930.0
1971-72	9,391.6	15,475.9	NF	12,995.0	6,188.0
1972-73	10,450.4	18,746.2	NF	21,744.9	4,721.0
1973-74	12,722.7	9,761.0	1,276.6	26,913.6	1,279.0
1974-75	13,991.1	2,754.5	7,107.3	42,266.3	2,618.0
1975-76	15,906.6	414.0	2,433.7	51,326.2	NF
1976-77	10,198.4	CLOSED	8,356.1	63,919.7	NF
1977-78	3,684.4	952.9	5,732.9	69,967.8	NF
1978-79	6,824.1	808.3	9,567.4	87,618.3	NF
1979-80	14,979.9	490.7	9,286.4	107,828.0	NF
Subtotal	107,801.2	65,960.5	43,760.4	493,138.8	27,736.0
Average	10,780.1	6,596.0	6,251.5	49,313.9	5,547.2
1980-81	18,902.5	1,419.5	13,869.9	129,947.7	NF
1981-82	5,115.3	2,774.0	16,425.6	33,591.4	NF
1982-83	1,616.2	9,708.1	13,815.9	3,000.2	NF
1983-84	2,276.8 ^{2,3}	10,109.6	12,965.3	CLOSED	NF
1984-85	2,964.0 ^{2,3}	5,452.5	4,458.5	4,218.0	NF
1985-86	1,953.2 ^{2,3}	10,827.0 ⁴	3,386.7	4,174.9	NF
1986-87	1,859.7 ^{2,3}	2,970.5 ⁴	1,222.0	11,109.8	NF
Subtotal	34,687.7	43,261.2	66,144.0	186,042.0	NF
Average	4,955.4	6,180.2	9,449.1	31,007.0	NF

- ¹ Fishing year - July 1 through June 30.
² Brown crab.
³ Calendar year.
⁴ Through January 31.

Source: Westward Region Shellfish Report to the Alaska Board of Fisheries, Alaska Department of Fish and Game, Kodiak, Alaska, April 1987.

Table D.2 Historical catch by registration area (in pounds) for the BS/AI Tanner crab Fishery, 1950-1986.

Year ¹	Eastern Aleutians	Western Aleutians	Bering Sea		Total Foreign Harvest
			C. opilio	C. bairdi	
1965	0	0	0	0	3,936,000
1966	0	0	0	0	7,290,000
1967	0	0	0	0	24,000,000
1968	0	0	0	17,900	30,940,000
1969	0	0	0	1,008,900	47,668,000
1970	0	0	0	1,487,161	47,828,000
1971	0	0	0	166,100	39,886,000
1972	0	0	0	119,200	31,186,000
1973	62,128	168,354	0	301,348	27,886,000
1974	498,836	71,887	0	5,044,197	27,912,000
1975	77,164	3,350	0	7,028,378	18,456,000
1976	534,295	62,180	0	22,341,475	19,286,000
1977	1,301,654	0	0	51,876,235	21,520,173
1978	2,624,016	237,512	1,715,636	66,115,621	33,057,796
1979	1,092,311	197,244	32,187,039	43,518,226	32,914,536
1980	879,807	337,297	39,572,668	36,614,315	15,636,125
1981	654,514	220,716	52,753,034	29,732,086	NF
1982	739,694	838,627	29,371,474	11,006,779	NF
1983	547,830	448,399	26,128,410	5,273,881	NF
1984	239,395	191,954	26,812,824	1,208,223	NF
1985	165,529	66,549	64,520,596	3,175,564	NF
1986	166,939	72,441	96,511,887	0	NF
TOTAL	9,584,112	2,916,510	369,573,568	286,035,589	429,402,630
AVERAGE	684,579	224,347	41,063,730	16,890,886	26,837,664

SOURCE: Westward Region Shellfish Report to the Alaska Board of Fisheries, Alaska Department of Fish and Game, Kodiak, Alaska, April 1987.

¹ Calendar year.

Current Status of Stocks

Dutch Harbor

Red King Crab

An ADF&G crab pot population survey conducted during August 1986 has found no significant increase in the area's red king crab population with the stocks remaining severely depressed (Westward Region Shellfish Report to the Alaska Board of Fisheries April 1987). The survey showed that few males are recruiting into an already low legal male population. Very few juvenile female crabs were found to be present. This indicates that current reproductive problems will most likely continue into the future. There was found to be no significant increase in the total adult female population. The survey also found that 50 percent of the adult females had no eggs and that 40 percent were unbred adults, suggesting that there are insufficient numbers of males to complete mating.

Brown King Crab

The stocks status is unknown but appears to remain healthy as catches and quality of crab have remained consistent during the previous four years.

C. bairdi-Tanner crab

The stock status is unknown. Only a small portion of this area produces catches.

Adak-Western Aleutians

Red King Crab

Stock condition is presently unknown, although average crab weight and catch per unit effort are similar to last years fishery. Increased effort in the longline brown king crab fishery has reduced the catch of red king crab over the last few years.

Brown King Crab

This is a new fishery with little information available on the stock condition.

C. bairdi-Tanner Crab

The abundance and stock status are unknown, but seem to be concentrated in specific bays.

Bering Sea

Red King Crab

Due to a low abundance of males and a record low abundance of mature females, the ADF&G closed the Bristol Bay portion of the Bering Sea to king crab fishing in 1983. The fishery was reopened in 1984. From 1985 to 1986, the abundance of legal males increased by 140 percent, largely due to pre-recruit growth (Stevens, MacIntosh, and Stahl-Johnson 1986). The NMFS 1986 summer trawl survey indicates a stable population of pre-recruits and a small increase in the legal male populations, although the entire population remains in a depressed status.

Blue King Crab

The abundance of pre-recruit and legal size male crabs in the St. Matthews Island portion of the Bering Sea has been declining over the past four years (Stevens, MacIntosh, and Stahl-Johnson 1986). Over the past year, abundance of legal crab declined by 64 percent, while the pre-recruit abundance remained stable. Continued declines in the population of legal size male crabs are expected to occur. The Pribilof stocks declined over 50 percent from 1985, but the 1986 estimate of legal male abundance has increased slightly and appears stable.

Brown King Crab

The stock status for this species is unknown.

C. bairdi-Tanner Crab

The abundance of legal size male crabs has been declining since 1975 and is presently at an historic low. Over the past year the abundance of legal crab declined by 30 percent while pre-recruits increased by 33 percent. A poor 1985 fishery with only 3.2 million pounds landed prompted a closure of the fishery in 1986. Continued low abundance in 1986 led to another closure during 1987. Relationships between population estimates and catch rates are very poorly understood for this species (Stevens, MacIntosh, and Sthal-Johnson 1986).

C. opilio-Tanner Crab

Analysis of the 1986 summer NMFS trawl survey showed that the abundance of males remained stable relative to the 1985 survey (Stevens, MacIntosh, and Stahl-Johnson 1986). Also large numbers of juvenile crab were found, however, these crab are several years from reaching exploitable sizes and it is not possible to predict their availability. Recruitment patterns are not entirely clear as recruitment evidently occurs both through localized production and by immigration.

Appendix E

Habitat Concerns

Potential for Habitat Alteration.

This section discusses types of human activities that have a potential to cause pollution and habitat degradation that could affect king and Tanner crab populations in the BS/AI area. It is not intended as a statement of present conditions; rather, it is designed to identify those areas of uncertainty that may reasonably deserve Council attention in the future. Whether the likelihood and level of these activities or events may cause harm to crab resources and their habitats can be better judged when the details of a proposed activity's location, magnitude, timing, and duration are more fully known.

Habitat alteration may lower both the quantity and quality of king or Tanner crab products through physical changes or chemical contamination of habitat. Life stages differ in their tolerance to effects of habitat alteration. It is possible for the timing of a major alteration event and the occurrence of a large concentration of living marine resources to coincide in a manner that may affect fishery stocks and their supporting habitats. The effects of such events may be masked by natural phenomena or may be delayed in becoming evident. However, the process of habitat degradation more characteristically begins

with small-scale projects that result in only minor losses or temporary disruptions to organisms and habitat. As the number and rate of occurrence of these and other major projects increases, their cumulative and synergistic effects become apparent over larger areas. It is often difficult to separate the effects of habitat alteration from other factors such as fishing mortality, predation, and natural environmental fluctuations.

Species dependent on coastal areas during various stages of their life, particularly for reproduction, are more vulnerable to habitat alterations than are species that remain offshore. Also, the effects of habitat alteration on species offshore are not as apparent as they are in coastal areas. Concern is warranted, however, to the degree that (1) the offshore environment is subject to habitat degradation from either inshore activities or offshore uses, and (2) to the extent that some species living offshore depend directly or indirectly on coastal habitats for reproduction and food supply.

At present, there are no indications that human activities in the BS/AI area have had any measurable effect on the existing habitats of king or Tanner crab, though there have been localized effects. The present primary human use of the offshore area is commercial fishing. While the establishment of other activities could potentially generate user conflicts, pollution, and habitat deterioration, it is the collective opinion of the Council and

NMFS that the status of the habitat in this management area is generally unaffected by other human activities at this time.

1. Offshore petroleum production.

Information can be found in Berg (1977); Deis, et al. (1983); OCSEAP Synthesis Reports on the St. George Basin (1982), the Navarin Basin (1984), and the North Aleutian Shelf (1984); Thorsteinson and Thorsteinson (1982); and the University of Aberdeen (1978).

The Alaska offshore area comprises 74 percent of the total area of the U.S. continental shelf. Because of its size, the Alaska outer continental shelf (OCS) is divided into three subregions--Arctic, Bering Sea, and Gulf of Alaska. Oil and gas leases scheduled for sale in the BS/AI area include the Navarin Basin (1989)(Morris, 1981), St. George Basin (1990)(NMFS, 1979), North Aleutian Basin (1990)(NMFS, 1980) and the Shumagin Basin (1992).

If a commercial quantity of petroleum is found in the Bering Sea, its production would require construction of facilities and all the necessary infrastructure for pipelines to onshore storage and shipment terminals or for building offshore loading facilities. It is believed that Bering Sea oil would be pipelined to shore and then loaded on tankers for transportation from Alaska. In the Navarin Basin, however, offshore-loading

terminals may be more feasible. Unlike exploration, production would continue year-round and would have to surmount the problems imposed by winter sea-ice in many areas. Norton Basin and perhaps Navarin Basin might require ice-breaking tanker capabilities. There are also occasional proposals for moving oil from Arctic fields via the Bering Sea, which would also require ice-breaking capabilities.

Oil and gas related activities in the BS/AI area have the potential to cause pollution of habitats, loss of resources, and use conflicts. Physical alterations in the quality and quantity of existing local habitats may occur because of the site and construction of offshore drilling rigs and platforms, loading platforms, or pipelines.

Large oil spills are the most serious potential source of oil and gas development-related pollution in the eastern Bering Sea and Navarin Basin. Offshore oil and gas development will inevitably result in some oil entering the environment. Most spills are expected to be of small size, although there is a potential for large spills to occur. In large quantities, this oil can affect habitats and living marine resources. Many factors determine the degree of damage from a spill; the most important variables are the type of oil, size and duration of the spill, geographic location of the spill, and the season. Although oil is toxic to all marine organisms at high concentrations, certain species are more sensitive than others.

In general, the early life stages (eggs and larvae) are most sensitive; juveniles are less sensitive, and adults least so (Rice et al., 1984).

Habitats most sensitive to oil pollution are typically located in those coastal areas with the lowest physical energy because once oiled, these areas are the slowest to repurify. Examples of low energy environments include tidal marshes, lagoons, and seafloor sediments. Exposed rocky shores and ocean surface waters are higher energy environments where physical processes will more rapidly remove or actively weather spilled oil.

It is possible for a major oil spill (i.e., 50,000 bbls) to produce a surface slick covering up to several hundred square kilometers of surface area. Oil would generally be at toxic levels to some organisms within this slick. Beneath and surrounding the surface slick, there would be some oil-contaminated waters. Mixing and current dispersal would act to reduce the oil concentrations with depth and distance. If the oil spill trajectory moves toward land, habitats and species could be affected by the loading of oil into contained areas of the nearshore environment. In the shallower waters, an oil spill could be mixed throughout the water column and contaminate the seabed sediments. Suspended sediment can also act to carry oil to the seabed.

Toxic fractions of oil mixed to depth and under the surface slick could cause mortalities and sublethal effects to individuals and populations. However, the area contaminated would appear negligible in relation to the overall size of the area inhabited by commercial species in the Bering Sea. For example, Thorsteinson and Thorsteinson (1982) calculated that a 50,000 barrel spill in the St. George Basin would impact less than 0.002 percent of the total size of this area. As a result, oil spills at sea are believed to be local and transitory, and would have only minor effects on fish and shellfish populations overall. Measurable damage to fishery stocks from an oilspill would appear to be the exception rather than the rule. Even if concentrations of oil are sufficiently diluted not to be physically damaging to marine organisms or their consumers, it still could be detected by them, and alter certain of their behavior patterns. If an oil spill reaches nearshore areas with productive nursery grounds or areas containing high densities of eggs and larvae, a year class of a commercially important species of fish or shellfish could possibly be reduced, and any fishery dependent on it may be affected in later years. An oil spill at an especially important habitat (e.g., a gyre where larvae are concentrated) could also result in disproportionately high losses of the resource compared to other areas.

Other sources of potential habitat degradation and pollution from oil and gas activities include the disposal of drilling muds and cuttings to the water and seabed and of drilling fluids and

produced waters in the water column. These materials contain heavy metals or other chemical compounds that would be released to the environment. In the Gulf of Mexico it is estimated that approximately five million barrels of drilling muds containing 2.3 million pounds of toxic metals are discharged yearly by oil and gas industries (U.S. Environmental Protection Agency, 1985). Congress is scheduled to determine by June 1988 as to whether oil and gas waste should be regulated as hazardous waste. Dredged materials from pipeline laying may also be released into the environment. These materials may contain toxic heavy metals, particularly in portions of Norton Sound.

2. Coastal development and filling.

Minimal developmental pressure has occurred in the coastal habitat of the BS/AI area. An extension of the airport runway at the village of Unalaska into water approximately 50 feet in depth has received the necessary permits and is under construction. Construction of a large-scale port facility is planned for the city of Nome and smaller-scale harbors are currently under construction on St. Paul and St. George Islands. Beyond these specific projects, development activity in the coastal areas of the Bering Sea and the Aleutian Islands has been largely limited to construction of erosion control measures and breakwaters. Because of the desirability of finding protection from Bering Sea storms, suitable port development sites often are valuable to fishery resources for similar related reasons. Without special

considerations these facilities could affect local flushing, water temperatures, water quality, and access by fishes and crustaceans. In other areas, shallow water depth requires construction of long structures projected seaward in order to provide direct access from the uplands to deeper-draft ocean going vessels. These causeways could alter both along-shore physical processes and the migration and movement of marine organisms in the area.

3. Marine mining.

At present, mining activity has been limited to extraction of gravel and gold in the Bering Sea and the Aleutian peninsula. Gravel is needed for almost all construction projects throughout the area and is relatively unavailable from upland sources. Consequently, gravel is obtained by mining gravel beaches along the Bristol Bay coast (e.g., Goodnews Bay, Kangirlvar Bay) and in the lower reaches of the Yukon and Kuskokwim Rivers. Mining of large quantities of beach gravel can significantly affect the removal, transport, and deposition of sand and gravel along shore, both at the mining site and at other more distant areas. During mining, water turbidity increases and the resuspension of organic materials could affect less motile organisms (i.e., eggs and recently hatched fishes), and displace the more motile species from the area. Spawning and rearing habitats could be damaged or destroyed by these actions. Neither the future extent

of this activity nor the effects of such mortality on the abundance of marine species is known.

Dredging for gold has been attempted at various sites along the Aleutians and, presently, there is a major project mining gold with a dredge offshore of the city of Nome. Such activity has the potential to cause physical damage directly and indirectly to benthic habitat and to fish and shellfish during certain life stages.

4. Ocean discharge and dumping.

At present, there are only two areas in the BS/AI area where the ocean discharge of non-organic materials is known to occur on a large scale. Both of the areas are dredged material disposal sites near the city of Nome and have been in use for approximately 50 years. Recently, the two areas were given final designation as ocean dredged material disposal sites by the Environmental Protection Agency. Use of these sites presents no new habitat concerns.

The return of materials dredged from the ocean to the water column is considered a discharge activity. Depending upon the chemical constituency of the local bottom sediments and any alterations of dredged materials prior to discharge, living marine resources in the area may be exposed to elevated levels of heavy metals. For example, natural deposits of mercury occur in

eastern Norton Sound and elemental mercury, measured as reaching levels ranging from 250-1300 ug/l, has been identified in marine sediments in that area (Nelson et al., 1975). The levels of this heavy metal exceed the 3.7 ug/l set by the EPA Marine Quality Standards as the maximum allowable concentration; although no measurements of the more toxic methyl and dimethyl forms of mercury have been made in this area, Wood (1974) demonstrated that mercury available to the aquatic environment in any form can result in steady state concentrations of methyl, dimethyl, and metallic mercury through microbial catalysis and chemical equilibrium. Large-scale gold dredging projects in eastern Norton Sound will result in the discharge and resuspension of sediments that could introduce mercury to the water column.

Accumulation of heavy metals in fish is usually natural, but also may be an indication of habitat deterioration. The Federal Drug Administration's (FDA) safety limit for mercury is presently 1.0 ppm of methyl mercury or about 1.1 ppm of mercury. No heavy metal problems have been encountered to date with fish or shellfish products from the BS/AI area.

5. Derelict fragments of fishing gear and general litter.

The introduction of persistent plastic debris into the marine environment occurs when commercial fisheries take place. The debris includes synthetic netting, pots, longline gear, packing bands, and other material. Because of the lack of a

monitoring program, estimates of debris have been based on (1) observations of debris at sea and on beaches, and (2) occasional reports of accidental or deliberate discards of fishing gear. Studies by Merrell (1984) and others have shown that much of the observed debris consists of fragments of trawl netting. Much of this netting has been discarded incidentally to net repair activities.

The quantity of marine debris that is produced by commercial fisheries depends on a variety of factors including the types and amount of gear used and the efforts fishermen make to reduce both accidental and deliberate discards.

Debris may result in the mortality of marine fish and shellfish, marine mammals, and birds that become entangled in or ingest it. Derelict monofilament gillnet such as that used on the high seas for salmon and squid will catch fish, birds and marine mammals. Discarded trawl netting that floats is not a threat to most fish, but it has been identified as a source of mortality for marine mammals and birds. Similarly, discarded packing bands have been identified as a source of mortality for marine mammals. Other discarded gear, such as lost pots, continues to fish unattended for varying lengths of time. It is estimated that 10 percent of the crab pots used each season by the crab fleet are lost. Derelict pots without degradable panels could, particularly with natural rebaiting which occurs when fish wander into the pots and die, fish for up to 10 years before

finally deteriorating to the point where they lose structural integrity (High and Worlund, 1979). Presently, all shellfish pots used in the Bering Sea must, by State Regulation 5AAC39.145, be equipped with a degradable, untreated cotton panel large enough for shellfish to escape the pot should it be lost.

Neither the extent of debris-related mortality nor the effects of such mortality on the abundance of various species is known at this time.

6. Benthic habitat damage by bottom gear.

Bottom trawls are presently the predominant gear used for groundfish in the BS/AI management area, and are likely to continue as the major gear for the flatfish and Pacific cod fisheries of the Bering Sea shelf. The generally flat and uniform bottom composed of sand and mud presents a good substrate for bottom trawling. Any effect of gear dragged along the bottom depends on the type of gear, its rigging, and the type of bottom and its biota. Trawl doors dragging on sand and soft bottom stir up sand and silt which resettles quickly. On muddy bottoms, the disturbed mud settles in a few hours, depending on the current speed and resulting turbulence near the bottom. Trawls have not been observed to kill flatfishes. The damaged organisms, as well as the infauna which might have been dug up by the trawl are quickly preyed upon by fish and crabs. Several researchers observe that fishing by trawls with tickler chains has not

resulted in any apparent effects on the sea bed or its biota (Hempel, 1979).

Although the substrate itself is likely only temporarily affected by trawling, the direct effect upon king and Tanner crab stocks could be substantial dependent upon the type and intensity of gear use and the area in question. Crab are mobile species, yet could be experiencing high mortality as a result of mechanical crushing and bycatch in trawls (Johnsen, 1985). Research on gear selectivity in the Bering Sea could result in enforceable gear rigging standards that would minimize bycatch of non-target species without significantly reducing catch rates for target species.

7. Discharge of seafood processing wastes.

Seafood processing has been conducted for years in processing ports in Alaska. Crab and fish have been processed in various ports such as Kodiak, Dutch Harbor and Akutan by floating and shoreside processors with little impact upon oceanic crab habitat. However, localized damage to benthic environment consisting of up to several acres of bottom being driven anoxic by rotting processing waste and piles of waste up to 26 feet deep have been recorded. Discharges from these processors now require National Pollutant Discharge Elimination System (NPDES) permits from the Environmental Protection Agency. At-sea floating processors are covered by a general NPDES permit which requires

that processing waste be ground into finer than one-half inch particles and discharged below the surface (Personal Communication, Dr. Bruce Duncan, U.S. Environmental Protection Agency, 701 C Street, Box 19, Anchorage, AK 99513).

Although seafood has been processed at sea by foreign fishing vessels in the past without apparent harm to the marine habitat, there has been one instance reported of unusual quantities of fish carcasses (not ground in conformance with the general NPDES permit) accompanied by dead scallops brought up in scallop dredges (Capt. Louie Audet, F/V Shaylan Nicholas). It will be important to be alert to similar possible perturbations of the environment resulting from at-sea processing discharges.

Existing Programs for Habitat Protection.

This section describes (1) general legislative programs, portions of which are particularly directed or related to the protection, maintenance, or restoration of the habitat of living marine resources; and (2) specific actions taken by the Council and NMFS within the BS/AI area for the same purpose.

1. Federal legislative programs and responsibilities related to habitat. The Department of Commerce, through NOAA, is responsible for, or involved in, protecting living marine resources and their habitats under a number of Congressional authorities that call for varying degrees of interagency

participation, consultation, or review. A potential for further Council participation exists wherever Federal review is required or encouraged. In some cases, State agencies may share the Federal responsibility.

(a) Magnuson Fishery Conservation and Management Act (Magnuson Act). This Act provides for the conservation and management of U.S. fishery resources within the 200-mile exclusive economic zone, and is the primary authority for Council action. Conservation and management is defined as referring to "all of the rules, regulations, conditions, methods, and other measures which are required to rebuild, restore, or maintain, and which are useful in rebuilding, restoring, or maintaining, any fishery resource and the marine environment, and which are designed to assure that-- ...irreversible or long-term adverse effects on fishery resources and the marine environment are avoided." Fishery resource is defined to include habitat of fish. The North Pacific Council is charged with developing FMPs, FMP amendments, and regulations for the fisheries needing conservation and management within its geographical area of authority. FMPs are developed in consideration of habitat-related problems and other factors relating to resource productivity. After approval of FMPs or FMP amendments, NMFS is charged with their implementation.

(b) Fish and Wildlife Coordination Act of 1958 (FWCA). The FWCA provides the primary expression of Federal policy for

fish and wildlife habitat. It requires interagency consultation to assure that fish and wildlife are given equal consideration when a Federal or Federally-authorized project is proposed which controls, modifies, or develops the Nation's waters. For example, NMFS is a consulting resource agency in processing Department of the Army permits for dredge and fill and construction projects in navigable waters, Environmental Protection Agency (EPA) ocean dumping permits, Federal Energy Regulatory Commission hydroelectric power project proposals, and Department of the Interior (DOI) Outer Continental Shelf (OCS) mineral leasing activities, among others.

(c) National Environmental Policy Act of 1969 (NEPA). NEPA requires that the effects of Federal activities on the environment be assessed. Its purpose is to insure that Federal officials weigh and give appropriate consideration to environmental values in policy formulation, decisionmaking and administrative actions, and that the public is provided adequate opportunity to review and comment on the major Federal actions. An EIS or environmental assessment for a finding of no significant impact is prepared for FMPs and their amendments. NEPA requires preparation of an Environmental Impact Statement (EIS) only for major Federal actions that significantly affect the quality of the human environment; an environmental assessment is sufficient if it justifies a finding of no significant impact (FONSI). NMFS reviews EISs and provides recommendations to

mitigate any expected impacts to living marine resources and habitats.

(d) Clean Water Act (CWA). The purpose of the CWA, which amends the Federal Water Pollution Control Act, is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters; to eliminate the discharge of pollutants into navigable waters; and to prohibit the discharge of toxic pollutants in toxic amounts. Discharge of oil or hazardous substances into or upon navigable waters, contiguous zone and ocean is prohibited. NMFS reviews and comments on Section 404 permits for deposition of fill or dredged materials into U.S. waters, and on EPA National Pollutant Discharge Elimination System permits for point source discharges.

(e) River and Harbor Act of 1899. Section 10 of this Act prohibits the unauthorized obstruction or alteration of any navigable water of the United States, the excavation from or deposition of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such water. Authority was later extended to artificial islands and fixed structures located on the Outer Continental Shelf. The Act authorizes the Department of the Army to regulate all construction and dredge and fill activities in navigable waters to mean high water shoreline. NMFS reviews and comments on Public Notices the Corps of Engineers circulates for proposed projects.

(f) Endangered Species Act of 1973 (ESA). ESA provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The program is administered jointly by DOI (terrestrial, freshwater, and some marine species such as walrus) and DOC (marine fish, and some marine mammals including the great whales). Federal actions that may affect an endangered or threatened species are resolved by a consultation process between the project agency and DOC or DOI, as appropriate. For actions related to FMPs, NMFS provides biological assessments and Section 7 consultations if the Federal action may affect endangered or threatened species or cause destruction or adverse modification of any designated critical habitat.

(g) Coastal Zone Management Act of 1972 (CZMA). The principal objective of the CZMA is to encourage and assist States in developing coastal zone management programs, to coordinate State activities, and to safeguard the regional and national interests in the coastal zone. Section 307(c) requires that any Federal activity directly affecting the coastal zone of a State be consistent with that State's approved coastal zone management program to the maximum extent practicable. Under present policy, FMPs undergo consistency review. Alaska's coastal zone program contains a section on Resources and Habitats. Following a January 1984 U.S. Supreme Court ruling, the sale of OCS oil and gas leases no longer requires a consistency review; such a review is triggered at the exploratory drilling stage.

(h) Marine Protection, Research and Sanctuaries Act (MPRSA). Title I of the MPRSA establishes a system to regulate dumping of all types of materials into ocean waters and to prevent or strictly limit the dumping into ocean waters of any material which would adversely affect "human health, welfare or amenities or the marine environment, ecological systems, or economic potentialities." NMFS may provide comments to EPA on proposed sites of ocean dumping if the marine environment or ecological systems may be adversely affected. Title III of the MPRSA authorizes the Secretary of Commerce (NOAA) to designate as marine sanctuaries areas of the marine environment that have been identified as having special national significance due to their resource or human-use values. The Marine Sanctuaries Amendments of 1984 amend this Title to include, as consultative agencies in determining whether the proposal meets the sanctuary designation standards, the Councils affected by the proposed designation. The Amendments also provide the Council affected with the opportunity to prepare draft regulations, consistent with the Magnuson Act national standards, for fishing within the FCZ as it may deem necessary to implement a proposed designation.

(i) Outer Continental Shelf Lands Act of 1953, as amended (OCSLA). The OCSLA authorizes the Department of Interior's Minerals Management Service (MMS) to lease lands seaward of state marine boundaries, design and oversee environmental studies, prepare environmental impact statements, enforce special lease stipulations, and issue pipeline

rights-of-way. It specifies that no exploratory drilling permit can be issued unless MMS determines that "such exploration will not be unduly harmful to aquatic life in the area, result in pollution, create hazardous or unsafe conditions, unreasonably interfere with other uses of the area, or disturb any site, structure or object of historical or archaeological significance." Drilling and production discharges related to OCS exploration and development are subject to EPA NPDES permit regulations under the CWA. Sharing responsibility for the protection of fish and wildlife resources and their habitats, NOAA/NMFS, FWS, EPA and the States act in an advisory capacity in the formulation of OCS leasing stipulations that MMS develops for conditions or resources that are believed to warrant special regulation or protection. Some of these stipulations address protection of biological resources and their habitats. Interagency Regional Biological Task Forces and Technical Working Groups have been established by MMS to offer advice on various aspects of leasing, transport, and environmental studies. NMFS is represented on both groups in Alaska.

The Secretary of the Interior is required to maintain an oil and gas leasing program that "consists of a schedule of proposed lease sales indicating, as precisely as possible, the size, timing, and location of leasing activity" that will best meet national energy needs for a 5-year period following its approval or reapproval. In developing the schedule of proposed lease sales, the Secretary is required to take into account the

potential impacts of oil and gas exploration on other offshore resources, including the marine, coastal, and human environments.

Once a lease is awarded, before exploratory drilling can begin in any location, the lessee must submit an exploration plan to the Minerals Management Service for approval. An oilspill contingency plan must be contained within the exploration plan. If approved by MMS and having obtained other necessary permits, the lessee may conduct exploratory drilling and testing in keeping with lease sale stipulations and MMS Operating Orders. If discoveries are made, before development and production can begin in a frontier lease area, a development plan must be submitted and a second EIS process begun. At this time, a better understanding of the location, magnitude, and nature of activity can be expected, and resource concerns may once again be addressed before development can be permitted to proceed.

(j) National Fishing Enhancement Act of 1984. Title II of this Act authorizes the Secretary of Commerce (NOAA) to develop and publish a National Artificial Reef Plan in consultation with specified public agencies, including the Councils, for the purpose of enhancing fishery resources. Permits for the site, construction, and monitoring of such reefs are to be issued by the Department of the Army under Section 10 of the River and Harbor Act, Section 404 of the Clean Water Act, or Section 4(e) of the Outer Continental Shelf Lands Act, in

consultation with appropriate Federal agencies, States, local governments and other interested parties. NMFS will be included in this consultation process.

(k) Northwest Power Act of 1980 (NPA). The NPA includes extensive and unprecedented fish and wildlife provisions designed to assure equitable treatment of fish and wildlife, particularly anadromous fish, in making decisions about hydroelectric projects. Under the NPA, a detailed Fish and Wildlife Program has been established to protect, mitigate, and enhance fish and wildlife in the Columbia River Basin. In addition, general fish and wildlife criteria for hydroelectric development throughout the region have been established in the Regional Energy Plan developed under the Magnuson Act. NMFS has a statutory role in the development of the Program and the Plan and encourages their implementation by Federal agencies such as the Federal Energy Regulatory Commission, the Corps of Engineers, the Bureau of Reclamation, and the Bonneville Power Administration.

(l) Alaska National Interest Lands Conservation Act of 1980 (ANILCA). The purpose of this Act is to provide for the designation and conservation of certain public lands in Alaska. The Department of Agriculture Forest Service has authority to manage surface resources on National Forest Lands in Alaska. Under Title V of this Act, any regulations for this purpose must take into consideration existing laws and regulations to maintain

the habitats, to the maximum extent feasible, of anadromous fish and other food fish, and to maintain the present and continued productivity of such habitat when they are affected by mining activities. For example, mining operations in the vicinity of the Quartz Hill area in the Tongass National Forest must be conducted in accordance with an approved operations plan developed in consultation with NMFS; consultation continues through the monitoring and altering of operations through an annual review of the operations plan. Title XII of the Magnuson Act establishes an Alaska Land Use Council to advise Federal agencies, the State, local governments and Native Corporations with respect to land and resource uses in Alaska. NOAA is named as a member of this Council.

(m) Marine Mammal Protection Act (MMPA). The Marine Mammal Protection Act establishes a moratorium on the taking of marine mammals and a ban on the importation of marine mammal products with certain exceptions. Responsibility is divided between DOC (whales, porpoises, seals, and sea lions) and DOI (other marine mammals) to issue permits and to waive the moratorium for specified purposes, including incidental takings during commercial fishing operations. The Magnuson Act amended the MMPA to extend its jurisdiction to the FCZ. If the FMP has effect on marine mammal populations, certain information must be included in the EIS, and the FMP should indicate whether permits are available for any incidental takings.

2. Specific actions taken by the Council and NMFS related to habitat for the BS/AI fisheries.

(a) Gear limitations that act to protect habitat or critical life stages. Section 611.16 of the foreign fishing regulations prohibit discard of fishing gear and other debris by foreign fishing vessels.

(b) The establishment of fishing seasons for crab and restrictions on pot tunnel diameter serve to protect critical life stages of the crab resource.

(c) Other management measures that act to allow for contingencies in the condition of the stock include the establishment of maximum sustainable and optimum yield levels, pot limits, limited entry (reserved), in-season adjustments, reporting requirements, gear placement and modifications (as outlined in Chapter 8 and Table 8.1).

(d) Recommendations to permitting agencies regarding lease sales. Recommendations have been made to permitting agencies on all past proposed lease sales on the Alaska OCS, in the interests of protecting or maintaining the marine environment. These recommendations have ranged from calling for delay or postponement of certain scheduled sales such as in Bristol Bay and Kodiak, requesting deletions of certain areas from sales, identifying need for additional environmental studies

and for protective measures such as burial of pipelines, seasonal drilling limitations, and oilspill countermeasure planning. For example, in 1979, the Council unanimously requested an indefinite postponement of the St. George Basin lease sale, citing incomplete research results and a concern for the possibility of oil spills in an area of great economic and biologic importance. The comment was transmitted to the NMFS Central Office for transmittal to the Department of the Interior.

Non-regulatory techniques to address identified habitat problems.

The following is a list of "real time" possible non-regulatory actions or strategies the Council may wish to take in the future, based on concerns expressed and data presented or referenced in this FMP. Actions taken must also be consistent with the goals and objectives of the FMP. Authorities for Council participation are described above.

- (a) Hold hearings to gather information or opinions about specific proposed projects having a potentially adverse effect on habitats of species in the Bering Sea/Aleutian Island king or Tanner crab fishery.
- (b) Write comments to regulatory agencies during project review periods to express concerns or make

recommendations about issuance or denial of particular permits.

- (c) Respond to "Calls for Information" from MMS regarding upcoming oil and gas lease areas affecting the Bering Sea/Aleutian Islands.
- (d) Identify research needs and recommend funding for studies related to habitat issues of new or continuing concern and for which the data base is limited.
- (e) Establish review panels or an ad hoc task force to coordinate or screen habitat issues.
- (f) Propose to other regulatory agencies additional restrictions on industries operating in the fisheries management area, for purposes of protecting the habitat against loss or degradation.
- (g) Join as amicus curiae in litigation brought in furtherance of critical habitat conservation, consistent with FMP goals and objectives.

Appendix F

Literature Cited

- Adams, Albert E., 1979. Life History of the snow crab Chionoecetes opilio, a literature review. Univ of AK Sea Grant Rep. 78-13, 141p.
- Alaska Department of Fish and Game, 1987. Westward Region Shellfish Report to the Alaska Board of Fisheries: 317p.
- Berg, Ronald J., 1977. An updated assessment of biological resources and their commercial importance in the St. George Basin of the eastern Bering Sea. OCSEAP Research Unit #437, NMFS, Juneau, Alaska: 116p.
- Deis, Jeffrey, 1984. Bering Sea summary report, outer continental shelf oil and gas activities in the Bering Sea and their onshore impacts. U.S. Dept. of the Interior, Minerals Management Service, OCS Infor. Rept. MMS 84-0076, prepared by Rogers, Golden and Halpern, Inc., Reston, Virginia, 75p.
- Favorite, Felix and Taivo Laevastu, 1981. Finfish and the environment. In Hood, D.W. and J.A. Calder (eds.): The eastern Bering Sea shelf: oceanography and resources, Vol. 1. Univ. of Washington Press, Seattle, Washington: 597-610.
- Fukuhara, Francis M., 1985. Biology and fishery of the southeastern Bering Sea for Red King Crab (Paralithodes camtschatica, Tilesius). Northwest and Alaska Fisheries Center Proc. Rep. 85-11, 170p.
- Hempel, 1979.
- High, William L. and Donald D. Worlund, 1979. Escape of king crab, Paralithodes camtschatica, from derelict pots. NOAA Tech. Rep. NMFS SSRF-734: 11p.
- Johnsen, Wes., Sept. 24, 1985. Speech to North Pacific Fishery Management Council Concerning Detrimental Effects of On-bottom Trawling on King, Tanner Crab Stocks and Other Incidental Species.
- Johnston, R. (ed.), 1976. Marine pollution. Academic Press, New York: 729p.
- Kinder, T.H. and J.D. Schumacher, 1981. Circulation over the continental shelf of the southeastern Bering Sea. In Hood, D.W. and J.A. Calder (eds.): The eastern Bering Sea shelf: oceanography and resources, Vol.1. Univ. of Washington Press, Seattle, Washington: 53-76.

- Kinder, T.H. and J.D. Schumacher, 1981. Hydrographic structure over the continental shelf of the southeastern Bering Sea. In Hood, D.W. and J.A. Calder (eds.): The eastern Bering Sea shelf: oceanography and resources, Vol.1. Univ. of Washington Press, Seattle, Washington: 31-52.
- Merrell, Theodore R., Jr., 1984. A decade of change in nets and plastic litter from fisheries off Alaska. In Marine Pollution Bulletin, Vol. 15, No. 10: 378-384.
- Morris, Byron F., 1981. An assessment of the living marine resources of the central Bering Sea and potential resource use conflicts between commercial fisheries and petroleum development in the Navarin Basin, proposed sale 83. NMFS, Anchorage, Alaska: 232p.
- National Marine Fisheries Service, 1979. Living marine resources, commercial fisheries and potential impacts of oil and gas development in the St. George Basin, eastern Bering Sea. NWAFC, Juneau, Alaska: 133p.
- National Marine Fisheries Service, 1980. Living marine resources and commercial fisheries relative to potential oil and gas Development in the northern Aleutian shelf area. NWAFC, Juneau, Alaska: 92p.
- Nelson, C.H., D.E. Pierce, K.W. Leong, and F.F.H. Wang, 1975. Mercury distribution in ancient and modern sediment of northeastern Bering Sea. In Marine Geology 18: 91-104.
- Outer Continental Shelf Environmental Assessment Program, Hameedi, M. J. (ed.), 1982. Proceedings of a synthesis meeting: the St. George Basin environment and possible consequences of planned offshore oil and gas development, Anchorage, Alaska, 28-30 April, 1981. U.S. Dept. of Commerce, NOAA, Office of Marine Pollution Assessment, and U.S. Dept. of the Interior, Bureau of Land Management, Juneau, Alaska: 162p.
- Outer Continental Shelf Environmental Assessment Program, Jarvela, Laurie E. (ed.), 1984. The Navarin Basin environment and possible consequences of planned offshore oil and gas development, a synthesis report. U.S. Dept. of Commerce, NOAA, Office of Marine Pollution Assessment, and U.S. Dept. of the Interior, Bureau of Land Management, Juneau, Alaska: 157p.

- Outer Continental Shelf Environmental Assessment Program, Thorsteinson, Lyman K. (ed.), 1984. Proceedings of a synthesis meeting: The north Aleutian shelf environment and possible consequences of offshore oil and gas development, Anchorage, Alaska, 9-11 March, 1982. U.S. Dept. of Commerce, NOAA, Office of Marine Pollution Assessment, and U.S. Dept. of the Interior, Bureau of Land Management, Juneau, Alaska: 159p.
- Rice, Stanley D., D. Adam Moles, John F. Karinen, Sid Korn, Mark G. Carls, Christine C. Brodersen, Jessica A. Gharrett, and Malin M. Babcock, 1984. Effects of petroleum hydrocarbons on Alaskan aquatic organisms: a comprehensive review of all oil-effects research on Alaskan fish and invertebrates conducted by the Auke Bay laboratory, 1970-1981. NOAA Tech. Mem., NMFS F/NWC-67, Seattle, Washington: 128p.
- Somerton, D.A., 1981. Life history and population dynamics of two species of Tanner crab, Chionoecetes bairdi and C. opilio, in the eastern Bering Sea with implications for the management of the commercial harvest. Ph.D. Dissertation, Univ. of WA, 220p.
- Somerton, D.A., and L. Low, 1977. Determination of Minimum Size and Yield Limitations for Tanner Crabs in the Eastern Bering Sea. NMFS Processed Rept.: 49p.
- Stevens, B., R. MacIntosh, and Stahl-Johnson, 1986. Report to the industry on the 1986 Eastern Bering Sea crab survey. NWAFC Processed Report 86-7: 51p.
- Thorsteinson, F.V., and L.K. Thorsteinson, 1982. Finfish resources. In Proceedings of a synthesis meeting: the St. George Basin environment and possible consequences of planned offshore oil and gas development, OCSEAP, U.S. Departments of Commerce and Interior, Juneau, Alaska: 111-139.
- University of Aberdeen, 1978. A physical and economic evaluation of loss of access to fishing grounds due to oil and gas installations in the North Sea, Aberdeen: 152p.
- U.S. Environmental Protection Agency. Water quality investigation related to seafood processing wastewater discharges at Dutch Harbor 1975-76. Working paper No. EPA 910-8-77-100, Seattle, Washington: 77p.
- U.S. Environmental Protection Agency, Office of Public Affairs, "EPA Denies 12-Mile Site for Ocean Dumping." Washington, D.C.: Environmental Protection Agency. April 1, 1985.
- Wood, J.M., 1974. Biological cycles for toxic elements in the environment. In Science, No. 4129, Vol. 183: 1049-1052.