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RC 18

Checklist for Implementing Crab Regulations under the Bering Sea/Aleutian Island King and Tanner Crab Fishery Management Plan

The federal Bering Sea/Aleutians Islands (BSAI) king and Tanner crab Fishery Management Plan[1] (FMP) defers much of the management of the crab fisheries to the State of Alaska using three categories of management measures: (1) those that are fixed in the FMP and require a FMP amendment to change; (2) those that are framework-type measures which the State can change following criteria set out in the FMP; and (3) those measures that are neither rigidly specified nor frameworked in the FMP. Management measures in Categories two and three may be adopted under state laws subject to the appeals process provided in the FMP.

State regulations applicable to BSAI crab fisheries in federal waters must be consistent with the requirements of the FMP and the National Standards of the Magnuson-Stevens Fishery Conservation and Management Act[2] (MSA). There are additional requirements that apply to specific management measures adopted under the "frameworked" Category 2.

The goals and objectives of the FMP that the Board must address before adoption of all BSAI management measures are paraphrased below. The full text can be found in Section 7.2 of the FMP.

FMP Management objectives:

1. Biological conservation – to insure the long-term reproductive viability of king and Tanner crab populations.
2. Economic and social – to maximize economic and social benefits to the nation over time considering value to crab harvested, future value of crab, subsistence harvests within the registration area, and economic stability and the impacts of commercial fishing associated with coastal communities.
3. Gear conflict – minimize gear conflict among fisheries.
4. Habitat – to protect, conserve, and enhance adequate quantities of essential fish habitat to support crab populations and maintain a healthy ecosystem.
5. Vessel safety – provide public access to the regulatory process for vessel safety considerations.
6. Due process – ensure that access to the regulatory process and opportunity for redress are available to interested parties.
7. Research and management – provide fisheries research, data collection, and analysis to ensure a sound information base for management decisions.

Magnuson-Stevens Fishery Conservation and Management Act National Standards:

The National Standards (NS) for fishery conservation and management are in Section 301 of the MSA. Board members should demonstrate consideration of these standards in their deliberations.

NS 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.

[1] https://www.npfmc.org/wp-content/PDFdocuments/fmp/CrabFMPOct11.pdf
[2] https://www.fisheries.noaa.gov/resource/document/magnuson-stevens-fishery-conservation-and-management-act

NS 2. Conservation and management measures shall be based upon the best scientific information available.

NS 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.

NS 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.

NS 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.

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

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

NS 8. Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

NS 9. Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

NS 10. Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

Management measures used to manage king and Tanner crab under the FMP:

Category 1 (Fixed in FMP)	**Category 2 (Frameworked in FMP)**	**Category 3 (Discretion of State)**
Legal Gear	Minimum Size Limits	Reporting Requirements
Permit Requirements	Guideline Harvest Levels and Total Allowable Catch	Gear Placement / Removal
Federal Observers	Inseason Adjustments	Gear Storage
Limited Access	Districts, Subdistricts, and Sections	Gear Modifications
Norton Sound Superexclusive Registration	Fishing Seasons	Vessel Tank Inspections
	Sex Restrictions	State Observers
Essential Fish Habitat	Closed Waters	Bycatch Limits
Habitat Areas of Particular Concern	Pot Limits	Other
	Registration Areas	

The state is not limited to only the management measures described in the FMP however, implementation of other management measures not described in the FMP must be consistent with the FMP, the MSA, and other applicable federal law.

Category 2 Framework Measures

Category two management measures have criteria listed in the FMP that must be considered when management measures are changed or adopted. These can be found in Section 8 of the FMP and are paraphrased as follows:

Minimum Size Limits, Section 8.2.1

The FMP authorizes the State to adjust size limits under State regulations. In establishing minimum size limits, the State can consider, within constraints of available information, the following: (1) size at maturity (physiological, functional, or morphometric), (2) protection of reproductive capability, (3) market and other economic considerations, (4) natural and discard mortality rates, (5) growth rates, and (6) yield per recruit.

Total Allowable Catch and Guideline Harvest Level, Section 8.2.2

The State will take into account the following factors, to the extent information is available, in developing harvest strategies or setting TACs and GHLs: (1) whether the annual catch limit (ACL) for that stock was exceeded in the previous year; (2) stock status relative to the overfishing level (OFL) and ACL; (3) estimates of exploitable biomass; (4) estimates of recruitment; (5) estimates of thresholds; (6) market and other economic considerations; (7) additional uncertainty; and (8) any additional factors pertaining to the health and status of the stock or the marine ecosystem. Additional uncertainty includes (1) management uncertainty (i.e., uncertainty in the ability of managers to constrain catch so the ACL is not exceeded, and uncertainty in quantifying the true catch amount) and (2) scientific uncertainty identified and not already accounted for in the ACL (i.e., uncertainty in bycatch mortality, estimates of trends and absolute estimates of size composition, shell condition, molt status, reproductive condition, spatial distribution, bycatch of non-target crab stocks, environmental conditions, fishery performance, fleet behavior, and the quality and amount of data available for these variables).

In-season Adjustments, Section 8.2.3

The FMP authorizes the State to make in-season adjustments to GHLs and to fishing period lengths and to close areas under State regulations. In making such in-season adjustments, the State shall consider appropriate factors to the extent in-season data is available on: (1) overall fishing effort, (2) catch per unit of effort and rate of harvest, (3) relative abundance of king or Tanner crab, (4) achievement of GHLs, (5) proportion of soft-shelled crabs and rate of deadloss, (6) general information on stock condition, (7) timeliness and accuracy of catch reporting, (8) adequacy of subsistence harvests, and (9) other factors that affect ability to meet objectives of the FMP.

District, Subdistrict, and Section Boundaries, Section 8.2.4

The FMP authorizes the State to adjust district, subdistrict, and section boundaries 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 preseason so that overharvest can be prevented, or (5) if part of an area is relatively unutilized and unexplored, and if creation of a new district, subdistrict, or section will encourage exploration and utilization.

Fishing Seasons, Section 8.2.5

Fishing seasons are used to protect king and Tanner crabs during the molting and mating portions 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.

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 any breeding population of male crab that may form dense schools prior to and during annual migrations into shallow water breeding grounds. Such migrations have been described for red king crab and could possibly occur with other crabs.
2. Consideration of molting periods so that the shells have hardened enough to permit handling with minimal damage or mortality.
3. Protection of the population during sensitive soft-shell periods.
4. Consideration of increasing product quality.
5. Minimization of bycatch.

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.

Within biological constraints, the open fishing season has been set:

1. To minimize the amount of deadloss. 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 product quality.
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, and
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.

Sex Restrictions, Section 8.2.6

Unless a surplus is determined to be available, female crabs cannot be taken. The surplus would be dependent on the number of crabs above the threshold amount used in the spawning stock calculation of optimum yield (OY). Most west coast crab fisheries take only male crab, a restriction that is assumed to contribute to maximum reproductive potential. The data base to support or reject an extensive harvest of female king or

Tanner crab is poor. There have been some studies indicating that there are probably surplus female crab which can be taken when stock levels are high (Reeves and Marasco, 1980; Reeves, 1981). However, the accumulative effects of a female harvest and the subsequent environmental impacts are not demonstrable at

this time and will not be understood until additional research and analysis has been completed pursuant to the research and management objective of this FMP.

Pot Limits, Section 8.2.7

This FMP authorizes the State to use pot limits to attain the biological conservation objective and the economic and social objective of this FMP. In establishing pot limits, the State shall consider, within constraints of available information, the following: (1) total vessel effort relative to GHL, (2) probable concentrations of pots by area, (3) potential for conflict with other fisheries, (4) potential for handling mortality of target or nontarget species, (5) adverse effects on vessel safety including hazards to navigation, (6) enforceability of pot limits, and (7) analysis of effects on industry.

Registration Areas, Section 8.2.8

This FMP adopts existing State registration areas within the BS/AI fishery management unit. The 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). 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.

Registration areas may be further divided into fishing districts, subdistricts, and sections for purposes of management and reporting. Any designation of an area or district as exclusive must be supported by a written finding by the State that considers all of the following factors to the extent information is available:

1. The extent to which the designation will facilitate proper management of the fishery,
2. The extent to which such designation will help provide vessels with a reasonable opportunity to participate in the fishery,
3. The extent to which such designation will help to avoid sudden economic dislocation. Established processing facilities and fishing fleets within a registration area may provide economic stability for the labor force and affected communities and may be destroyed or adversely affected by an inseason influx of mobile processing plants and additional fishing power,
4. The extent to which the designation will encourage efficient use of vessels and gear,
5. The extent to which the economic benefits conferred by the designation will be offset by economic costs and inefficiencies, and
6. The extent to which other management measures could yield the results desired from the designation.

Closed Waters, Section 8.2.9

Subsistence fisheries in the BSAI area have been protected by closing to commercial fishing those waters fished in the subsistence fishery. The State may designate new closed waters areas or expand or reduce existing State closed waters areas.

In making such changes, the State shall consider appropriate factors to the extent data are available on: (1) the need to protect subsistence fisheries, (2) the need to protect critical habitat for target or non-target species, (3) the prevention of conflict between harvesting of species, and (4) the creation of navigational hazard.

Category 3 Measures Deferred to State

Category three management measures are not rigidly specified in the FMP and can be modified at the discretion of the State. A description of these management measures from the FMP are provided below. More detail can be found in Section 8.3 of the FMP.

Reporting Requirements, Section 8.3.1

Reporting requirements are deferred to the State and ensure adequate information and efficient management and enforcement. The State of Alaska obtains timely information through its current reporting requirements for all vessels participating in the fishery. Additional information is available from the State of Alaska shellfish observer program. State catch and processing report requirements are an important component in achieving the biological conservation, economic and social, and research and management objectives of the FMP.

Gear Placement and Removal, Section 8.3.2

The FMP defers gear placement and removal requirements to the State. Placement of unbaited gear, with doors secured open, on the fishing grounds before and after a season has been allowed within certain limits. Such early placement or late removal has been 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, (4) the unavailability of loading or unloading facilities and gear storage areas, (5) vessel safety, (6) increasing the competitiveness of smaller vessels, and (7) decreasing fishing costs.

Gear Storage, Section 8.3.3

The FMP defers gear storage requirements to the State. Crab pots are generally stored on land or in designated storage areas at sea. Storage in a non-fishing condition in ice-free water areas of low crab abundance also has been 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 gear conflict.

Vessel Tank Inspections, Section 8.3.4

The FMP defers tank inspection requirements to the State. Vessel tank, or live-hold and freezer, inspections usually are required before the opening of a king or Tanner crab fishing season to meet the legal requirements for the State's landing laws, provide effort information, and provide for a fair start to the fishery. The State normally considers the following factors when determining whether inspections should be required: (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.

Gear Modifications, Section 8.3.5

The FMP defers design specifications required for commercial crab pots and ring nets to the State. Various devices may be added to pots to prevent capture of other species and to minimize bycatch. State regulations also require incorporation of biodegradable twine as an escape mechanism on all pots which will terminate a pot’s catching and holding ability in case the pot is lost.

Bycatch Limits 8.3.6

The FMP defers the right to implement bycatch limits of other species of crab in the crab fisheries managed under this FMP to the State. Often, regulation of bycatch in the directed fishery involves no, or limited, allocation because the same fishermen participate in both fisheries.

State Observer Requirements 8.3.7

The FMP defers the State Observer requirements to the State. The State may place observers aboard crab fishing and/or processing vessels when the State finds that observers provide the only practical mechanism to obtain essential biological and management data or when observers provide the only effective means to enforce regulations. Observers provide data on the amount and type of bycatch occurring in each observed fishery and estimates of bycatch by species, sex, size, and shell-age/shell-hardness for each observed fishery are currently provided in annual reports by ADF&G.

Other 8.3.8

As previously noted, the State government is not limited to only the management measures described in the FMP. However, implementation of other management measures not described in the FMP must be consistent with the FMP, the Magnuson-Stevens Act, and other applicable Federal law.