



Summary of Agenda Item

Title: Commercial Dungeness Crab Fisheries

Date of Meeting: October 19, 1994 **Exhibit #** D

Principal Staff Person: Jim Golden and Burnie Bohn **Phone:** 229-5410 Ext. 355

Read and Approved by:

Division Chief: REDACTED FOR PRIVACY **Date:** 9/22/94

Attorney General: REDACTED FOR PRIVACY **Date:** 9/30/94

Director: REDACTED FOR PRIVACY **Date:** 10-3-94

Description of Item:

Briefing on commercial crab fishery issues and establish rules: (1) defining longline gear and conditions of use for crab species other than Dungeness crab; and (2) to modify rules specifying twine used for crab pot escape mechanisms.

Public Involvement Process:

Town hall meetings in Charleston, Newport and Astoria during September 1993.

Supplemental Information Attached: Yes X No

Hearing Notice: Yes X No

Summary of Agenda Item - page 2



Relationship to:

Oregon revised statute - ORS # 506.109, 506.119, and 506.129

Oregon administrative rule - OAR # Chapter 635, Divisions 05 and 06

Options available to Commission:

1. Adopt staff recommendation for one or both issues.
2. Modify one or both of the staff recommendations.
3. Take no action.

Option recommended: #1

Draft Motion:

- (1) I move to amend OAR 635-05-055 as proposed by staff to define longline gear and conditions of use for crab species other than Dungeness crab.
- (2) I move to amend OAR 635-05-064, 05-065 and 05-066 as proposed by staff regarding the closed season, fishing gear and fishing area for red rock, box and Tanner crab.

NOTICE OF PROPOSED RULEMAKING HEARING

(Statement of Need and Fiscal Impact must accompany this form.)

Oregon Department of Fish and Wildlife

Fish Division

(AGENCY NAME)

(DIVISION)

OAR CHAPTER 635

<u>DATE:</u>	<u>TIME:</u>	<u>LOCATION:</u>	<u>DATE:</u>	<u>TIME:</u>	<u>LOCATION:</u>
10-19-94	*TBA	Embarcardero 1000 SE Bay Blvd. Newport, OR 97365-4299			

* The meeting begins at 8:00 a.m.; however, there will be more than one agenda item. An agenda will be available 10 days prior to the meeting showing the general order in which items will be heard. The agenda is available by writing or calling the address below.

HEARINGS OFFICER(s): _____

STATUTORY AUTHORITY: ORS 506.109, 506.119 and 506.129; or

CHAPTER(s) _____, OREGON LAWS 19 _____; or

HOUSE BILL(s) _____, or SENATE BILL(s) _____, 19 ____ LEGISLATURE

ADOPT: _____

AMEND: Chapter 635, Divisions 05 and 06

REPEAL: _____

- This hearing notice is the initial notice given for this rulemaking action.
- This hearing was requested by interested persons after a previous rulemaking notice.
- Auxiliary aids for persons with disabilities are available upon advance request.

SUMMARY:

Amend rules relating to the commercial harvest of crab in Oregon waters. Under consideration are gear restrictions, clarifying definitions of certain crab gear types and their use, and limited entry or vessel moratorium options.

LAST DATE FOR COMMENT: 10-19-94 DATE PROPOSED TO BE EFFECTIVE: : 11-1-94


RULES COORDINATOR: Jan Ragni (Agency); Carolyn Porter (Staff)

ADDRESS: Oregon Department of Fish and Wildlife
P. O. Box 59
Portland, OR 97207

TELEPHONE: (503) 229-5400, Ext. 305 or Ext. 353

Interested persons may comment on the proposed rules orally or in writing at the hearing. Written comments will also be considered if received by the date indicated above.

REDACTED FOR PRIVACY

Signature 

Date 11-12-94

STATEMENT OF NEED AND FISCAL IMPACT
BEFORE THE FISH AND WILDLIFE COMMISSION
OF THE STATE OF OREGON

In the Matter of Commercial)
Crab Fisheries)
)
)
)
)
)

STATUTORY AUTHORITY,
STATEMENT OF NEED,
PRINCIPAL DOCUMENTS RELIED UPON
ADVISORY COMMITTEE,
AND STATEMENT OF FISCAL IMPACT

1. Citation of Statutory Authority: ORS 506.109, 506.119 and 506.129.
2. Need for Rules: The rules are needed to regulate the commercial harvest of crab in Oregon waters, including restrictions on and definitions for certain gear types used in the fishery, and limiting entry into the crab fishery. The rules are intended to assure that fishermen have a fair opportunity to harvest available fish resource and to enhance the state's ability to protect the resource.
3. Principal Documents Relied Upon:
 - a. April 15, 1994, Memorandum from Neil Richmond, ODFW.
 - b. Staff Report prepared for the October 19, 1994, Commission Meeting.

The above documents are available for public inspection in the Department of Fish and Wildlife, Fish Division, Third Floor, 2501 SW 1st Avenue, Portland, Oregon, between 8:00 a.m. and 4:30 p.m., on normal working days, Monday through Friday.

4. Advisory Committee: Tri-State Crab Committee consisting of representatives from West Coast regulatory agencies and industry.
5. Fiscal and Economic Impact: See attached.

Dated this 12th day of August, 1994.

Oregon Department of Fish and Wildlife

REDACTED FOR PRIVACY

Signature _____

for Director _____

Title

8-12-94

Economic Impact Statement for the October 19, 1994 Hearing on the Amendment of Rules
Relating to the Management of the Commercial Crab Fisheries

Fiscal and economic impact: The proposed rules will affect state agencies, units of local government and the public, respectively, as discussed below. The proposed amendments may include rules to more specifically regulate the types of gear which may be used for the taking of crab; the circumstances in which specific types of crab gear may or may not be used; clarify gear marking requirements; and, limit entry into the crab fishery.

a. State agencies which could be affected by rules relating to crab and shrimp management regulations are the Oregon Department of Fish and Wildlife (ODFW) and the Oregon State Police (OSP). No major changes from the current levels of these agencies' operations or expenditures are expected as a result of these particular rules. Some additional enforcement activities will be required if rules which restrict the uses of specific gear types are adopted. No increases in agency expenditures are anticipated, however.

b. Units of local government which could be affected by these regulations include port authorities and county governments. Port authorities and county governments may derive revenues and experience costs related to the provision of moorage. However, no significant changes are expected as a result of these rules.

c. The public is affected by these rules:

(1) In calendar year 1993 10.4 million pounds of ocean caught Dungeness Crab were landed in Oregon and had an average ex-vessel price of \$1.13 per pound. This price reflects the per unit effect on harvest level revenues which would be associated with increases or decreases in ocean Dungeness Crab harvests.

The estimated impact on state level total personal income (direct, indirect and induced) per pound of ocean caught Dungeness Crab harvested and processed in Oregon was about \$1.85 in 1993. This estimate represents a reasonable measure of the per unit effect on state level total personal income which would be associated with increases or decreases in ocean Dungeness Crab harvests.

Adoption of the proposed rules is not expected to have a major effect on either the total pounds landed or the value of landings of Dungeness Crab. However, landings and revenues for other species of crab may be affected if one of the more restrictive rule alternatives is adopted. Adoption of rules which modify marking requirements to make the use of other than the usual type of pot gear clearly legal and acceptable in well-defined situations should have a modest, positive impact on harvests of several species of crab.

Although the rules relating to crab management can be viewed as potentially restricting harvesting and processing opportunities in the short run, conservation through the use of fishing seasons and other regulations is intended to maintain the quality and quantity of the product landed in the long run and hence the economic benefits to harvesters and processors of crab, and the general economy. The proposed regulations are intended to strike a balance which will sustain present and future benefits, while maintaining an orderly fishery and reasonable equity among existing harvesters.

Most businesses affected by these rules are believed to be "small business."

STAFF REPORT ON COMMERCIAL DUNGENESS CRAB FISHERIES

Summary of Staff Report

The public hearing on October 19 is a briefing on commercial crab fishery issues. At the hearing ODFW staff will: 1) recommend rules defining longline gear and conditions of use for crab species other than Dungeness crab; and 2) modify rules specifying twine used for crab pot escape mechanisms.

- Recent Dungeness catch has been stable with annual landings between 7 to 10 million pounds, while the number of boats and pots has been increasing, leading to an accelerated harvest rate.
 - Gear restrictions are needed to prohibit use of longline gear and prevent stimulation of additional effort into the Dungeness crab fishery. At the same time, longline gear should be allowed for species other than Dungeness crab for Developmental Fisheries Program species found in deepwater.
 - Staff recommends accommodation of blended cotton and synthetic twines used on crab pots that will biodegrade in 3-4 months. Staff proposes a 1 year evaluation period in which twines will be tested.
 - Public testimony was taken on gear and other issues during a series of 3 townhall meetings conducted in September. Concerns were expressed about the fact that Oregon has not adopted a limited entry program, whereas Washington and California will implement limited entry programs in 1995.
-

Structure of Staff Report

I. Introduction

Describes Dungeness crab fishery history, status, and recent events.

II. Staff Analysis of Issues and Options - Recommendations

Details background of crab longline gear and cotton/blended twine issues.

- **Issue 1 - Use of longline trap gear in crab fisheries.**

Option 1A: Allow longline pots or traps for all crab species, gear marked at terminal ends, November closure for all species.

Option 1B: Allow longline pots or traps for all crab species, area restricted to waters seaward of the Territorial Sea (3 miles), gear marked at terminal ends, November closure for all species.

Option 1C: (*preferred*) Prohibit longline pots or traps for Dungeness crab, allow for other species, gear marked at terminal ends. November closure for all species.

Option 1D: No action. (Prohibits use of longline crab gear for all species).

- **Issue 2 - Use of blended cotton/synthetic twine in crab pot escape mechanisms.**

Option 2A: (*preferred*) Allow use of blended cotton/synthetic twine, approved by the Department, for securing escape mechanisms in crab pots.

Option 2B: No action.

III. Summary of Public Comments on Other Issues

IV. References.

I. Introduction

Oregon Dungeness Crab Fishery History and Status

The Oregon fishery for Dungeness crab dates back to before 1889. The modern era began shortly after World War II when the landings reached 10 million pounds and then began fluctuating, with a long term average annual catch of approximately 9 million pounds (Demory, 1990). Fishing effort and crab has been roughly doubling each decade since 1950. The number of pots averaged less than 20,000 between 1950-60 compared to today's average of 100,000 pots. Thus, competition for the resource has resulted in compression of most of the season's catch into a two-month period. Ocean crab landings totaled 10.2 million pounds for the 1993-94 season with 110,337 pots tallied at the beginning of the season. The summer portion of the 1993-94 fishery from June through August 14 resulted in 860,000 pounds landed.

Recent and Upcoming Activities

- The Tri-state Dungeness Crab Committee was formed in 1990, through Pacific States Marine Fisheries Commission, to assist the states of Washington, Oregon, and California in achieving consensus on several issues related to crab management. Consistency in seasons, limited entry programs and management of soft-shell crab were Committee objectives.
- October 1991, the Oregon Fish and Wildlife Commission adopted a rule establishing an eligibility cut-off date of August 14, 1991 for use in future limited entry programs. This action was in accordance with a tri-state effort to establish similar eligibility cut-off dates in all three states.
- In October of 1992, the Oregon Fish and Wildlife Commission adopted rules allowing the Director to implement a pre-season delay and area management to avoid harvest of soft-shell crab. In addition, a harvest guideline of 10% of the December through May harvest was adopted to prevent high fishing effort on soft-shell crabs in the summer.
- In September 1993, Washington, Oregon, and California state directors signed a memorandum of understanding regarding management of the Pacific Coast Dungeness crab fishery. In the MOU, the directors agreed to take whatever measures necessary to implement the Tri-State Dungeness Crab Committee recommendations for managing soft-shell crab problems at the beginning of the season.
- In October of 1993, The Oregon Fish and Wildlife Commission adopted rules requiring harvesters to wait for 30 days before fishing an area opened after a season delay, if harvesters previously fished an open area on or about December 1. The Commission also adopted rules prohibiting the setting of gear in the commercial bay crab fishery outside the legal season and days.
- Senate Bill 911, which would have implemented limited entry in the ocean Dungeness crab fishery, failed to pass the 1993 Oregon Legislature, heightening industries' concerns about increasing effort. Washington and California will implement limited entry systems for their crab fisheries in 1995. Unqualified harvesters from those states and new participants are anticipated to add effort to Oregon's over-capitalized fleet.

- The public involvement process for these issues included numerous Tri-State Committee meetings and survey questionnaire as well as a recent series of three meetings held by the Department in September, 1994.

II. Analysis of Issues and Options - Recommendations

Issue 1: Use of longline trap gear in crab fisheries.

- **Issue Statement:** Current rules do not accommodate the use of longline trap gear for crab fishing. There has been no intent to disallow longline gear in the past, but there is a need to clarify the rules for its use.
- **Action:** Staff recommends Commission adoption of Option 1C (attached) amending the fishing gear rules to specifically allow longline crab gear for ocean crab fisheries other than Dungeness crab, with specific marking requirements, and a November closure of all target ocean crab fisheries.

The current gear rules state that "it is unlawful to use commercial crab pots in the Columbia River or Pacific Ocean after November 25, 1985, unless the pots are individually marked with a buoy bearing, in a visible and legible manner, the brand of the owner....." OAR 635-05-055. This rule was adopted in 1984, with the intent of identifying crab buoys for enforcement purposes. In addition, the gear rule for red rock, box, and Tanner crab fisheries, states that "...rings and pots must comply with the provisions contained in OAR 635-05-055".

Development of Longline Gear/Gear Conflicts

In recent years, several fishers have pioneered the use of longline crab pot systems, patterned after the successful sablefish and golden king crab fisheries which use these methods exclusively. Staff has been aware of this for several years, but neither fishermen nor staff have questioned its legality. Crab pot longlining is beginning to attract large vessels into the fishery. The gear is currently used primarily by a few fishermen in the Astoria area, providing a practical way to fish in areas with heavy boat traffic such as the mouth of the Columbia river (both outside and inside the jetties) as well as deepwater fishing grounds for Dungeness, box and Tanner crabs. Buoy cut-offs are common in heavy traffic areas; the longline systems allow fishers to lay strings of pots in the channels and shipping lanes, with only a buoy at the end of each string. Deepwater fishing with longline gear is more efficient than with single pot gear, due to the increased number of pots per hour which can be retrieved and reset, although the gear is stacked on deck before re-setting.

When the two crab gear types are fished in the same vicinity, there is a real potential for gear conflict. If the gear is entangled due to drifting pots or groundlines, the single-pot boats are usually unable to safely retrieve their gear. Few reports of actual entanglement in Oregon waters have been received by staff, but if longline gear use proliferates in the crowded, traditional shallow water areas gear conflicts are inevitable. The longline fishers state that there is no advantage to longlining in the shallow grounds, so the gear overlap would be minimized. Others claim that there is still incentive to fish certain relatively shallow areas where sanding-in is not a

problem. The most likely overlap would occur on the crabbing grounds between 25 and 40 fathoms, where single pot gear is commonly fished. An additional concern is that the problems associated with lost or sanded-in gear might increase if longline gear is fished in shallow water. It may not be feasible to pump out a sanded-in longline set, and lost longlines may entangle more gear than single pots. These problems may be sufficient to keep the use of longlines to a minimum in the shallow grounds. Gear conflicts can be minimized by requiring that longlines be clearly marked, in a manner consistent with existing ocean food fish regulations for longlines and pots used for fish. These rules require that each terminal end be marked with a pole and a flag, light, and radar reflector, and buoy showing clear identification of the owner or operator.

Biological Factors

No biological problems have been identified to-date with the use of longline crab pot gear. It has been suggested, however, that the deepwater males may act as a reservoir of breeders for the largest females in the spring months, when most of the legal-size males have been removed. Researchers have speculated that the ability of the largest female crabs to mate is much reduced due to the high fishing mortality on legal-size males (Smith and Jamieson, 1991). Dungeness crab prefer the shallow waters of the continental shelf. In many areas, they are not considered abundant seaward of 50 fathoms but they have been captured in depths of at least 125 fathoms (Leet et al, 1992). Very occasionally, there has been substantial commercial crab production in depths approaching 100 fathoms. The total annual yield of legal Dungeness crab should not be significantly increased by this gear, assuming that the crabs will eventually be caught by conventional gear. It could accelerate the early season catch rate if these deeper crabs do eventually migrate shoreward in the spring as has been indicated by tagging studies (Anonymous, 1979).

Capitalization and Limited Entry

There were an additional 156 new entrants into Oregon's fishery, since the August 14, 1991 cut-off date. The Washington State Legislature adopted a limited entry program in 1994 which will become effective January 1995. California adopted a broad-based license moratorium on harvesters in August 1992. In August 1994, the California legislature created a full limited entry program which is scheduled to become effective April 1, 1995, pending Governor Wilson's signature. Included in both the Washington and California bills are prohibitions on the use of longlines for Dungeness crabbing. The Washington bill contains provisions for reciprocal agreements with Oregon for cross-border fishing in a defined Columbia River zone, while the California bill does not address the issue of fishermen sharing common grounds in the Brookings to Crescent City zone (most of the Brookings fleet fishes in California waters).

Allowing longline gear for Dungeness crab might stimulate further over-capitalization. The number of pots and boats has been unrestricted to date. Traditional pot gear has roughly doubled in Oregon each decade since the 1950's and now stands in excess of 110,000 pots.

Need for Longline Gear in Developmental Fisheries

Ruling out this gear type completely would hamper the development of fisheries for other crab species, however, most of which live in deeper water where the gear is most efficient. These new fisheries may well be prosecuted in the future during Dungeness closures, raising the issue of legal use of crab pot gear during the Dungeness closure. Harvesting red rock, box and Tanner crab during the ocean Dungeness crab closure is currently restricted to waters deeper than 40 fathoms. This is to discourage illegal use of the gear to prospect for Dungeness crab or to preempt productive grounds prior to the winter opener. Modifying the gear rule for Dungeness crab could allow longline gear to be used for these other species (other than red rock crab) during the ocean Dungeness closure while still preserving the 40 fathom restriction. A November closure for all ocean crabbing would discourage the illegal use of crab gear prior to the Dungeness crab opener, requiring all gear to be out of the ocean during closure. To-date, no crab pot landings of ocean crab species have been recorded in the month of November.

Industry input on the use of longline crab gear was solicited in 1992 during a PSMFC-sponsored information-gathering process. Of the 103 questionnaire responses in Oregon, 34% favored prohibition, 26% favored time, area, or depth restrictions, 20% thought it should be allowed to develop and 20% had no opinion or response. In the townhall meetings, the majority favored minimum depth limits in Coos Bay, no restrictions in Newport, minimum depth limits in Astoria, and prohibition in Westport. Additional concerns were: that the use of longline gear could complicate any future attempts to limit the number of pots fished per vessel; and that prohibition would rule out a practical fishing method in which a few fishers had made substantial investments. Since the survey, the 1994 Washington and California limited entry legislative bills prohibited the use of longline gear for Dungeness crab. If not prohibited, Oregon will stand alone as the only state where longline Dungeness gear can be fished, possibly inviting out-of-state effort. In addition, the Commission may need to consider reciprocal agreements with Washington and California prohibiting the use of longline gear by Oregon harvesters fishing off those states' waters.

Public Comment on Issue 1: Crab Longline Gear

Charleston. No longliners were present. Concerns were expressed over gear conflicts, lower quality deepwater crab hurting markets, interception of more crab early in the season. All fishermen present favored prohibition of longline gear. One case of gear conflict was allegedly in shallow water last year. Allowing the gear provides an opportunity for more big boats to enter the fishery. The three-mile limit might work in some areas, not in others such as Brookings grounds (Pelican Bay) and north of Winchester Bay. Concern over impacts of being the only state with longline gear were expressed.

Newport. One longliner was present. Concerns were expressed over lost gear fouling others' gear, enforcement of area and gear marking rules, potential influx of longliners into Oregon, gear conflicts. Two reports of conflict were cited last year, potential for conflicts north of Tillamook Head in shallow water, where gear doesn't "sand-in" and can be fished shallow were also cited as concerns. Also of concern was the inability of single pot crabbers to determine the existence or at least the direction of a longline set. Testimony favoring longline gear emphasized deepwater efficiency, investments already made in specialized gear, need to communicate

locations of longline sets, cost of proposed gear marking rules and possible acceptance of a three mile restriction. Gear is necessary for developing other crab fisheries. Gear loss is negligible.

Astoria. No longliners present (some in Alaska for halibut fishery). One gear conflict alleged last year. Concerns over increasing gear conflicts, becoming the only state to allow longline Dungeness gear, increased early season catch rate, small boats are already steadily losing share of catch were expressed. The three-mile idea was not favored, since shallow water grounds extend much further out north of Tillamook Head.

Options for Issue 1: Crab Longline Gear

- **Option 1A: Allow longline pots or traps for all crab species, gear marked at terminal ends, November closure for all species.**

This is the most liberal option, and would allow for the greatest degree of flexibility for future gear development for both Dungeness crab and other crab species managed by ODFW under the Developmental Fisheries Program. The use of longline pot gear in shallow water could lead to gear conflicts between longline and traditional pot users. The addition of a new gear type may stimulate unneeded capitalization and exacerbate existing competition among existing users.

Washington and California limited entry rules will prohibit the use of crab longline gear. In the absence of limited entry in Oregon, participants who have invested in either longline or traditional gear types who do not qualify in those states may be attracted to Oregon. Oregon would also be asked to work out reciprocal agreements to prohibit use of the gear off Washington and California.

Legal longline crab gear would be clearly marked for identification purposes. Enforcement would have no new lines or gear distinctions to enforce. The November closure would ensure a fair start for the Dungeness season.

- **Option 1B: Allow longline pots or traps for all crab species, area restricted to waters seaward of the Territorial Sea (3 miles), gear marked at terminal ends, November closure for all species.**

This option would ensure the traditional fishery that gear conflict would not occur out to a uniform, coastwide zone of three miles. The area restriction would not hamper the development of deepwater crab fisheries, but might require additional enforcement efforts. Use of a more efficient gear type in deeper water may preempt harvest of crab that would otherwise be taken with traditional gear. Legal longline crab gear would be clearly marked for identification purposes. The November closure would ensure a fair start for the Dungeness season.

- **Option 1C: (*preferred*) Prohibit longline pots or traps for Dungeness crab, allow for other species, gear marked at terminal ends. November closure for all species.**

This option would allow longline gear use to continue for crab species other than Dungeness. Most of these species are found in relatively deeper water than Dungeness crab, removing most of the potential for gear conflict. Prohibition would be a financial hardship to those who have invested in crab longline equipment, however pots used with such gear can be easily converted for traditional use. Oregon's fleet size is around 350 boats. Less than 3% of the fleet (about 7 boats)

currently use the gear. Because of production efficiencies offered by longline gear, significant expansion in use of this gear would add to over-capitalization of the fishery. Thus, prohibition now will have less impact than in the future. Prohibition of the gear for Dungeness crab will preserve some opportunities for traditional gear users and prevent additional overcapitalization in the fleet as a whole. The use of crab longline gear may be essential for developmental fisheries species of crab. The number boats fishing this type of gear will be limited by the Developmental Fisheries Program rules. Legal longline crab gear would be clearly marked for identification purposes. The November closure would ensure a fair start for the Dungeness season.

- **Option 1D: No action. (Prohibits use of longline crab gear for all species).**

This option effectively prohibits the use of longline pot gear for crab species due to existing gear marking rules. Prohibition would be a financial hardship to those few who have invested in crab longline equipment, however pots used with existing longline gear can be easily converted to more traditional crab gear. Existing regulations do not recognize the need for future gear development for other species of crab managed by ODFW under the Developmental Fisheries Program.

Issue 2: Biodegradable Twine.

- **Issue Statement :** Current rules require use of untreated cotton twine or natural fiber not heavier than 120 thread size to secure escape mechanisms. Industry has concerns over useful life of legal twine, use of poly blends is increasing.
- **Action:** Staff recommends Commission adoption of attached rule changes, amending the fishing gear rules to permit use of blended cotton/synthetic twine as approved by the Department.

Purpose and Use of Biodegradable Twines in Crab Pots

The crab industry recognizes that ghost-fishing of lost or abandoned gear can cause serious but largely preventable resource losses. At the conclusion of the federally sponsored crab planning effort in the 1970's, the coastal crab industry recommended a uniform set of trap self-destruct criteria, including the use of untreated cotton twine not heavier than 120 thread. The state of Alaska had already implemented the cotton twine rule. The Commission adopted these rules in 1982, as did the states of Washington and California. Subsequent research in Alaska has led to current requirements of 60 thread for Dungeness and 30 thread for King and Tanner crab gear. These smaller diameters in Alaska are intended to last two months or less, whereas the larger 120 thread is intended to have a useful life of three to six months. Research in Alaska tested thread sizes up to 72 thread on lid hooks, which lasted 80 days in a simulation in Homer boat harbor and 77 days in a commercial fisherman's test (Kimker, 1990).

Other stated criteria in the draft crab plan include ease of use, low cost and availability, no impact to normal gear function or corrosion, and easily identifiable for enforcement purposes. In addition, the mechanism was to be "subjected to field testing to substantiate its reliability" (Anonymous, 1979). Apparently, the field testing in Alaska has been the only rigorous testing done since that time. The lack of information on twine deterioration in Oregon waters hampers

our ability to propose a definitive solution. While there is concern over both direct and delayed mortality in crabs captured in lost gear, the three month minimum longevity represents an established compromise between conservation and efficient resource harvesting. Laboratory research in Alaska indicates that hard-shell male crabs experience considerable limb loss and mortality when confined and starved for periods of up to 120 days. They also presented evidence for delayed mortality effects in crabs which were fed after surviving captivity. In the same study, cannibalism rates over a 100 day period were estimated at 54% for starved crabs (Paul et al, 1993).

Biodegradable Twine Performance

In practice, most crabbers report that pure cotton twine (as currently available), lasts an average of three to six weeks. They also report that cotton twine quality is quite variable, and that recent twine sources have been inferior. This service life is unsatisfactory and places an unreasonable hardship on the crew. Suppliers have been able to provide blended cotton twine that reportedly lasts three to four months and crabbers in many ports are switching to these products. Staff has contacted some of the primary producers of blended and pure cotton twine, as well as informally documenting fleet twine use patterns. One of the common blends in use is of the typical three-braid construction and the poly content is visible only in clean samples or when carefully studying the burn characteristics. It contains 3 poly strands in two of the three braids. Since each braid contains 18 threads, the poly content overall is 8 percent by number of threads (6 out of 54) or approximately 15 percent by weight. Another blend in use is a 50/50 blend of polyester and cotton which is blended prior to creating the individual strands or yarns.

Enforcement of Biodegradable Twine Rules

Enforcement of the untreated cotton twine rule is difficult. The problem of determining the percentage of poly blended with cotton might pose a slight enforcement challenge, but lab testing could be utilized if needed. If a reasonable alternative is selected that can meet industry and staff requirements, no consistent compliance problems are expected.

Public Comment on Issue 2: Biodegradable Twine

Charleston. Cotton twine available last the few years was claimed to be inferior lasting as little as 2 to 4 weeks, compared to 2 to 3 months in past years (soft lay of twine). Several felt the current rules were adequate, others not sure if they are using 100% cotton or not. There was debate over whether cotton escape panels last longer than lid hook twines. Mud and abrasion increase deterioration. Adequacy of Alaska tests were doubted. Virtually all fishers claim they are trying to comply with intent by using some type of biodegradable twine, with some using blends.

Newport. Cotton twine available during the last few years was claimed to be inferior. Most are using a 50% blend of cotton and synthetic fibers now. One supplier suggested allowing the blended stock to be used but prohibit stock with continuous synthetic strands. Doubts on Alaska testing were expressed and non-compliance is occurring in Alaska. Those using blends are not attempting to circumvent the intent of the law-inferior cotton twines are just not practical. In

spite of identical rules, those in Washington and California are claimed to be using blended twines for the above reasons. Uniform rules were desired by those present.

Astoria. Cotton twine available the last few years was claimed to be inferior, lasting only 6 weeks. Quality is variable and suppliers can't control this. There is a need for a more standardized or reliable product. Those present expressed a need to have blended twines now to get 3 or 4 months of life.

Options for Issue 2: Biodegradable Twine

- **Option 2A: (preferred)** Allow use of blended cotton/synthetic twine, as approved by the Department, for use in securing self-destruct panels or lid hook straps in crab pots.

Suitable twine materials would be identified by staff, by consulting with the industry and by contacting suppliers. For the upcoming crab season, staff recommends allowing 120 thread twine containing up to 50% polyester material blended with untreated cotton. Staff would initiate a study of twine materials during the 1994-95 season, in order to test the adequacy of various twine types. Industry would be asked to be a full cooperater, by conducting the necessary simulation work at-sea. Staff and industry would report findings and additional recommendations to the Commission in 1995.

- **Option 2B: No action.**

This option would require all crab gear to comply with current rules. Staff would test various twines and make recommendations before the 1995-1996 season.

III. Summary of Public Comment on Other Issues

<i>Meeting</i>		<i>Number Attending</i>		
<i>Location</i>	<i>(Date)</i>	<i>Fishermen</i>	<i>Gear Suppliers</i>	<i>Other</i>
Charleston	(9/13)	8	1	2
Newport	(9/14)	5	1	0
Astoria	(9/15)	4	1	1

Public Comment on Other Issues

Astoria and Charleston want a study of impacts of beach trawling on the crab resource, particularly in summer when crabs are soft. All ports mentioned that better meeting announcements are needed. Some small-boat Astoria fishers would like a longer gear-setting time, citing safety and the difficulty of competing with larger boats. Astoria fishers desire an extended season to provide crab through the end of the tourist season. Uniform buoy branding rules would not cause a major hardship if phased in over time. All were concerned over limited entry impacts on the Oregon fleet. Some wanted ODFW to poll fleet on limited entry issues. Another asked for reaffirmation of the August 14, 1991 cut-off date prior to the next legislative session. Charleston fishers would like to see documentation of sport crab catch, effort, and mortality of sport discards.

References

- Anonymous, 1979. Draft Fishery Management Plan for the Dungeness Crab Fishery off Washington , Oregon and California. Pacific Fishery Management Council, May 1979.
- Demory, Darrell, 1990. History and status of the Oregon Dungeness crab fishery. Oregon Department of Fish and Wildlife. 12 pp.
- Kimker, Al., 1990. Biodegradable Twine Report to the Alaska Board of Fisheries. Regional Information Report No. 2H90-05. Alaska Department of Fish and Game, Anchorage.
- Leet, William S., C.M. DeWees, and C.W. Haugen, eds., 1992. California's living marine resources and their utilization. California Sea Grant Extension Publication. UCS GEP-92-12.
- Paul, J.M., Paul, A.J., and Kimker, A, 1993. Starvation Resistance in Alaskan Crabs. Regional Information Report No. 2A93-25. Alaska Department of Fish and Game, Anchorage.
- Smith, Barry D. and Jamieson, Glen S. 1991. Possible consequences of intensive fishing for males on the mating opportunities of Dungeness crabs. Transactions of the American Fisheries Society. 120:650-653.



OREGON ADMINISTRATIVE RULES

OREGON DEPARTMENT OF FISH AND WILDLIFE

Fishing Gear

635-05-055 It is *unlawful* to:

(1) Take crab for commercial purposes by any means other than crab rings or crab pots (ORS 509.415); a crab ring is any fishing device that allows crab unrestricted entry or exit while fishing.

(2) Use any crab pot which does not include a minimum of two circular escape ports of at least 4 -1/4 inches inside diameter located on the top or side of the pot. If escape ports are placed on the side of the pot, they shall be located in the upper half of the pot.

(3) Use any crab pot which does not have a release mechanism [which may be] :

Acceptable release mechanisms are:

(a) Iron lid strap hooks constructed of iron or "mild" steel rod (not stainless steel) not to exceed 1/4-inch (6mm) in diameter;

(b) A single loop of untreated cotton [twine] or other natural fiber twine, or other twine approved by the Department not heavier than 120 thread size between pot lid tiedown hooks and the tiedown straps; or

(c) Any modification of the wire mesh on the top or side of the pot, secured with a single strand of 120 thread size untreated cotton [twine or other] , natural fiber, or other twine approved by the Department which, when removed, will create an opening of at least five inches in diameter.

(4) Place, operate, or leave crab rings or pots in the Pacific Ocean and Columbia River or in any bay or estuary during the closed season, except that in only the Pacific Ocean and Columbia River, rings or pots may be placed no more than 64 hours immediately prior to the date the



OREGON ADMINISTRATIVE RULES

OREGON DEPARTMENT OF FISH AND WILDLIFE

Dungeness crab season opens [for that zone]. In addition, unbaited crab rings or pots with open release mechanisms may be left in the Pacific Ocean (not including the Columbia River) for a period not to exceed 14 days following the closure of the Dungeness crab season.

(5) Use commercial crab pots in the Columbia River or Pacific Ocean [after November 25, 1985,] unless the pots are individually marked with a surface buoy bearing, in a visible and legible manner, the brand of the owner, provided that:

(a) The brand is a number registered with and approved by the Department;

(b) Authority to use branded gear by other than the hired captain fishing from the owner's boat shall be in writing by the pot owner, with the document to be available for inspection on demand by persons authorized to enforce the commercial fishing laws of this state.

(6) Use crab longline gear for Dungeness crab.

(a) Crab longline gear means commercial crab pots or traps that are attached together with a line;

(b) Each terminal end of crab longline gear shall be marked with a surface buoy in the manner outlined in subsections (5)(a) and (b) of this rule. Longline marker buoys shall be equipped with a pole and a flag, light, and radar reflector.

[(6)] (7) Take crabs for commercial purposes by crab pots from any bay or estuary except the Columbia River.

[(7)] (8) Operate more than 15 crab rings from any one fishing vessel in bays or estuaries, except the Columbia River. Adopted 10-19-94, ef. 12-1-94. Stat. Auth.: ORS 506.119 and 506.129.



OREGON ADMINISTRATIVE RULES

OREGON DEPARTMENT OF FISH AND WILDLIFE

Red Rock, Box and Tanner Crab Fisheries

Closed Season

635-05-064 [There is no closed season for the taking of red rock, box and Tanner crab.]

It is unlawful to take red rock, box, Tanner, Oregon hair, and scarlet king crab from the Pacific Ocean from November 1 until the opening of the next ocean Dungeness crab season in that area. Adopted 10-19-94, ef. 12-1-94. Stat. Auth.: ORS 506.119 and 506.129.

Fishing Gear

635-05-065 Except as provided in OAR 635-05-063, it is *unlawful* to take red rock, box [and] , Tanner, Oregon hair, and scarlet king crab for commercial purposes except by rings [and] , pots, and crab longline gear. Rings [and] , pots, and crab longline gear must comply with the provisions contained in OAR 635-05-055. Adopted 10-19-94, ef. 12-1-94.
Stat. Auth.: ORS 506.119 and 506.129.

Fishing Area

635-05-066 It is *unlawful* to take red rock, box [crab and] , Tanner, Oregon hair, and scarlet king crab from the Pacific Ocean shoreward of the 40 fathom contour line [when the Dungeness crab season is closed]. Adopted 10-19-94, ef. 12-1-94. Stat. Auth.: ORS 506.119 and 506.129.



OREGON ADMINISTRATIVE RULES

OREGON DEPARTMENT OF FISH AND WILDLIFE

Red Rock, Box and Tanner Crab Fisheries

Closed Season

635-05-064 [There is no closed season for the taking of red rock, box and Tanner crab.]

It is unlawful to take red rock, box, Tanner, Oregon hair, and scarlet king crab from the Pacific Ocean from November 1 until the opening of the next ocean Dungeness crab season in that area. Adopted 10-19-94, ef. 12-1-94. Stat. Auth.: ORS 506.119 and 506.129.

Fishing Gear

635-05-065 Except as provided in OAR 635-05-063, it is *unlawful* to take red rock, box [and] , Tanner, Oregon hair, and scarlet king crab for commercial purposes except by rings [and] , pots, and crab longline gear. Rings [and] , pots, and crab longline gear must comply with the provisions contained in OAR 635-05-055. Adopted 10-19-94, ef. 12-1-94.
Stat. Auth.: ORS 506.119 and 506.129.

Fishing Area

635-05-066 It is *unlawful* to take red rock, box [crab and] , Tanner, Oregon hair, and scarlet king crab from the Pacific Ocean shoreward of the 40 fathom contour line [when the Dungeness crab season is closed]. Adopted 10-19-94, ef. 12-1-94. Stat. Auth.: ORS 506.119 and 506.129.