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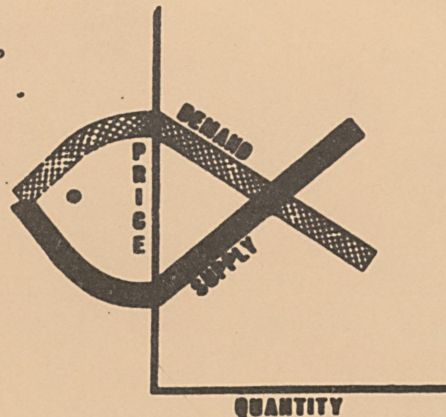
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Fisheries: The Legal Framework

by

John Reiss

with the assistance

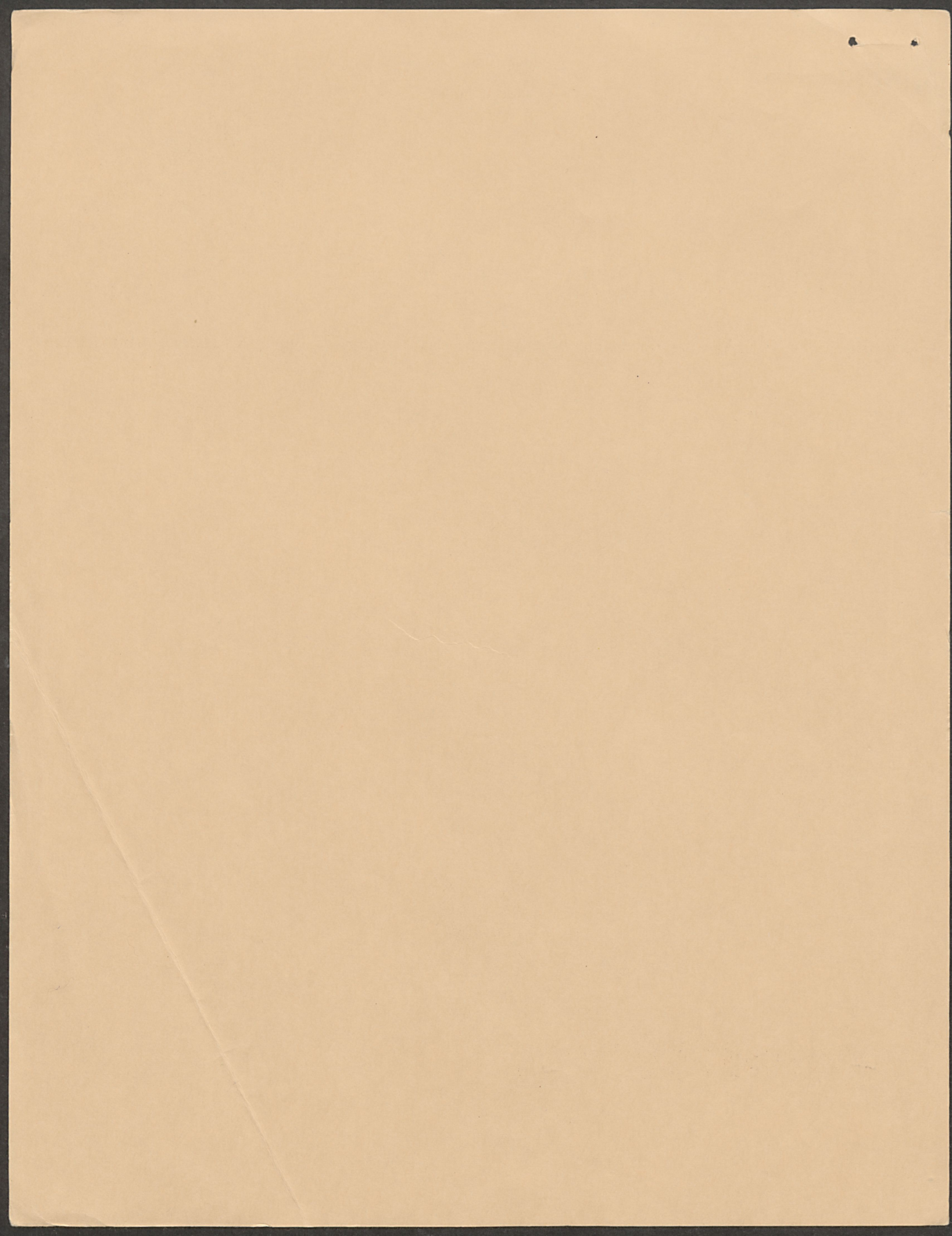
of

William Burke

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U.S. NATIONAL MARINE FISHERIES SERVICE
ECONOMIC RESEARCH DIVISION



OBSTACLES TO EFFICIENCY IN THE PACIFIC COAST

FISHERIES: THE LEGAL FRAMEWORK *

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*This is a report received by the Economic Research Division as part of a contract No. 14-17-0007-1118 (BCF) with the University of Washington. This is only one technical section of the report and a more integrated "final" report is expected in the near future.

Preface

Although legal and administrative regulation of major Pacific Coast fisheries are not the only source of economic inefficiency, they are unquestionably the most important. There is no need to reaffirm the now accepted fact that common property status, given cost and demand conditions favorable to intensive exploitation will lead to serious economic difficulties in the absence of intervention. Unfortunately, intervention has, all too frequently, been poorly geared to imperfectly specified objectives; and the emphasis on physical yield has led to both intended and unintended effects on business efficiency ranging from moderate to disastrous.

Because of the biological and technological links among fisheries of the Pacific Coast, it is not really possible to concentrate an analysis of legal and administrative impediments to efficiency on one operation alone; state regulations often apply in ways that cut across fisheries (as do the activities of fishermen and their vessels). Accordingly, this section of the study presents a selective analysis of the regulatory system of the Pacific Coast states, in a form that will subsequently be broadened to apply specifically to the fisheries included in the scope of the project.

This study deals with problems arising from present deficiencies in Pacific state commercial fisheries regulatory systems. The sections entitled "Administration and Enforcement," "Gear Restrictions," "Licensing and Mobility," and "Time Closures and Related Devices" analyze topical areas where difficulties have arisen. "Oregon Salmon Regulations: The Fisherman's View," describes the integrated effect of a regulatory system on an individual operation. "The California Anchovy Fishery" treats a set of regulations which to some extent differ from the norm.

Discussions are generally based on the regulatory system of one state. Appendices presenting the laws of other states follow each of the first three papers. Summaries of important Alaska and Washington regulations are included in the appendix to "Gear Restrictions." (Significant Oregon regulations are incorporated into the text of "Oregon Salmon Regulations: The Fisherman's View." California regulations are included where appropriate.)

Two principal conclusions derive from the study. Fisheries managers should abandon the concept that oceanic stocks are a common property resource and should institute controls which limit the number of participants admitted to commercial fisheries. Intranational boundaries should be eliminated from the regulatory system wherever possible to eliminate protectionism and to resolve efficiency-reducing inconsistencies.

ADMINISTRATION AND ENFORCEMENT

Each of the Pacific states has placed responsibility for managing its fisheries with a commission and a director. The total grant of authority and the division of power between director and commission vary from state to state, but each administrative structure is invested with powers of the same general type and scope: Powers to make and enforce rules governing the conduct of fishermen operating within state waters, to enforce relevant state statutes, to conduct research, to maintain relations with other states in fishery matters, to work in conjunction with the Federal government, to hire, fire, and promote, to manage money, to take emergency measures when necessary, and to perform similar managerial tasks.

The Washington State Department of Fisheries' duties are set forth in R.C.W. 75.08.012: "To preserve, protect, perpetuate and manage foodfish and shellfish in state and offshore waters to the extent that such foodfish and shellfish shall not be taken, possessed, sold or disposed of at such times and in such manner that the supply shall be impaired." The department is not required to protect local fishermen from out-of-state competitors, nor is it constrained to use only effort-impairing techniques in maintaining foodfish and shellfish stocks.

The department's general administrative authority is placed with a director.¹ A candidate for director must possess personal knowledge of the state fishing industry,

and must have no financial interests which conflict with his assuming the position.² No specific academic, administrative, or technical qualifications are required of the director. The director's duties are to enforce laws and regulations relating to fisheries, to provide necessary vehicles, to submit to the governor an annual report on the state of the fisheries, and to suggest appropriate legislation.³ To enable him to perform his duties, the director has been given a number of powers, among the more significant of which are the power to hire, on the state merit system, such assistants as are necessary,⁴ the power to request state bonding of those assistants,⁵ the power to hire fisheries patrol officers and to remove injured officers from duty,⁶ the power to negotiate agreements with the Department of Defense,⁷ the power to promulgate cooperative rules with the state of Oregon for the Columbia River fisheries,⁸ the power to build and maintain such installations and facilities as he deems necessary,⁹ and the power to acquire, use, manage, and sell lands, water rights, and rights of way.¹⁰

The director is given territorial authority over all state waters. Regulations are permitted to correspond in area with jurisdictions established by the Pacific Marine Fisheries Commission or by international agreements.¹¹

Investigatory powers are invested in the director to assist him in making regulations. He is able to study fish habits and supplies, and the uses to which fish are put.¹² Among the areas in which he is permitted to make regulations

are season openings and closings, area closures, gear regulations, possession, disposal, and sale of fish within the state, pest and disease prevention, size and catch limits, seal and sea lion destruction, requirements in regard to staistical and biological catch reporting by fishermen, classifications, and such other topics as may deserve attention.¹³

R.C.W. 75.08.090, 100, and 110 establish a normative procedure for adopting, promulgating, publishing and printing department rules.

Other powers possessed by the director include the powers to designate fishing areas (by physical markings if necessary),¹⁴ and to require fish tags and appropriate fees.¹⁵

The rules and laws may be enforced by fisheries personnel and by non-fisheries law officers.¹⁶ The director and his deputies have a right of entry onto all lands and waters of the state in accordance with their duties;¹⁷ they are empowered to conduct searches and seizures without warrant for any violation, save that they cannot search private dwellings without a warrant.¹⁸ The power to arrest without warrant for any violation is also given to department personnel.¹⁹ An individual who intentionally submits false information to the department can be fined from \$250.00 to \$1,000.00 and may be sentenced to jail for up to one year. Violators of statutes or regulations which do not specify punishment may be fined from \$25.00 to \$1,000.00 and may also be jailed for up to one year.²⁰

Fines collected by the department are to go to the state general fund, but money realized from the sale of fish caught

in tests must go toward defraying test costs. No salmon thus caught are to be sold during periods when the commercial fishery is closed. 50% of money obtained from any fine must be turned over to the county wherein the fine is levied.²¹

The legislature has included at the end of the chapter (R.C.W. 75.08) detailing the administrative structure of the State Department of Fisheries a "retaliatory license application provision." R.C.W. 75.08.290 states that any person from a state requiring in-person commercial fishing license applications who wishes to apply for a Washington commercial fishing license shall have to make such application in person at Olympia. §.290 illustrates the problems facing the fisherman who wants to base his operation on fishing stocks rather than on fishing the waters of a particular political unit. The section alludes to the fact that some states do require all license applicants to make in-person requests for licenses,²² which means that a nonresident fisherman following stocks into state waters must first make an appearance at some designated point on the state's land. The in-state applicant may be able to choose from several licensing offices; the out-of-state applicant must make a special trip. §.290 also indicates the basic protectionist attitude which prevails in the state fisheries: If other states are going to impose procedural inhibitions on the mobility of Washington fishermen, then Washington will abandon its own relatively enlightened procedure²³ to whatever extent is necessary to achieve retaliation.

It was stated above that the extent and distribution of commercial fisheries administrative authority is not coequal in all Pacific states. California invests primary authority in a commission which is empowered to regulate all fish and game activity in the state.²⁴ Alaska follows a similar procedure.²⁵

Oregon's grant of authority more closely resembles Washington's in that responsibility is confined to fishing considerations. The Oregon administrative structure differs in that a commission has primary regulatory authority, though it can delegate segments of its duties to a director.²⁶ A notable variant in the Oregon framework is that no corps of fisheries patrol officers is to be created save in special circumstances; instead, the fisheries laws and regulations are to be enforced primarily by members of existing law enforcement agencies.

Attention should be paid to powers not normally possessed by state fisheries regulatory bodies. No power is given to limit the number of licenses issued for a fishery, no power is given to set license fees which reflect the privilege of participating in a fishery, no power save control over in-state landings is or can be given to control exploitation of transient stocks outside state waters. Though effective stock management must be impaired if rulemaking procedures are not largely separated from the influence of pressure groups, the regulations delineate no procedure to insure that regulations (or, for that matter, statutes) are based on scientific research

and economic analysis rather than on political considerations.

Elsewhere in these papers, the tendencies of state fisheries authorities to regulate for the purpose of protecting local fishermen and to rely almost solely on effort-reducing measures to achieve legitimate goals is discussed.²⁷ The proclivity toward protectionism is likely to continue as long as fisheries managers are overseen by state legislators. Fishermen lobby effectively in the statehouses, and no state's lawmakers seem reluctant to hamper where possible the efforts of fishermen from other states.

The powers of state fisheries departments are closely circumscribed, and the effectiveness of the fishermen's lobbies in the legislatures does not augur well for change. If economic and biological rationality is to be imposed on present fisheries practices, more than able, aggressive leadership from state directors or state commissions will be required.

1. R.C.W. 75.08.014
2. Id.
3. R.C.W. 75.08.020.
4. R.C.W. 75.08.022. An exception to the merit system is made for the director's private secretary.
5. R.C.W. 75.08.023.
6. R.C.W. 75.08.024. An officer so removed receives half pay.
7. R.C.W. 75.08.025.
8. R.C.W. 75.08.027. The procedure for devising cooperative rules was established to promote yields and to prevent dangerous takings.
9. R.C.W. 75.08.030.
10. R.C.W. 75.08.040 The director is also empowered to administer oaths (R.C.W. 75.08.021) and to perform necessary functions in connection with the oyster industry (R.C.W. 75.08.050, .054, and .056) and with shellfish and shrimp lands. (R.C.W. 75.08.060)
11. R.C.W. 75.08.070.
12. R.C.W. 75.08.080.
13. R.C.W. 75.08.080 (1-12). A case decided pursuant to this regulation held that the food fish of the state belong to all the people.
14. R.C.W. 75.08.120.
15. R.C.W. 75.08.140.
16. R.C.W. 75.08.150.
17. R.C.W. 75.08.160.

APPENDIX: ADMINISTRATION AND ENFORCEMENT

Summary of significant Pacific state laws and regulations relating to administration and enforcement, excepting those cited in the text.

WASHINGTON LAWS
(Taken from Title
75, Revised Code
of Washington.)

Chap.	Sec.	Summary
		General Washington laws are discussed in the text
R.C.W. 75	16. 010	The director and those authorized by him may take food fish for propagation.
	16. 020	The director must consent to any fish planting.
	16. 030	The director is to supervise prevention and suppression of disease. He can prohibit interstate and intrastate transplanting. The director may promulgate appropriate regulations.

GEAR RESTRICTIONS

Pacific state fishing gear regulations apparently have been promulgated to achieve at least three ends: Harvesting mature fish, protecting local fishermen, and reducing operating efficiency. Harvests of mature fish are advanced by regulations intended to insure that only fish growing to a specified size are taken from a stock. Local fishermen are protected by any rules which hamper the exploitative efforts of competing out-of-state fishermen. Operating efficiency is reduced either when the full use of permitted gear is prohibited or when the use of functional gear is forbidden.

Selective harvesting for mature fish is favored as a regulatory goal because such fish will have had opportunity to breed and thereby replace themselves before they are taken, and because the portion of most fish which is marketable flesh increases with maturity. Among constraints the states impose to promote the harvest of mature fish is the declaration of size limits. An Oregon regulation makes it illegal "to retain or have in possession halibut taken commercially which are less than twenty-six inches in fork length measurement, or five pounds with the head off and entrails removed."¹ A similar Washington rule sets minimum sizes for various salmon species;² Alaskan rules state minimum legal sizes for two subspecies of king crab taken in Prince William Sound;³ California has established a five inch permissible minimum for commercially taken anchovies.⁴

The effectiveness of present size limit regulations is

uncertain. Crutchfield and Pontecorvo have said in regard to the salmon fisheries that size limits discourage fishing in areas where large numbers of immatures congregate, but that "size limits have never been set at levels that would restrict the troll catch to fully mature fish," and that the mortality rate among undersized fish returned to the water is high.⁵ This critique of the utility of size limits in managing the salmon fishery would not be invalidated if it were applied to the generally similar circumstances found in the halibut, anchovy, and king crab fisheries.

California has developed a singular method of coping with the question of safely returning immature anchovies. The state permits 25% by weight of a vessel's catch to consist of fish shorter than the legal limit.⁶ No justification for this regulation is mentioned. Perhaps mature and immature anchovies intermingle to an extent too great to permit selective fishing; perhaps there is no conclusive evidence that growth increments exceed natural losses until maturity, or perhaps it is thought that mortality would be unduly high among returned immatures.

"(V)irtually all selectivity techniques that defer capture of Pacific salmon until maturity probably involve an increase in gross weight and in the discounted value of the catch net of increased losses to other predators and disease."⁷

A minimum size limit is essential to rational management, but its efficiency is reduced when the limit is inaccurately set or when it is combined with non-selective gear.

Regulations delimiting permissible mesh sizes for nets

used to fish particular stocks are also promulgated to achieve a selective harvest of mature fish. A gill net mesh specification sets maximum as well as minimum limits beyond which fish will escape the net. An important function of mesh size specifications in the salmon fisheries is to direct effort toward particular species, permitting management practices which produce greater yields than would be possible absent interspecies selectivity.⁸

Let us examine the gear regulations announced in May, 1970, for salmon fishing in Bristol Bay, Alaska:⁹

5 AAC 06.330 GEAR. (a) Salmon may be taken with drift gill nets in the districts described in §200 (open areas of Bristol Bay) of this chapter.

(b) Salmon may be taken with set gill nets in the Togiak, Nushagak, and Ugashik districts; and Naknek subsection A, Kvichak subsection A, and Egegik subdistrict A as described in §200 of this chapter.

(c) Trolling is allowed in all waters of Bristol Bay.

5 AAC 06.331. GILL NET SPECIFICATIONS AND OPERATION. (a) In all districts gill net mesh may not be less than 5-3/8 inches, except:

(1) in the Nushagak district gill net mesh may not be less than 4-1/2 inches after 9:00 a.m. Wednesday, July 15;

(2) in the Naknek-Kvichak and Egegik districts gill net mesh may not be less than 4-1/2 inches after 9:00 a.m. Monday, July 20;

(3) in the Ugashik and Togiak districts gill net mesh may not be less than 4-1/2 inches after 9:00 a.m. Monday, July 20.

(b) Gill nets may not be more than 28 meshes in depth.

(c) The maximum aggregate of drift gill nets operated by any individual shall not be more than 150 fathoms in length, except that in the Naknek-Kvichak and Egegik districts and the General district a maximum of 200 fathoms will be allowed before July 1.

(d) Any vessel registered for drift fishing may not have aboard it or any vessel towed by it, during any open fishing period, more than one legal limit of drift gill net gear in the aggregate. Additional gear may be transported to another district under conditions which may be specified by the department.

(e) The maximum aggregate length of set gill nets operated by any individual shall not be more than 50 fathoms in length, except that in the Naknek and Kvichak subsections A, and the Egegik subdistrict A, a maximum of 75 fathoms will be allowed before July 1.

- (f) No individual may operate more than two set gill nets.
- (g) The operation of each particular set gill net shall be performed or assisted by the fisherman in whose name it is registered.
- (h) Set gill nets shall be operated in substantially a straight line
- (i) Fishing with set gill nets shall be limited to beach areas that at mean low water are connected by exposed land to the shore or places not covered at high tide. The inshore end of a set gill net shall be above the mean low water mark, except:
- (1) in the Egegik district the offshore end of a set gill net shall be above the extreme low water mark;
 - (2) in the Ugashik district the inshore end of a set gill net shall be above the mean high water mark.
- (j) Picking salmon from a gill net is considered to be a part of the fishing operation and shall be performed only by a licensed fisherman.
- (k) Nets registered as set gill nets shall be used as set gill nets only. Nets registered as drift gill nets shall be used as drift gill nets only. For the purposes of this regulation, a net is not considered to be operated as a set gill net unless it is fastened to an anchor, peg or stake
- (l) A fisherman may license a legal limit of both set gill net gear and drift gill net gear but may not be registered for both at the same time.

It would appear that the more inefficient or destructive the type of gear, the more its use is encouraged. 5 AAC 06.330 makes no provision for purse seiners (a large percentage of which would come from ports in Puget Sound.) The use of fish traps is, of course, prohibited.¹⁰ Gill nets, which injure many fish that they do not capture, are permitted in some waters if they are set, in most waters if they are of the drift type. Trolling, which singularly combines non-productivity with damage to immatures, is permitted in all waters of Bristol Bay.

Sections (a), (c), and (d) of 5 AAC 06.331 combine to discriminate against any vessel which travels a long distance to fish in Bristol Bay. Section (a) provides for changes in minimum gill net mesh size during the salmon season. Section (c) provides for changes in minimum gill net mesh size during the season. Section (d) forbids any vessel from carrying more than

the maximum deployable amount of drift gill net gear during any part of the season. Any vessel not operating from a nearby harbor must therefore choose among three alternatives. Arrangements must be made at some local port for gear storage facilities and gear must be stored there, prior to the season's opening; or, the vessel must operate at a competitive disadvantage for part of the season; or, the vessel must remove itself from the fishery for part of the season. By themselves, sections (a), and (c) might be justified as management measures. But section (d) means that a vessel can't carry any gear which it can't use at the time. The vessels most likely to violate this particular regulation would be those not easily able to locally store all gear needed for the season, though any vessel owner who felt that he could, without being detected, deploy more than the maximum legal quantity of netting might be tempted to carry what he thought he might set out. A gillnetting vessel could not easily deploy gear stowed aboard a tow, yet section (d) forbids such storage. A local fisherman could, more easily than an out-of area fisherman, manage without tow gear stowage.

5 AAC 06.331 (k) is an obvious restriction on the mobility of gillnetters. It is not certain from the wording that one net could not be registered in both fisheries if its owner were willing to pay dual fees, but it would seem good policy to encourage maximum utilization of all gill nets, (at least of all those under 50 or 75 fathoms in length, as provided in section (e)) and to permit fishermen a maximum choice of methods. §(1) increases the apparent confusion. Does this

directive mean that a fisherman cannot let one set of gear serve both purposes at different times, or does it mean that he may do so through dual registry, thereby necessitating on his part a long-range forecast as to which gear type would be more appropriate at a particular time?¹¹

Sec. (j) illustrates that the rule-making body has concerned itself with matters other than the management of stocks. (f) might be acceptable to some extent in that the increased attention a fisherman would supposedly give to each of his nets could lessen waste and damage.¹² (g) does not seem a valid management regulation; any management purpose could have been as well accomplished by making the registrant responsible for the operation of each net, and problems arising from a need to define "perform or assist" would be avoided.

5 AAC 06.341. VESSEL SPECIFICATIONS AND OPERATION. No vessel licensed for gill net fishing may be more than 32 feet in overall length. For the purposes of this regulation, overall length means the straight line measurement between the extremities of the vessel hull proper.

5 AAC 06.341 is another regulation apparently intended to benefit local fishermen as well as to inhibit effort. It is true that if no limit is to be placed on the number of participants in a fishery, a maximum limit on vessel length becomes one of the logical parameters to place on efforts exerted by entrants.¹³ It is also true that the stated vessel length limit must favor local fishermen on at least two counts: small per voyage catches would make more difficult the payment of expenses incurred in travel to and from the grounds, and the small vessel size would itself militate against long voyages across rough water.

5 AAC 06.370. REGISTRATION AND RE-REGISTRATION. (a) At the time of area registration described in 5 AAC 39.120, each registrant shall indicate in which district the gear and vessel is intended to be first used. Registrants shall not indicate the General district for the purpose of district registration.

(b) After the district registration, no transfer to a different district may be made until 48 hours have elapsed following re-registration for the district of intended operation, except that fishermen may transfer to the General district and return to the district from which he transferred without complying with the 48-hour waiting period or the re-registration procedure described in (e) of this section. No district re-registration is required after August 1.

(c) After the initial registration of either drift gill net or set gill net described in (a) of this section, no transfer to the other type of gear may be made until 48 hours have elapsed following re-registration for the type of gear intended.

(d) No gear or vessel may be considered eligible for fishing during the 48-hour waiting period following re-registration.

(e) Re-registration may be made with the local representative of the department between the hours of 8:00 a.m. and 9:00 p.m. or other time as the representative may be available. Re-registration may be accomplished in person or by radio or through a designated representative of the fisherman; however, the 48-hour waiting period cannot begin before the time that the notification is received and noted by the department.

(f) No relocation from the set gill net site or sites first occupied during any fishing season may be made without first notifying the local representative of the department. After notification, no set gill net may be considered eligible to fish for a period of 48 hours. Notification of intended movement is subject to the provisions of (e) of this section. For the purposes of this regulation, relocation is considered to mean any change of location requiring movement of the inshore marker. No district re-registration is required after August 1.

(g) Each fisherman, at the time of initial registration, shall indicate whether he is fishing company or independent vessel and gear.

The above regulation could be characterized as an attempt to gather accurate information on where effort will be exerted. The rule forces any fisherman who would fish effectively to anticipate the uncertain movements of various salmon stocks by at least 48 hours. If the lag period between reregistration and area eligibility could be reduced, the fisherman's lot would be improved.

Given the absence of limits on entry to a fishery, however, information of the sort accumulated by 5 AAC 06.370 is essential to prevent overharvesting. Vessels able to excessively concentrate fishing effort can converge on specific areas under

present regulations. Curbs on effort, such as time and area closures, exist, but the manager who would avoid haphazardly exercising these powers needs current information on vessel capacity and movement.

5 AAC 33.710 - 730 regulate shellfish fisheries in the Southeastern District of Alaska. 5 AAC 33.710 (b) permits king crab fishing from August 15 through the following March 15.

5 AAC 33.730. GEAR. (a) In the king crab fishery:

(1) King crab may be taken by means of pots, ring nets, and scuba gear; king crab taken by means other than pots, ring nets, or scuba gear must be immediately returned alive to the water;

(2) Otter trawls with a ground line or head line exceeding 60 feet in length may not be aboard a vessel engaged in taking or transporting king crab;

(3) Each king crab pot and its buoy when in the water shall have attached identically numbered stainless steel tags bearing the department's permanent registration number of the vessel fishing the gear. The department will issue 40 pairs of consecutively numbered tags to each registered king crab fishing vessel;

(4) Not more than 40 king crab pots per vessel may be used;

(5) During the closed season for king crab, all king crab pots must be removed from the water or stored in five fathoms of water or less with the lids secured fully opened and all bait and bait containers removed.

(1) of the above regulation states the permissible methods of taking king crab. (2) reinforces (1)'s exclusion of the otter trawl as a means of taking king crab.¹⁴ It is possible that mobile gear such as otter trawls would injure some crabs, but not every crab pot set out is recovered. Again, effort must be inhibited when entry is not.

5 AAC 33.730 (a) (4) limits each vessel to a quota of 40 crab pots. This does not operate as a limit on the total number of pots set out in the fishery; rather, it serves to limit the productive capacity of individual vessels exploiting Southeast Alaska king crab. Large vessels sailing from distant-

water ports, otherwise able to profitably fish the crab grounds, will not be able to cover expenses if they are permitted to carry no more than 40 pots. (4) makes sense only as a protective measure for small local vessels with fewer crew members as well as lower voyage and overhead expenses than those borne by the larger distant-water vessels. If no vessel can take a larger approximate quantity than the capacity of a small local vessel will permit, the small local vessel must operate at a competitive advantage.

(4) also damages the distant-water fisherman in that it inhibits his ability to make a living from fishing various stocks on which seasons are open at different times of the year. Absent the 40 pot limit, the distant-water fisherman might fish halibut during permissible periods and harvest king crab at other times.

Although (4), promulgated by a commission charged with the responsibility of managing the stock, does serve the purpose of barring competitive exploitation by distant-water vessels, it is a less-than-perfect regulation from the point of view of those local crabbers it seemingly protects. One of the above-stated effects of the regulation is a stimulus to operate small vessels. During much of the open king crab season, Alaskan waters are extremely treacherous. The smaller the vessel a fisherman operates, the more hazardous his voyages become..

It is significant that any crabbing vessel fishing Alaskan waters from a non-Alaskan port must market his crab in Alaska, absent on-board processing facilities not likely to be found

on a 40 pot limit vessel. §16.10.240 of the Alaska Code prohibits live king crab from being taken out of the state save, after prepackaging, by air freight.

Various laws and regulations inhibit the operations of fishermen who would take salmon from Alaskan waters. Code section 16.10.120 prohibits the use of "drums" or "reels" on purse seiners. (Some "blocks" are approved). §16.05.835 states, with a grandfather clause, that no salmon purse seiner of over 50 feet Coast Guard length or 58 feet overall length can operate in Alaskan waters. Small local vessels are favored; effort is inhibited.

5 AAC 39.240 (c) forbids simultaneous gill net and seine fishing. Monofilament gill nets are prohibited by 5 AAC 39.240 (c). The two disallowed techniques reputedly produce bountiful salmon harvests.

Inhibitions to optimal purse seining include:

5 AAC 39.260. SEINE SPECIFICATIONS AND OPERATION. (a) In the use of purse seines and hand purse seines, not more than one anchor may be used to hold the seine, lead, and seine boat during a set.

(b) Purse seines and leads may not be used for taking salmon in such a manner as to form what are commonly termed hammerhead, heart or arrowhead traps.

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(f) Where the use of leads is permitted, a purse seine vessel may not have or use more than one lead of legal length and depth, without purse rings attached, and with a minimum mesh size of seven inches.

Even efforts exerted by Alaskan troll fishermen are impaired:

5 AAC 39.270. TROLL SPECIFICATIONS AND OPERATION. (a) A maximum of four trolling lines may be operated from any vessel.

(b) A trolling vessel may have, or use for taking bait, gill nets of a mesh not more than 2-1/2 inches, and made of not greater than number 11 net thread.

The examples discussed above are taken from the Alaskan fisheries regulatory system, but the patterns developed therein

are repeated in the management programs of the other Pacific states. Rules supposedly devised to manage fish actually manage fishermen. Operating capacities are impaired, comparatively inefficient local operations are protected, and stocks themselves are only indirectly affected.

A particularly blatant instance of efficiency reduction imposed by another state is contained in Washington Administrative Regulation 220-20-015 (1). The rule forbids salmon fishermen from employing motor-propelled air devices for spotting salmon. No salmon can be taken or possessed as a result of such spotting. The particular prohibition is not unique to Washington.

State agencies' powerlessness to control entry to fisheries necessitates the "second best" solution offered by gear restriction regulations. Gear restrictions eliminate optimal investment choices, since they bar much of the most productive equipment and techniques. Demonstrable benefit to stocks does not accompany the economic protections which some rules afford local fishermen.

The failure to control potential effort and the location of rulemaking authority in legislative and administrative bodies most susceptible to pressure from local interests leave superior management practices stillborn. Gear restriction regulations may be likened to palliatives; they frequently mitigate afflictions but rarely make bad situations good.

1. Oregon Administrative Regulation 10-855 (1). It is difficult to imagine an inappropriate remedial action for the fisherman who finds he has (unintentionally) violated the latter commandment.
2. Washington Administrative Regulation 220-20-010 (6).
3. 5 Alaska Administrative Code (AAC) 24.792 (b) and (c).
4. Cal. Fish and Game Code §8188.
5. Crutchfield, J., and Pontecorvo, G., The Pacific Salmon Fisheries: A Study of Irrational Conservation, p44, The Johns Hopkins Press, 1969.
6. Cal. Fish and Game Code §8188.
7. Crutchfield and Pontecorvo, *Supra* n.5 at 45.
8. *id* at p 41.
9. 5 AAC 06.330; 5 AAC 06.331.
10. Alaska Code, §16.10.060, 070, 100.
11. This forecasting would be required of any fisherman registering for both types of gear.
12. This is perhaps the only rational management argument which could be made for the regulation.
13. Again, effort must be inhibited because so many individuals are permitted to fish.
14. There is in Alaska a general aversion to crab fishing by otter trawl and similar methods. The following regulation applies to all Alaskan waters:
5 AAC 39.620. GEAR FOR CRABS.

(c) King crab may be taken only by means of pots, ring nets, or ring gear.

LICENSING AND MOBILITY

Licensing is a multipurpose regulatory tool. A state may, if it chooses, issue licenses indiscriminately for an activity in order to gain control over an operation conducted by licensees. If in regulating an activity the state's goal is to insure that all participants have achieved a certain level of competence, the state may issue licenses only to those who meet strict qualifications. To guard against over-indulgence in an activity, licenses may be issued only to a limited number of applicants. Licensing schemes can accomplish combinations of these and other purposes.¹ The commercial fisheries licensing schemes of West Coast states do produce revenue, and do, in a marginal sense, accomplish other purposes, but their main collective achievement has been to permit the state to exert control over whoever happens to obtain a license.

Oregon licensing procedures are set forth in title 46, chapter 508 of the Oregon Revised Statutes. In Oregon, any commercial operation which takes or lands fish, deals in fish, or processes fish must possess a license.² A commercial license is prerequisite to legal deployment in Oregon waters of gear capable of taking food fish.³ The statutes specify various licenses⁴ and fees⁵ for particular commercial activities. Chapter 508 nowhere states any qualifications which an applicant must possess in order to become a licenseholder; the chapter nowhere sets any numerical limit on the number of license or the number of any one type of license to be issued.⁶

The Oregon Fish Commission, which is charged with the duty of managing fish stocks in the state's waters, has been given power to revoke commercial licenses in the event that an operator should violate Oregon commercial fisheries laws or Commission regulations.⁷

The essentially similar procedure promulgated by the state of Washington requires only that the licensee be a U.S. citizen or resident over 16 years of age or, if the applicant be a corporation, that it be authorized to do business in Washington.⁸ An applicant for a California commercial fishing license must include on the form sufficient information to render himself easily identifiable; he is not, however, asked to prove in any way his competency to fish, and he will not be denied a license on the ground that his entry into the fishery would overload a stock's carrying capacity.⁹ The requirements for obtaining an Alaska license include a provision which gives the state an additional check on collection of its state income tax.¹⁰ (§16.05.536 and .540 of the Alaska Fish and Game Code, which attempted to set restrictions on eligibility for and issuance of gear licenses has been tentatively voided for conflict with the Alaska constitution, but final disposition is still awaited. The challenged Alaska statutes would have restricted eligibility for salmon gear licenses to those who had previously held salmon net gear licenses for any designated area, as well as those who had held commercial licenses for any three years and could prove that they had fished the area for which a license was sought. Each applicant would

have been entitled to a single license, which he could employ only in an area for which he had qualified and only when he personally operated or assisted in operating the gear. The constitutional provision of which these laws have run afoul is a specific guarantee that the fisheries be open to all Alaskan citizens.)

It can be generally said that no fishing competence or experience is required of those seeking to obtain a commercial fishing license from the West Coast states. Legality has not yet been accorded any system which would limit the number of licenses issued for a fishery. No fee related to the value of the fishing privilege must be paid by the prospective license holder. Rather, the major license requirement is that the applicant give the licensing authority information concerning the specific activities he proposes to undertake.¹¹ The state fishing authority is then in the position of having a non-rational number of people fishing any particular stock which happens to be found within its jurisdiction, but with some information on the intents and equipment, if not the capabilities of the exploiters.

Each state agency is bound to maintain the stocks for which it is responsible.¹² If West Coast fisheries managers know that a stock cannot be maintained when excessive fishing effort is applied to it, the managers must find some way of accomplishing, with the powers at their disposal, an equilibrium between levels of fishing effort and the productive capacity of stocks.

Staff research provides the managers with estimates of maximum fishing efforts which various stocks are able to withstand. The licensing procedure gives managers both information on the potential effort to be applied to particular stocks, and power to control activities and equipment used by fishermen. The only means of achieving a balance between effort and productive capacity which has in fact been implemented in managing West Coast fisheries has been to reduce the actual level of fishing effort through restrictions on fishing time,¹³ on permissible equipment,¹⁴ and on open areas.¹⁵ The goal is to reduce actual effort to a level which could be withstood by the estimated capacity of a corresponding stock.

The licensing mechanism, established to manage the productivity of fish stocks is, as we have seen, so structured that its effect is to manage fishermen through reduction of the effort they are permitted to exert. Licensing supplies the information necessary to effectuate this cumbersome approach to management; licensing provides the state authority with power to dictate the terms under which a license may be used.

The practice of issuing licenses on a state-by-state basis is an inappropriate regulatory device for West Coast stock management. A manager's proper concern should be regulating the effort exerted on a stock, not inhibiting the effort exerted by fishermen from one politically defined region such as a state. This analysis is supported by the acknowledged mobility of most marine species. The old saw that "fish do not respect national boundaries" could, if reworded, find even more exacting application in regard to state boundaries.

States do not, by and large, possess accurate information concerning events affecting transient stocks when those stocks are without the states' respective borders. In any event, states cannot more than minimally control effort exerted without their borders, though they attempt to regulate such effort through restrictions on activities of their citizens outside jurisdictional limits and through rules affecting landings within the state.¹⁶

King crab, halibut, and salmon stocks are also fished by vessels from foreign countries. While no foreign exploitation occurs openly within state waters, it affects state fishing practices in at least two ways: The proper level of fishing effort to be applied to a transient stock by fishermen from any state is impossible to determine if the stock has been or will be exploited to an unknown extent by a foreign fleet; further, foreign depletion of extraterritorial stocks accessible to domestic fishermen must lead to domestic pressure aimed at obtaining permission to intensify effort upon comparable inshore stocks. Individual states lack authority to cope with the dilemma of foreign fleets; it is an axiom of constitutional law that individual states are not empowered to seek agreements with other countries.

Fish move unimpeded across state regulatory boundaries. Fishing vessels do not. The reason that vessels do not is that different sets of regulatory requirements must be met in each new jurisdiction. New licenses must be purchased; each state's license carries with it a new set of privileges

and responsibilities. Each state requires payment of a new fee or series of fees not demonstrably related to the opportunity cost of fishing in the state's waters. A fisherman from the state of Washington may not be permitted to use his gear in Oregon waters because Oregon may have decided that use of the particular gear places too much pressure on stocks.¹⁷ The same Washington fisherman might find that his equipment puts him at a competitive disadvantage in an Alaskan fishery. The problem of keeping abreast of new regulations is multiplied for the fisherman who works in several jurisdictions.

The fisheries managers of the Pacific states face somewhat differing physical problems owing to such variable factors as oceanic conditions, fish movements, and stock productivity. Management officials hold diverse opinions on how best to use the efficiency-reducing tools at their disposal. Political considerations motivate each manager to use his powers to protect the economic interests of his state's fishermen. These considerations likely account for most mobility-impeding inconsistencies among Pacific state fishing regulations, but the last two items listed do not fall within the proper scope of the state authorities' responsibilities. It was earlier stated (p. 4) that a rule which reduces the efficiency of a licensed fisherman's operation is not completely equivalent to a rule which furthers the maintenance and productivity of a stock. Even less akin to a maintenance-and-productivity-furthering rule would be a stricture promulgated to protect local fishermen from "outside" competition.

5 AAC 33.730 (a)(4), an Alaskan regulation,¹⁷ typifies state regulations which serve effectively if not solely to protect local fishing interests. The regulation prohibits vessels fishing for king crabs in Southeast Alaskan waters from using more than 40 pots. The limit necessarily reduces the operating efficiency of a large vessel more than it does a small vessel. Large vessels potentially available for crabbing come from non-Alaskan ports (primarily in Puget Sound) and pursue different species during different seasons. Alaskan fishermen commonly work the crab grounds in smaller vessels economically suited to the 40 pot limit because of small crews and short voyages to and from port. The regulation increases the likelihood that non-Alaskan crews and vessels which engage in seasonal exploitation of various species will lie idle much of the year. A Puget Sound vessel operator is not likely to purchase an Alaskan crabbing license if an Alaskan regulation bars him from conducting a profitable voyage; he will prefer immobility to active depletion of his funds.

It should not be intimated that 5 AAC 33.730 (a)(4) is an unmixed source of protection for Alaskan crab fishermen. The small vessels which are prized for their efficiency under the rule are at best only marginally safe in Alaskan waters during the stormy months which comprise most of the king crab season, which runs from August 15 to March 15.

State-by-state licensing encourages regulation on a level not commensurate with the natural mobility of fishing vessels. It inhibits management programs aimed at achieving efficient stock exploitation. It requires the fisherman who would follow

a mobile stock across state boundaries to pay cumulative, arbitrary fees and to adhere to contradictory sets of efficiency-reducing regulations, and it forces any fisherman who would enter another state's jurisdiction to abandon rules which favor his equipment and techniques for other rules which discriminate against that same equipment and those same techniques without necessarily promoting the productivity of stocks.

Licensing to fish commercially in waters of the Pacific states is now based on gear specification and on boundary delineations between and within states. A license which limits a fisherman's choice of gear impairs his ability to operate efficiently; a license which restricts vessel movement to within politically established boundaries regulates whatever fish happen to have moved within those boundaries but does not necessarily accomplish maintenance of any stocks. The effects of current licensing regulations do not reflect the results of biological research or economic analysis concerning the Northeast Pacific fisheries.

License fees should reflect the opportunity cost of the privilege to fish a stock or number of stocks rather than (If they now do) the privilege to use one particular type of gear. Likewise, a license should permit a fisherman to fish for a stock rather than to fish in a region, if efficiency and intelligent management are to be promoted. Licenses should not be issued beyond the point where effort exerted by licensees operating at maximum efficiency would overtax the productive capacities of stocks sought to be managed. With the exception

of the apparently ill-fated Alaskan scheme for controlling entry to salmon fisheries, no present Pacific state regulatory system fairly approximates these goals.

A current U.S. proposal for management of fishery stocks is that coastal states be recognized as having an exclusive right to fish in their territorial seas and a preferential right to fish for stocks in areas adjacent to and beyond the territorial seas. International agreement on a proposal of this sort would give the United States greater authority to manage stocks off the coasts of California, Oregon, Washington, and Alaska. However, it would not increase the commissions of the individual states to regulate fisheries. It would seem consistent with U.S. interests if a mechanism were to be devised to permit stock management recognizing no international boundaries. Otherwise, the United States would have to continue acting as intermediary between states which advance not always consistent aims, and foreign nations which seek circumstances permitting their fleets to exploit Northeast Pacific fisheries stocks. A unified management approach would likely improve the United States bargaining position in international negotiations.

National regulation of fisheries would permit licensing procedures to be based more nearly on stocks and less closely on gear. Political pressures for continued intranational protectionism would be diminished because local interests would be deprived of sympathetic local forums. The problems

associated with achieving equilibrium between stock productivity and fishing effort could be dispassionately treated.

However, some recent speculation has held that the Federal government wishes to maintain a "hands-off" policy toward domestic fisheries. One reason for such a stance might be that, since U.S. strategic imperatives favoring minimal exercise of national authority over the oceans run counter to the demands of many domestic fishermen, the Federal government may well desire to keep as many bureaucratic layers as possible between the rather vociferous fishermen and those governmental organs which propound and practice United States oceanic policy.

1. Any apparent licensing system promulgated solely to produce revenue for the state is in fact a tax.
2. O.R.S. 42.508.025
3. O.R.S. 42.508.030, .035
4. O.R.S. 42.508.106 - O.R.S. 42.508.270
5. O.R.S. 42.508.285
6. O.R.S. 42.508, generally.
7. O.R.S. 42.508.485
8. R.C.W. 75.28.020
9. Cal. Fish and Game Code §7850-7855.
10. Alaska Statutes 16.05.450 (b)
11. O.R.S. 42.508.410, Alaska Statutes 16.05.450 (a) and footnotes 8 and 9 supra.
12. i.e., R.C.W. 75.08.012. The other states are similarly charged.
13. Such a reduction is imposed by Wash. Admin. Reg. 220-36-010.
14. Oregon Fish Commission Rule 20-215
15. Wash. Admin. Reg. 220-36-020.
16. O.R.S. 42.509.370 restricts activities of Oregon citizens in international waters. Most states have restrictions on activities of any vessel landing fish in the state.
17. O.R.S. 42.509.230 and .365 imply that, in the salt waters of Oregon, salmon may be taken only by trolling.

TIME CLOSURES AND RELATED DEVICES

Time closures, regulatory devices available to state fisheries departments, prohibit fishing in particular areas at times when potential effort noticeably exceeds the productive capacities of stocks. Closures attempt to lower total effort exerted on a stock by reducing the amount of time during which the stock is deemed accessible. They are used when enough fishermen have been licensed so that the apparent effect of their maximum combined efforts would be to deplete a stock, and their use requires little or no advance notice to fishermen. Given closures, no fisherman can exploit a stock to the fullest capacity of his equipment, but each entrant has an equal (if limited) opportunity to harvest. Closures are perhaps most extensively used in regulating the Alaskan and Washington salmon fisheries, although their use is confined neither to those areas nor to salmonids.

Some closure periods are designated before a season opens. Saturday and Sunday closures have been established in partial deference to sport fishermen, who would be most likely to fish salmon stocks on weekends. Permissible commercial fishing periods may vary from as few as two or three days per week to as many as six days per week under various plans. Examples of closures defined in state regulations include six one and two day closures of the Gray's Harbor, Washington salmon fishery,¹ the Bristol Bay regulations which set Monday through Friday or Saturday fishing periods for three subdistricts and provide for emergency closures in two others,² and the Kodiak

region edict, which permits fishing in a basic time from Monday morning to Friday evening of each week but lists nine exceptions to that norm.³

The closure dates announced longin advance cannot always be demonstrably related to observed stock movements, especially those of the salmonids. Different classes headed for different streams intermingle in coastal waters before entering river mouths. The size and composition of such multiclass groupings may change rapidly; different classes will move upstream at different times, depending on cues such as variation in the flow of water from their streams. Quick and unpredictable stock fluctuations dissipate the effect of long-announced closures.

The quality of salmon flesh deteriorates rapidly as the fish approach their spawning grounds. From the standpoint of palatability it is best to harvest salmonids before they enter river mouths. However, continued productivity of the salmon stocks can best be assured if the run or runs from each particular stream is individually exploited and thereby more easily protected from excessive effort.

Under the above circumstances the best way to protect individual runs would be to identify each of the intermingled classes in the coastal waters and regulate harvests accordingly. Present state research capabilities do not permit general identification of classes. Therefore, in many cases, random exploitation based on the statistical hope that the effects of indiscriminate fishing will not weigh too heavily on any particular class must be resorted to. Predeclared time closures work against

balanced effort distribution among stocks by rendering the application of effort sporadic. Rapidly fluctuating multi-class salmon groupings swarming in coastal waters are subjected during some periods to intense exploitation, during other periods to no exploitation at all. The effect on different classes is less than indiscriminate.

Closures which are announced long in advance permit escapement of some fish to spawning grounds and satisfy needs of the sport fisheries. Midseason closures implemented immediately on announcement correct imbalances arising from inaccurate forecasts. These emergency closures may be declared by fisheries managers when runs are quantitatively lower than expected, when fishermen concentrate excessively on identified stocks, or when those cues which provoke upstream salmon movement are not forthcoming and classes do not move out of zones open to fishing. In circumstances which indicate a compelling need for closure, a manager need not give substantial notice to licensees. The state of Washington grants its director the power to close fisheries without public hearings upon the occurrence of any emergency he sees as a hazard to fisheries resources.⁴

The emergency closure is a flexible tool which can be tailored to meet particular needs. When managers receive current and accurate information on fisheries events, they can do much with closures to assist the natural productivity of stocks.

Precise forecasting of salmon runs is not now possible. Neither is anticipation of conditions which might subject a class to more than usual exploitation. Nor, for that matter

can it be said much in advance that a particular salmon grouping will contain an abnormally large number of immatures. A regulatory agency must have power to deal with these contingencies, and the authority to immediately close fisheries is such power.

The enforced layover is an effort-reducing device which works like a time closure. Layovers are extensively used in the Pacific halibut fishery. Their import is that a vessel which has completed a halibut-harvesting voyage must abstain from the fishery for a certain number of days before being permitted to venture forth again.

Layover periods are determined by agreement between union officials and vessel owner representatives. Layover time lengths roughly determine the total number of voyages which can be made by vessels participating in a fishery. The voyage limit restricts effort during periods when halibut fisheries are open, and thereby allocates the catch among vessels in such a way as to permit a relatively high per-voyage return. A "relatively high per-voyage return" is not to be equated with a profitable operation, however, because the large number of entrants restricts each vessel to a very few voyages.

Closures and layovers work an economic hardship on the individual fisherman. If he can fish no more than a few days per week, his income from fishing must be reduced. At the same time, the irregularities and frequent uncertainties associated with closures decrease the fisherman's likelihood

of finding steady supplemental income.

At present, the power to institute closures is the best instrument with which to achieve a match between effort and stock fluctuations. But closures are an imperfect tool, often used as a substitute for knowledge and sometimes used solely to cope with an overabundance of licensees. Improvement of research capability in the specific fields of forecasting and identification together with limits on the number of people licensed to fish would make closures both more effective and less necessary.

1. Wash. Admin. Reg. 220-36-010.
2. Alaska Admin. Code 5.06.320.
3. Alaska Admin. Code 5.18.320.
4. Wash Admin. Reg. 220-20-010.

The discussion of salmon movements in particular and much of the general reasoning presented herein owe more than mere inspiration to the material found at p 41-45 of Crutchfield's and Pontecorvo's The Pacific Salmon Fisheries: A Study of Irrational Conservation, Johns Hopkins Press, 1969.

OREGON SALMON REGULATIONS:

THE FISHERMAN'S VIEW

The Oregon Fish Commission can reasonably be said to have two responsibilities to discharge in the course of managing its state's anadromous fish stocks: To prevent depletion of the various runs, and to provide fishermen with an opportunity to conduct economically viable exploitation within bounds necessary to insure reproductivity. The first duty is stated in Oregon Revised Statutes ch506.036(2):

"The duty of protection, preservation, propagation, cultivation, development and promotion of all fishes under its jurisdiction within the waters of this state is delegated to and imposed upon this commission."

The second duty is implied from the Commission's existence, the above-stated first duty, and the nature of the economic system. Oregon has stated the goal of conserving over time the various stocks of foodfishes found within its jurisdiction. If its sole goal were conservation or promotion of a sports fishery, it could have abolished commercial fishing within its borders. Its decision to instead create a commission empowered to regulate commercial fishing in the state is a decision that controlled commercial fishing would advance the state's economic health and well-being. It is the nature of the economic system in the United States to use private incentive rather than coercion or appeals to conscience as the primary means of accomplishing desired ends. To establish a healthy fishing industry within its borders, Oregon must provide an opportunity for fishermen to gain from fishing.

Let us characterize a participant in the Oregon salmon fishery, and view the effect of the regulatory system upon him. The characterization will be brief, the regulations cited selective. The difficulties encountered could as well be attributed to the fisheries regulatory system of any other Pacific state.

The fisherman is experienced. He knows, though not precisely, where salmon will be at given times, and he knows what gear will enable him to most efficiently harvest them. He knows that it is necessary for a certain percentage of salmon to escape upstream in order to insure continued reproductivity of the stocks, but he also knows that, in competition with other like-minded fishermen, he has to take a certain number of salmon each year to avoid going flat broke. The fisherman has a considerable amount invested in equipment, but he is not rich, not especially skilled in other trades, doesn't have much to fall back on. He knows that he must adhere to the rules to continue to retain permission to fish, but if the rules appear deliberately intended to keep him from catching enough fish to make a living, he is "only human," and not always unwilling to risk a violation (and upset a conservation program) to catch a necessary fish. The fisherman likely comes from a background where making a living from the sea has been a generations-long tradition. He would rather fish than earn more money in some other line of work. He will resist change that deprives him of the opportunity to fish for a living, and he will find many friendly ears in his state legislature.^{1a}

The fisherman must of course obtain the state's permission to fish in its waters. §46.508.025 of the Oregon statutes requires that anyone taking or landing fish obtain a license. §46.508.030 makes a license mandatory for anyone operating gear capable of taking food fish. Whenever the fisherman commercially takes or assists in taking food fish, he must have a commercial fishing license in his possession.¹ None of the fish our fisherman catches pursuant to his commercial license can be kept for personal use.² The commercial license costs \$23.00.³

To obtain a gillnet, setline, or setnet license, the fisherman must make his application no later than April 15 of the year in which he intends to fish.⁴ A resident Oregon fisherman pays \$8.00 for each gillnet, setline, or setnet license; a non-resident pays \$68.00.⁵ The commercial license must be acquired before any fish can be taken or landed,⁶ and, once issued, the license cannot be borrowed, altered, or loaned.⁷

A gillnet license is necessary for anyone personally operating a gillnet on an Oregon stream. The gillnetter may operate only one net at a time. The license number must be posted on the net buoys.⁸

A set line license is required for every set line site fished by a commercial fisherman. Each line is limited to 100 hooks, and each must be personally operated by the licensee. The license number must be posted.⁹

Each site on which a set net is to be operated must be licensed; no more than six such licenses per fisherman may be

issued, and the licensee must operate each net. The maximum permissible length for set nets is 300 feet, save in Tillamook Bay, where it is 1200 feet. Again, the license number must be posted.¹⁰

A license must be obtained for the fisherman's boat;¹¹ the boat license costs \$30.00.¹² A single delivery license for a transient vessel costs \$23.00.¹³

Renewal is necessary if the license privilege is to be retained.^{13a} The applicant must supply such information as the director requires.^{13b} The licenses are not transferrable.^{13c} It is within the director's discretion to revoke a license for a regulatory violation.^{13d} Two convictions occasion a two year loss of the license privilege.^{13e}

The licensing procedure outlined above is not atypical for the Pacific states. Taken individually, the fees exacted are certainly not excessive. Through the procedure, the state gains some information on proposed fishing activities and, more important, secures control over the licensees' functions.¹⁴

There are flaws and inequities in the Oregon licensing structure. The most obvious imperfection is that no provision exists by which the commission or the director can limit the number of licensees permitted to participate in the fishery. If it is assumed that a given fish stock will suffer depletion (or perhaps in the case of anadromous fish, extinction) if more than a certain level of fishing effort is successfully directed toward the stock, it behooves those charged with stock management to limit the effort so directed. The most obvious primary method of limiting effort is to limit the number of participants who exert effort. Limiting the number of parti-

pants will not by itself insure optimum production from a fishery; other tools, such as closures would have to be available to a management authority.¹⁵ But controlling the number of participants does offer the elimination of great quantities of potential excessive effort. Lessening the number of competitors for the limited resource permits those licensed to more nearly optimize the investment required to equip themselves and conduct their operations. Lowering the number of participants permits a more judicious application of other management tools for controlling and directing effort.

The fact that separate licenses are required in Oregon for gillnetting, setlining, and setnetting works against the interest of the individual fisherman because it restricts an option to use whatever means may be best at different times to catch fish moving upstream. Insofar as management's responsibility is to maintain fish stocks, the separate licensing requirements are imperfect, for the statutes' direct effects are to restrict fishermen's activities. The problem occasioning the regulations is that of limiting the catch of subgroups of anadromous fish so as to permit sufficient escapement for breeding purposes. That the regulatory method chosen must at best achieve this purpose indirectly can be attributed to the lack of control over entry, to inadequate knowledge concerning the reproductive capacity, movement, and related characteristics of stocks, and to an insufficient number of personnel available to enforce rules. The specific effort-inhibiting provisions of the gillnetting, setlining, and setnetting statutes bear out the contention that those statutes do not directly work to achieve the supposed management goal: the gillnetter may operate only one net, the setnetter no more than six, the setliner may attach

no more than 100 hooks to each line.

Once the fisherman has obtained his licenses, he is free to fish, providing that he adheres to Oregon's substantive statutes and regulations. Among the most noteworthy of the statutes is ORS §46.509.006, which makes it illegal to take or possess any foodfish in any prohibited manner.

More specific regulations restrict the fisherman's conduct on various waters within Oregon's jurisdiction. During much of the year, salmon stocks are found in the waters of the Pacific off Oregon's coast. Within Oregon's territorial waters, taking these salmon by net is prohibited.¹⁵ No Oregon citizen may net salmon in international waters.¹⁶ No salmon taken in violation of these regulations may be transported into Oregon.¹⁷ Oregon does permit salmon netting in areas regulated by the International Pacific Salmon Commission, in areas where netting has been approved by laws or other regulations of the U.S. government, and in the course of scientific research.¹⁸ The possessor of salmon in Oregon must have a certificate affirming a legal catch.¹⁹

Net fishing for salmon is generally prohibited by the Pacific states in salt waters off their coasts.²⁰ The prohibition is an agreed one, made on the recommendation of the Pacific Marine Fisheries Commission. The rationales provided by the states are substantially similar; a representative policy statement might take the following form:

"Oregon has an interest in maintaining its anadromous fish stocks. Salmon heading for various rivers are commingled; the different runs are indistinguishable until they enter bays and river mouths. Net fishermen operating on the high seas

intercept salmon before the runs separate and fish the stocks with an intensity that causes depletion of many runs. There is no known way to regulate salmon net fishing short of prohibition in a way which would permit adequate escapement. Canada has expressed concern, and will enact similar prohibitions if the Pacific states adopt a policy against net fishing for salmon. The legislation we propose will become activated if the other Pacific states enact substantially similar legislation."²¹

The statements argue that net fishermen could exert effort on high seas salmon stocks too great for the stocks' reproductive capacities to bear. Also implied is that circumstances do not now permit drafting regulations which could reasonably prevent net fishing effort from being oppressively concentrated on individual runs.

The contention that seiners and their ilk might unwittingly destroy entire runs loses validity if net fishing is permitted only for a controlled number of licensees. Should taxonomic knowledge increase and identification of subspecies comprising the various runs become possible, the chance of depletion would also diminish. The Pacific salmon net fishing ban does preserve stocks in a rough-and-ready fashion, but it also substitutes for more precise effort controls and more detailed resource knowledge. The latter refinements would, if undertaken, almost certainly aid management goals and provide increased return on capital investment.

At present, the Oregon licensee is permitted to troll for anadromous fish in Pacific waters. Trolling is a much less intensive method of harvesting fish than is net fishing, though it is no more selective among commingled runs of anadromous fish. The

licensee does not have total freedom in conducting his trolling activities; regulations establish parameters of permissible conduct:

10-010 APPLICABILITY OF ORDER. It is unlawful to fish for, take, or catch chinook salmon (*Oncorhynchus tshawytscha*), silver salmon, (*O. kisutch*), pink salmon (*O. gorbuscha*), chum salmon (*O. keta*), blueback or sockeye salmon (*O. nerka*), steelhead trout (*Salmo gairdneri*), ling cod (*Ophiodon elongatus*), rockfish (Family: Scorpaenidae), petrale sole (*Eopsetta jordani*), halibut (*Hippoglossus stenolepis*), albacore (*Thunnus germon*), or other food fish for commercial purposes in or from any of the waters of the State of Oregon or waters over which the state has jurisdiction concurrent or otherwise by trolling; or to buy, sell, receive, transport into the State of Oregon from the waters of the Pacific Ocean, or have in possession for commercial purposes any such troll-or ocean-caught salmonids, ling cod, rockfish, petrale sole, halibut, albacore, or other food fish except as in this order, by law, or order of the Fish Commission specifically provided for.

§10-010 of chapter 625, Oregon Administrative Rules, is the first paragraph of Commission General Order No. 1, which establishes permissible means for catching salmon in Oregon waters of the Pacific. The paragraph's import is that the substantive provisions which follow are to be strictly construed, that no method of fishing for salmon in the affected waters is acceptable unless it is explicitly stated in Oregon statutes or Oregon law. The commercial salmon fisherman, then, may only troll for salmon, and he may troll only in ways approved by the Commission, if he is to fish for salmon in the Pacific.

10-015 TROLLING FOR SPECIFIED SALMON AND STEELHEAD. It is lawful to fish for, take, or catch chinook, pink, chum, or blueback salmon, or steelhead trout for commercial purposes by trolling in or from waters of the Pacific Ocean under the jurisdiction of the State of Oregon during the period 12:01 a.m. April 15 to 12:00 midnight October 31 of any year; and to transport into the State of Oregon any such troll-or ocean-caught salmon or steelhead from the waters of the Pacific Ocean during the above-specified period for the purpose of canning, processing, sale, or other commercial use, provided, however, that during such period it shall be unlawful to fish for, take, catch, transport into the State of Oregon from the waters of the Pacific Ocean, buy, sell, receive, transport or have in possession at any time for commercial purposes within the State of Oregon any troll-or ocean-caught chinook salmon measuring less than 26 inches from the tip of the nose to the extreme tip of the tail.

A similar provision establishes the period from 12:01 a.m. June 15, to 12:00 midnight October 31 as the permissible time for trolling for silver salmon.²²

10-030 DEFINITION OF TROLLING. The term "trolling" as used herein, or in any order of the Fish Commission relating to the use of that type of gear for commercial purposes, shall be understood and construed as meaning a fish line used or employed to drag a lure or bait through or across the water by means of a moving boat; provided, however, that no commercial troll license issued under ORS 508.130 shall be interpreted or understood to authorize or permit the use of a hook and line, rod and line, reel or other sports fishing tackle, or any combination there-

of used in hook and line fishing commonly called angling. This section is not intended, nor shall it be interpreted as preventing the operation or use of any such boat or vessel, when not so engaged, as a boat for charter or hire or in connection with guiding under and pursuant to the provisions of CRS 496.015, 497.750, and 497.760 respectively, or when used for sport fishing only.

General Order No. 1 further states that the content of the order should not be interpreted to prohibit trolling for chinook or silver salmon in the Columbia River during the seasons specified in the order, if such fishing is otherwise in accordance with joint agreements between Oregon and Washington.²³

Seasons established by the several laws and regulations must be respected;²⁴ out-of-season fishing can cost the commercial operator his vessel, his boat, his gear, and the seizure of his catch²⁵ in addition to the probable loss of his license. The penalties for season violations are stern because of the twofold importance of seasonal closures. Such closures generally limit the effort exerted by the uncontrolled number of licensees; more important, the closures protect the stocks from harvesting at times when the best available knowledge indicates that the stocks would be most vulnerable to depletion.

Not all areas of the Pacific within Oregon's jurisdiction are open to the commercial salmon troller. Area closures can be implemented for a number of reasons: the region in question may be especially coveted by sport fishermen, it may be thought that stocks in the region are too vulnerable to permit any fishing, the region may be a place where immature salmon tend to gather and swarm. General order no. 21 details one such permanent area closure:

General Order XXI,
SALMON, PACIFIC OCEAN AND
UMPQUA RIVER AND BAY

10-400 TROLLING PROHIBITED IN DESIGNATED AREAS. It shall be unlawful for any person to fish for, take or catch salmon for commercial purposes by means of a "troll", or "trolls", or "troll line" in or from any of the waters of the Pacific Ocean or of the Umpqua River and Bay (Winchester Bay) within the area designated and described in section 10-405 of this Order.

10-405 AREA DESIGNATION. The area in which the taking of salmon for commercial purposes is prohibited under section 10-400 of this Order is hereby designated and described as all of the waters of the Pacific Ocean or of the Umpqua River and Bay (Winchester Bay) lying within a triangle formed and created by:

(1) The projection of a base line due North and South through a point one mile due East of meridian $124^{\circ} 14'$ West of Greenwich and which point lies Westerly of the inner end of the South Jetty at the mouth of the Umpqua River.

(2) The establishment of a point on said base line one mile due North of parallel $43^{\circ} 40'$ North latitude as "Point 1" of such triangle.

(3) The establishment of a point on said base line one mile due South of parallel $43^{\circ} 40'$ North latitude as "Point 2" of such triangle.

(4) The position and location of the "Whistler Buoy" off the mouth of the Umpqua River as shown on U.S.C. and G. S. Chart 6,004 (corrected for information received to July 14, 1952) as "Point 3" or the apex of such triangle.

(5) The projection of a line from "Point 1" to "Point 2" as the base leg of such triangle; the projection of a line from "Point 2" to "Point 3" as the second or southerly leg of such triangle; and the projection of a line from "Point 3" to "Point 1" as the third or northerly leg of such triangle.

10-410 SCOPE OF THE ORDER. It is intended that this Order shall modify and supersede any previous order of the Commission relating to or authorizing and permitting the taking or fishing for salmon for commercial purposes in the closed area established and described in section 10-405 and it is to be understood and interpreted as modifying and limiting the right or privilege conveyed under Fish Commission General Order No. 1 sections 10-010 to 10-030 to take, fish for or possess salmon for commercial purposes from waters of the Pacific Ocean.

Salmon stocks can be exploited by commercial fishermen in Oregon waters other than those parts of the Pacific under the state's jurisdiction. Commercial fishermen operating in the Columbia River are governed by a joint set of regulations enforced by the states of Oregon and Washington.²⁶ Laws and regulations promulgated in areas of the Columbia subject to concurrent jurisdiction or in areas affected by concurrent jurisdiction can be proposed or modified only with both states' consent.²⁷ The commission and the director represent the state in regulatory matters such as season changes.²⁸

The commercial salmon fisherman entering the Columbia River fishery must familiarize himself with and adhere to the relevant regulations. He is permitted to use more gear types than he would have been in the Pacific, and the seasons are different, but his freedom to optimize operations is certainly circumscribed.

The Columbia River fisherman is permitted to use gill nets and hand dip nets. Unless particular regulations otherwise specify, no gill net may exceed 1,500 feet in length, and no hand dip net may exceed 36 inches across the bag frame.²⁹

For regulatory purposes, the Columbia River fishery is divided into two sectors: that portion of the river which is below Bonneville Dam, and that portion of the river which is above it, as far as the upstream bank of the Umatilla River's mouth.³⁰ The regulations specify that 12 areas on the lower Columbia are closed to salmon fishing unless otherwise specified. Six of the area closure are effective for the month of September, six are in force throughout the year.³¹

Gear regulations and seasonal openings and closures intermingle on the lower Columbia. Different seasons bring different strictures as to prohibited gear:

60-210 SPRING SALMON SEASON. Salmon and steelhead may be taken for commercial purposes from:

- (1) Noon May 3 to noon May 9;
- (2) Noon May 11 to noon May 16; and
- (3) Noon May 18 to noon May 23,

In those areas of the Columbia River below Bonneville Dam not otherwise closed, by gill nets not over 1,500 feet in length.

Hist: Amended 5-1-70 by FC 208

60-220 SUMMER SALMON SEASON. Closed until further notice.

60-230 EARLY FALL SALMON SEASON. Salmon and steelhead may be taken for commercial purposes from:

- (1) Noon August 9 to noon August 14;
- (2) Noon August 16 to noon August 21; and
- (3) Noon August 23 to noon August 26,

In those areas of the Columbia River below Bonneville Dam not otherwise closed, by gill nets not over 1,500 feet in length and provided further that gill nets of a mesh size less than 7-1/4 inches stretch measure shall not be permitted prior to noon August 16 of the above season.

60-240 LATE FALL SALMON SEASON.

Salmon and steelhead may be taken for commercial purposes from:

(1) Noon September 14 to noon September 19;

(2) Noon September 20 to noon September 25;

(3) Noon September 27 to noon October 2;

(4) Noon October 5 to noon October 8;

(5) Noon October 12 to noon October 15;

(6) Noon October 19 to noon October 22;

and

(7) Noon October 26 to noon October 29,

In those areas of the Columbia River below Bonneville Dam not otherwise closed, by gill nets not over 1,500 feet in length.

60-250 SOCKEYE SALMON SEASON.

Sockeye, other salmon and steelhead may be taken for commercial purposes from noon June 21 to noon June 25 in those areas of the Columbia River below Bonneville Dam not otherwise closed, by single wall floater gill nets of a mesh size not more than 4-1/2 inches stretch measure, freely suspended between a single cork line and a single lead line and operated without added strings, lines, slackers, aprons, or trammels, and not over 1,500 feet in length.

60-260 YOUNGS BAY SALMON SEASON.

Salmon and steelhead may be taken for commercial purposes from the opening time and date of the late fall season as provided in OAR 625-60-240 to noon October 31, in those waters of Youngs Bay and River upstream from the new U.S. Highway 101 bridge to Fish Commission deadline markers at the mouth of Battle Creek Slough except for those waters lying southerly of a straight line from Fish Commission deadline markers located at the south end of the old U.S. Highway 101 bridge through the Lewis and Clark red nun channel buoy "6" to the Fish Commission deadline marker located on the south bay shore east of the railroad bridge near the Clatsop County airport, by gill nets not over 1,500 feet in length.

Regulations 60-210, 60-230, and 60-240 illustrate one of the problems created by Oregon's unwillingness to limit the number of licensees permitted to participate in its salmon fisheries. The above-cited regulations command seemingly arbitrary closures during the course of the respective seasons which they proclaim. 60-210 and 60-230 each establish total midseason closures of four days; 60-240 interrupts its season for eighteen days. Presumably, there are still salmon in the river during the closure periods; unless some unstated series of events is anticipated which if coupled with gillnetting would likely cause drastic depletions in the returning salmon stocks, it could reasonably be concluded that the midseason closures have been promulgated largely to achieve a percentage reduction of the total fishing effort.

A compelling reason for controlling fishing effort exerted upon anadromous fish is that stocks returning to spawn in different streams are not only easily depleted in the absence of effort controls, but are quite vulnerable to actual eradication, with a resultant loss of runs from some streams in future years. At those times when it is most desirable to fish for anadromous species, the runs headed for different spawning streams are commonly intermingled and often indistinguishable. It is known to fisheries managers that a significant percentage of the anadromous fish of any run must be permitted to escape capture, move upstream, and spawn to insure the productivity of future runs. One means of insuring some escapement is to close the fishery during part

of those periods when fish are likely to be moving upstream; this is the method indicated by the Columbia River regulations.

If it is assumed that the rulemaker's goal is to keep fishing effort from exceeding a level which would permit an adequate escapement of anadromous fish, the choice of midseason closures as a means of achieving this end admits that the normal permitted level of effort is too intense for the stocks to withstand. The admission is significant; if normal permitted effort were to be limited by the reproductive capacity of the stocks, fishing could be allowed continuously during the various seasons, and the selective effect of fishing effort on the various commingled runs would be random. The method chosen for the Columbia River achieves less than random selectivity.

Using time closures as a standard effort-reducing tool means that intermittent rather than continual effort will be applied to fish moving upstream. Salmon move upstream in rapidly fluctuating numbers and at irregular and not easily predictable intervals. To decree weeks or months in advance that the Columbia River anadromous fishery will be closed during periods when salmon can be expected to be moving is to insure that some runs will be subjected to intensive fishing while others, fortunate enough to be moving during closures, would escape most if not all fishing. The latter runs would enjoy more than adequate escapement; the former would suffer unnecessary depletion. By themselves, closures can permit a generally equitable percentage of escapement, but cannot satisfactorily distribute escapement among the various runs.³²

60-250, which sets parameters for the Lower Columbia sockeye salmon season, contains detailed specifications as to what type of gill net shall be permitted in the fishery. The acceptable characteristics are:

"...single wall floater gill nets of a mesh size not more than $4\frac{1}{2}$ inches stretch measure, freely suspended between a single cork line and a single lead line and operated without added strings, lines, slackers, aprons, or trammels, and not over 1,500 feet in length."

The only strictures imposed on gill nets during most Lower Columbia salmon seasons³³ is that the nets not exceed 1,500 feet in length.³⁴ (There is one other exception; 60-210 prohibits gill nets with a mesh size less than $7\frac{1}{4}$ " stretch measure to be used in the early fall salmon season before noon, August 16. It is virtually certain that these multiple gill net standards spring from a need to impose different selectivity requirements at different times. But for the fisherman who would take salmon during all Lower Columbia seasons, the gill net standard variations mean greater capital investments. The investment enables the fisherman to compete with an unlimited number of like-minded harvesters for a finite number of fish. Since it has been amply demonstrated that, as long as there is any money to be made from a fishery, the number of entrants will continue to increase even in the face of declining per-unit yields³⁵ the fisherman's return on his investment must be small and shrinking.

The regulatory structure of the Upper Columbia River salmon fishery does not significantly differ from that of the Lower Columbia. Area closures are designated at the Dalles Dam, at the John Day dam, and at nine tributary rivers in Washington

and Oregon.³⁶ Spring,³⁷ fall,³⁸ and sockeye³⁹ seasons are established. Many midseason closures are decreed.⁴⁰ In general, gill nets must be single walled and no longer than 300 feet, and hoop and bag nets are permitted.⁴¹

The Oregon Fish Commission has specified criteria for constructing and operating gillnets and setnets.⁴² A gillnet, which for regulatory purposes may be a drift net, a floater gill net, or a diver gill net, is defined as a "mesh net with cork and lead lines which is in a position to drift with the tide or current at all times in the waters in which it is being fished or operated."⁴³ A gill net may not to any degree "be anchored, tied, staked, fixed, or attached to the bottom, shore or a beached boat;" it may not be "left unattended at any time it is in operation;" it may not be "attended by more than one boat while being fished."⁴⁴ Section 20-210 sets forth acceptable physical standards for gillnets:

20-210 GILLNET CONSTRUCTION REQUIREMENTS. There shall be sufficient buoyancy in the corks and/or floats on the cork line of any gillnet so that said net shall be free to drift with the current. None of the lines used there on shall be of metal or of any metallic substance or material. The lead or weight on the lead line of any gillnet shall not exceed two (2) pounds in total weight on any one fathom, measurement to be taken along the cork line of said net. However, should extra or additional weight appear necessary or make practical the operation of any such net, permission to use in excess of two (2) pounds-weight per fathom of net may be granted by the Commission to any duly licensed gillnet fisherman upon written application which includes an adequate justification for the additional leads or weights of any kind attached to any part of such net except as herein provided.

The Fish Commission has prohibited installing, using, operating, or maintaining in any waters of the state any type of monofilament gillnet webbing.⁴⁵ The rule against monofilament gillnets has been imposed generally in waters within the jurisdiction of western states, and is clearly intended to reduce the efficiency of licensed commercial fisherman.⁴⁶ Crutchfield and Pontecorvo, in the course of describing the Bristol Bay, Alaska salmon fishery, state: "(T)he use of monofilament nylon gill nets, now prohibited, would increase the catching power of a boat by as much as 30 percent."⁴⁷ The precise figure of 30 percent may or may not hold true for the operations of Oregon gillnetters; the important consideration is that monofilament webbing is not singularly destructive or non-selective, but merely efficient.

The Commission defines a setnet as a net which takes fish by gilling, which is set or anchored to a specific location, and which is not free to move or drift with currents or tides.⁴⁸ No setnet may exceed 300 feet in length unless specific provision is made.⁴⁹ Operating setnets must be separated by at least 150 feet; no setnet may be extended over more than $\frac{1}{3}$ the mean low water width of the river, save in three cases where an extension to $\frac{2}{3}$ the river's width is permitted.

In Oregon, the mesh size of a gillnet or setnet is measured in the following manner: Any three meshes are first water-soaked for at least one hour; then, still wet, they are put under ten pounds vertical tension and measured from the "inside of the knot of the middle mesh to the outside of the opposite vertical knot of the middle mesh of the three meshes."⁵⁰

Devices other than those specifically authorized by Oregon statutes and regulations cannot be used to take salmon in Oregon waters. O.R.S. 509.216 (1) states, "Except as provided in subsection (2) of this section, it is unlawful to take food fish by means of fixed fishing gear or seines in any of the waters of this state." (2) says that food fish other than salmon and steelhead may be seined if the Commission so decides. The statute's import is that not only seines, but also other efficient devices such as fish traps are unavailable to the fisherman who wants to take salmon profitably. Of course, devices as successful in capturing anadromous fish could not be permitted if fishing licenses were granted to an unlimited number of applicants. Oregon has chosen that regulatory path which forces them to deal with the inhibited efforts of an unlimited number of fishermen rather than with the approximately optimal efforts of a controlled number of fishermen. Anyone who so desires is permitted to fish; no one is permitted to fish as well as he is able to. If more entrants into the Oregon salmon fisheries appear, regulations will be imposed which further impair the fishing ability of present licensees.

Oregon has extended its regulations to govern its citizens when they fish in waters outside its jurisdiction,⁵¹ and has also made its regulations applicable to the capture of any fish landed in the state.⁵² These extensions denote the approximate limit of Oregon's ability to extend its authority over activities outside its waters which affect the productivity of salmon stocks returning to its jurisdiction. It is axiomatic that Oregon cannot negotiate agreements with foreign nations

whose vessels may be depleting stocks later available to Oregon fishermen.⁵³ Oregon cannot regulate the conduct of fishermen from other states who fish transient salmon stocks before those stocks enter Oregon waters.⁵⁴ The Pacific Marine Fisheries Commission has no more than advisory power, and past reciprocal legislation on the West Coast was enacted at the behest of the national government.⁵⁵ The Panel on Marine Resources of the Commission on Marine Science, Engineering and Resources reported:

"We have not found a single instance where two or more States have initiated coordinated measures and have carried them out for the efficient management of migratory marine species. The history of three regional Marine Fisheries Commissions shows that they have not initiated binding, comprehensive plans for specific endangered fisheries. Nor is there indication that the states individually can initiate efficient fishing exploitation practices of endangered migratory species based on sound scientific, economic, and legal concepts(,) for the range of migratory species makes individual state action ineffective if other states having jurisdiction over a part of the migration range do not join in the managerial effort."⁵⁶

Although the prospective salmon fisherman must submit to Oregon state laws and regulations if he wishes to fish in Oregon waters, he does not obtain in return an opportunity to fish efficiently from well-managed stocks. Oregon has not, singly or in concert with other states, promoted efficient management in the past; Oregon is not capable of taking all steps necessary to accomplish efficient management of migratory stocks.

Migratory stock management programs involving other countries must be arranged by representatives of the Federal government. The positions taken by U.S. negotiators must be weakened by the realities that they do not directly represent the state agencies which must conduct the U.S. portion of management,

programs, that the history of fisheries regulation by the several state agencies is largely one of effort inhibition and local protection rather than of intelligent and efficient management, and that the agencies do not possess physical regulatory jurisdiction coextensive with the area of claimed U.S. control over fisheries events. Regulations imposed on its salmon fishery by the state of Oregon indicate that Oregon is improperly fulfilling its management responsibilities; the powers (or lack thereof) granted to the state render regulation by Oregon an inappropriate method of achieving efficient exploitation of anadromous fish.. Perhaps the three greatest problems which marine fisheries management by state agencies has generated are the existence of potential fishing effort at a level much greater than stocks can support, the tendency to protect local interests at the expense of efficient exploitation, and the limited jurisdictional authority of the state agencies. Actions taken by the states could remedy the first two of these, although the record indicates that state initiatives are unlikely; the problem of establishing competent authority physically coequal with the range of migratory stocks and the claims of U.S. control certainly requires Federal attention.

"O.R.S." indicates Oregon Revised Statutes

"O.A.R." indicates Oregon Administrative Rules, Fish Commission

1. O.R.S. 42.508.235
2. O.R.S. 42.508.240
3. O.R.S. 42.508.285
4. O.R.S. 42.508.257
5. O.R.S. 42.508.285 An Oregon "resident" is anyone who has in fact lived in the state for one year.
6. O.A.R. 40-050
7. O.A.R. 40-055
8. O.R.S. 42.508.245
9. O.R.S. 42.508.250
10. O.R.S. 42.508.255 The provision presumably means that a licensee with one net must pay six fees to work six sites.
11. O.R.S. 42.508.260
12. O.R.S. 42.508.285
13. Id
- 13a ORS 508.406 The license expires on December 31 of each year, ORS 508.470. Non renewal of the license equals abandonment, ORS 508.475. A site for which the license is not renewed is lost. ORS 508.480
- 13b O.R.S. 42.508.410
- 13c O.R.S. 42.508.465
- 13d O.R.S. 42.508.485
- 13e O.R.S. 42.508.590
14. Licensing purposes are discussed in the section on licensing and mobility.
15. O.R.S. 42.509.365
16. O.R.S. 42.509.370
17. O.R.S. 42.509.375

18. O.R.S. 42.509.385
19. O.R.S. 42.509.360
20. See R.C.W. 75.12.210; Cal. Fish and Game Code §8220. Some clearly defined waters immediately adjacent to the coast are excepted from the prohibition.
21. This statement is a composite of elements taken from the rationales provided by each state.
22. O.A.R. 10-020
23. O.A.R. 10-035
24. O.R.S. 46.509.011
25. O.R.S. 46.509.015
26. O.R.S. 46.507
27. Id
28. Id
29. O.A.R. 10-830 No gill net which exceeds the maximum length may be used, maintained or possessed by a licensee fishing in the river.
30. O.A.R. 60-005; 10-835
31. O.A.R. 60-100
32. See generally the section on time closures and related devices.
33. The only stricture imposed on Lower Columbia gill nets during most salmon seasons is that the nets not exceed 1500 feet in length.
34. There is one other exception: 60-230 prohibits gill nets with a mesh less than $7\frac{1}{4}$ " stretch measure to be used in the early fall salmon season before noon, August 16. It is virtually certain that the multiple gill net standards spring from a need to impose different selectivity requirements at different times. For the fisherman who

- would fish during all Lower Columbia seasons, the gill net variations mean increased capital expense in the face of unlimited competition for a finite number of fish.
35. Commission on Marine Science, Engineering and Resources, Report of the Panel on Marine Resources
 36. O.A.R. 10-840
 37. O.A.R. 50-100
 38. O.A.R. 50-110
 39. O.A.R. 50-115
 40. O.A.R. 50-100; 50-110.
 41. During the sockeye season (10-115) net mesh sizes may not exceed $4\frac{1}{2}$ inches.
 42. Fish Commission Admin. Order F.C. 136
 43. O.A.R. 20-200
 44. O.A.R. 20-205
 45. O.A.R. 20-215
 46. Crutchfield and Pontecorvo, The Pacific Salmon Fisheries, p. 46. Johns Hopkins, 1969.
 47. Id, p 111.
 48. O.A.R. 20-220
 49. O.A.R. 20-230
 - 49a O.A.R. 20-225
 50. O.A.R. 20-235

51. O.R.S. 509-370.

52. O.A.R. 10-010

53. An ancient element of this country's Federal system is the powerlessness of states to negotiate with foreign governments.

54. This fact was impetus for the joint ban on salmon net fishing in Pacific waters which was imposed by California, Oregon, Washington, and Canada. See O.R.S. 509.355, et seq. What was here accomplished was not, in truth, a management plan, but rather, a joint admission of inability to control any but the most inhibited forms of effort in the affected region. See discussion in text supra at note 21.

55. See notes 21, 54.

56. Report of the Panel on Marine Resources,

[Faint, mostly illegible text continues below item 56, appearing to be a report or document.]

APPENDIX: ADMINISTRATION

ALASKA STATUTES

TITLE 16 •

chapter 05 010 The dept of fish & game's principle executive officer is the commissioner, who must have knowledge of the requirements for protecting, managing, conserving and restoring state fish and game resources. Executive ability is also necessary.

020 The commissioner's functions include: Supervising and controlling the dept, hiring and firing, managing, protecting, maintaining, improving and extending fish resources in the interest of economy and the general well-being of the state, and delegating authority.

050 Powers and duties of the commissioner include: Assisting in enforcing Federal laws, purchasing and leasing lands, building hatcheries and other beneficial structures, accept money, collect data, deal in fish and fish eggs for propagating, stocking, and scientific purposes, provide employee insurance, provide public facilities, handle administrative, budget, and fiscal matters, and supervise & maintain vessels. Under 060, the commissioner has emergancy power to open or close seasons and to change weekly periods. 065 empowers him to extend licensing application periods if no damage to fisheries will accrue and applicants' neglect is excusable.

100-120-130 A fish and game fund made up from special funds accumulated by the department and used for dept. purposes is to be managed by the commissioner.

150-160-170-180-190 Authorized dept employees, police

officers, and others authorized by the commissioner are peace officers. They are empowered to arrest violators, execute warrants, conduct reasonable searches and seizures without warrants if signed written statements are first given to persons controlling property or objects to be searched, and seize without warrant paraphernalia used in violations and fish taken as a result of violations.

220 A board of fish and game consisting of 10 members who know the fish & game resources of the state, are U.S. citizens and Alaska residents shall be selected. Under 240, the board has rulemaking powers, but not admin, budgeting, or fiscal powers.

250 Board can regulate in the following areas: designating reserves, setting seasons, establishing rules for pursuit, capture and transport of fish, setting quotas, classifying species as commercial, conducting research, studying predation and competition and exercising appropriate controls, entering into cooperative agreements to promote dept purposes, prohibiting untoward capture, release or movement of fish or eggs, establishing additional qualifications for gear license holders, and operating the limited entry and restricted area registration plan (which was held unconstitutional).

260 The board may set up advisory committees.

270 The board may delegate authority to the commissioner. Disputes on proposed rules which can't be resolved between the board and the commissioner are to be submitted to the governor.

OREGON LAWS:
ADMINISTRATION
TITLE 42
Ch 506

036 Fish Commission of state of Oregon has exclusive jurisdiction over fish, shellfish, and other animals in state waters. (exceptions: Game fish, Indian rights, Federal operations.) Duty to protect, preserve, propagate, cultivate, develop, and promote all fishes in its juris.

105 Three commission members appointed by governor. Four year terms.

111-116-121 Commission members entitled to compensation. Monthly meeting (quorum of 2). Biennial report to governor.

136 Commission empowered to study, classify food fish, and to classify fish gear.

141 Commission to promulgate such regulations as will prevent impairment of the food fish supply. Angling rules must be cleared w/ state Game Commission.

146 Rules shall fix seasons, define open waters, specify legal gear, set possession and sale standards, state size and quantity limits of food fish, and regulate fish landings in the state.

151 Only rules necessary or convenient for protection and conservation may be adopted, and only after notice and hearing.

156 Procedure for adopting rules; rules effective on filing date.

161 Rules may be modified to fit Columbia River pact

201 Commission has normal independent powers to deal in land. It may construct and maintain hatcheries and facilities,

remove log jams, and accomplish other legitimate purposes. Commission has power of eminent domain for fishway construction and log jam removal, and it may deal in easements.

211-213-215 Commission may acquire fish, eggs, larvae for propagation, experiment, or science, may operate hatcheries in other states on waters tributary to the Columbia, and shall operate a coho and chinook hatchery on the coast.

255-260-265-270 Commission shall appoint a director, who must give the state a fidelity bond. Director is to administer laws, attend to the fishing industry + interests, enforce laws, keep license and financial records, perform other duties, and in emergencies exercise full commission powers. Commission may delegate administrative authority to director. Director appoints personnel, determines salaries.

306-316-321-331-341-345 Commission may collect money and turn it in to the state general fund. It may pay for expenditures out of its appropriations. It may accept and use cash and property gifts, and may maintain a petty cash fund. It may collect money from Columbia River canners and gill-netters for salmon control on the river. It may conduct the salmon management fund.

405-410-415 Commission may deal with Federal govt

501 Commission has power to enforce laws.

506-511-516 Commission is to employ only as many wardens as are needed, and primary enforcement of criminal provisions falls on state police. Commission may employ additional necessary wardens.

516 Commission may appoint special deputies.

- 521 The comm. members, the director, and all people under them, together with any peace officers of the state and its subdivisions, are to enforce the laws. Comm or director is in charge.

526 - Powers of officers: Arrest of any violator; service of process; arrests must be reported to director

531 - 560 Crim. procedure; power of search; \$100.00 reward.

605 - 635 powers of investigation; rules of evidence, etc

655-695 - Procedure for seizure, confiscation, condemnation, and sale of gear used or fish taken in violation of commercial fishing laws of Oregon.

CALIFORNIA:

ADMINISTRATION

FISH AND
GAME CODE

200 California Fish and Game Commission is given the power to regulate the taking and possession of fish.

202 The commission may promulgate appropriate regulations

208 At its January meeting, the commission receives recommendations, from its staff and from other interested governmental and private parties, as to what regulations are needed.

209 Regulations are to be announced by the 15th of Feb.

310 Commission empowered to designate salmon spawning areas. No fishing w/in 250'.

700-705 The dept of fish and game overseen by a director, administers the fish and game code. General departmental policy formulation and ultimate responsibility lie with the commission. The director may hire and fire. Biennial reports to the governor must be made by the dept.

725-730 A marine research committee isto be within the dept. 9 members, of whom 5 must be active in canning or reduction, 1 must be from sport fishery and 1 from org. labor. Research is into marine products susceptible of benefit to people of California. Commission may hire.

APPENDIX: LICENSING

Summary of significant Pacific state laws and regulations relating to licensing, excepting textual cites. Also included will be discussion of seasons and non-gear privileges of licensees.

WASHINGTON LAWS.
(Taken from Title
75, Revised Code
of Washington.)

Chap.	Sec.	Summary
R.C.W. 75	12. 110	Food fish and shellfish can be possessed only for human consumption or for bait, save as otherwise authorized by the director.
	12. 120	No waste of food fish or shell fish is permitted.
	18. 005	Preamble declaring state interest in salmon resource preservation for commerce and food. Anadromous fish face the hazard of extensive harvesting, especially true for silvers and chinook. State must take effective measures to preserve the vital industry. In the Pacific Ocean it is impossible to distinguish between Washington and non-Washington salmon. Silvers and chinooks in District 2 (defined in 75.18.010) are mature. District 1 (See 75.18.010) salmon are sometimes immature. Unwise District 1 taking would endanger salmon.
	18. 010	District 1 waters include the Pacific Ocean and the Strait of Juan de Fuca, excepting bays, inlets, coves, canals, sounds, and estuaries. District 2 includes all other state waters.

Chap.	Sec.	Summary
R.C.W. 75	18. 020	No commercial silver fishing in Dist. 1 from Nov 1 through June 15.
	18. 030	No commercial chinook fishing in Dist. 1 from Nov 1 through March 14.
	18. 040 to 070	No possession or processing of illegally caught silvers or chinooks is permitted. After notice in a general circulation paper at the state capital and a hearing, the director may vary the season.
	18. 080	Anyone who operates a fishing vessel used for catching, transporting through, delivery at a port on Washington waters of silvers or chinooks must get a permit from the director. The permit fee is \$10/vessel and \$10/crew member, and the permit is renewable each fiscal year. Operators under R.C.W. 75.28.080 and .110 are exempted from these provisions. If the director finds that a permit-possessing vessel is impairing, depleting or destroying the salmon resource, he can revoke the permit.
	28. 010	Anyone engaging in any phase of the commercial fishing industry or anyone operating any gear classified as commercial, or anyone who fishes or who brings fish into the state has to have an appropriate permit. Minimum penalty for violations is \$25.00.
	28. 012	Licensing districts - (1) Puget Sound. The waters of the Strait of Juan De Fuca and the Strait of Georgia, Puget Sound, bays and inlets thereof, inside (East and South) of the International

Chap.	Sec.	Summary
R.C.W. 75	28. 012	Boundary and a line from Cape Flattery to Bonilla Point. (on Vancouver Island.) (2) Gray's Harbor. Gray's Harbor and tributaries inside and east of a line from Point Chehalis to Point Brown. (3) Willapa Bay. Inside and east of a line from Leadbetter Point to Cape Shoalwater Light. (4) Columbia River. The Columbia River and its tributaries east of a line from the North Jetty Tip to the South Jetty Tip.
	28. 013	Salmon fishing in each district requires a separate license.
	28. 014	License applications must be submitted by the 15th of April preceding the season.
	28. 020	Licenses will be issued only to U.S. citizens or residents over 16 years of age or to corporations authorized to do business in Washington or Oregon. A Washington license is normally usable on the entire Columbia.
	28. 030	The director must approve valid applications. Applications must state the species sought and the gear used.
	28. 040	Licenses expire on December 31 of each year.
	28. 050	A \$.25 service charge is assessed for issuing a license.
	28. 060	Licenses are transferrable. A licensee or his agent must operate each license. A non-resident operator must possess a non-resident license. A license transfer from a resident to a non-resident must include payment to the state of the differential fee.

Chap.	Sec.	Summary
R.C.W. 75	28.	085 Anyone delivering fish to a Washington port must have a delivery permit.
	28.	087 A vessel owner must have a commercial fishing license
	28.	095 No boat can conduct charter and commercial operations at the same time. A vessel can shift upon proper license change
	28.	100 Information required for a commercial license includes the vessel owner's name, the operator's name, their addresses, the vessel name and number, descriptions of the vessel and gear, and other information the director may require.
		110 LICENSES AND FEES IN PARTICULAR
	28.	110 3 hook hand and jig license \$27.50 res; \$55.00 non-res.
	28.	120 Set line license. 3 lines, 500 hooks. \$35.00 res. \$70.00 non-res.
	28.	130 Troll license. 6 line max. \$27.50 res; \$55.00 non-res.
	28.	140 Gill net license. \$35.00 res; \$70.00 non-res.
	28.	150 Set net License. \$35.00 res. \$70.00 Non-res.
	28.	160 Dip bag net license. \$27.50 res.; \$55 non-res.
	28.	170 Drag seine license. \$ 45.00 Res; \$70.00 non-res.
	28.	180 Lampara net license. \$57.50 res; \$115.00 non-res.
	28.	190 Purse seine license (drum, table, power block) \$145.00 res; \$230.00 non-res.
	28.	210 Otter trawl license. (Beam trawl, shrimp trawl). \$87.50 res; \$135.00 non-res.
	28.	220 Reef net.license. \$62.50 res; \$95.00 non-res.

Chap.	Sec.	Summary	
R.C.W. 75	28.	230	Fyke net license. \$25.00 resident; \$40.00 non-res.
	28.	240	Brush weir license. \$85.00 res; \$160.00 non-res.
	28.	250	Ringnet license. \$27.50 res; \$45.00 non-res.
	28.	380	Any person convicted of a R.C.W. 75.28 violation or pursuant regulation may be made to forfeit his license. Gear violations mean mandatory forfeiture. A double violation brings forfeiture and may occasion a permanent bar.
	32.	001	"Primary market value" is the off-vessel price paid to the seller .
	32.	070	Catch fees are assessed against all commercial fishers at the rate of 2% of primary market value for silvers and chinooks and 1% for other fish. Catch fees aren't assessed on Oregon fish caught in the Columbia when Oregon fees are paid.
	32.	080	Catch fees are paid by the original buyer, and are deducted from the sale price.

ALASKA STATUTES
TITLE 16

LICENSING

chapter 05 440 Licenses expire Dec 31, are renewable.

450 Licenses are to be issued by the Commissioner of Revenue or the dept to anyone who files a proper application. An applicant must sign a statement saying that he has paid his Alaska income tax or that he did not earn money in Alaska during the previous year.

480 Commercial licenses are non-transferrable and must be possessed during all operations. A resident applicant must furnish proof of residency. Resident fee is \$10; Non-res. fee is \$30.

490 A vessel license is required off all commercial vessels, including charter boats for recreation fishing. In case of sickness, injury, death, unavailability or incapacity of the operator, a vessel license may be transferred. Before transfer, the dept must receive notice of the vessel license and plate numbers, the name, address and commercial license number of the transferee, and a sworn statement of the reason necessitating the transfer. If a letter follows, notice can be by radio or telegram. Dept reviews transfers for fraud.

500 A vessel license can be revoked if violations involving the vessel impair or deplete stocks.

510-520-530 Vessels must have licenses aboard, and must display number plates. The fee is \$10 for residents and \$30 for non-residents. Applications may request reasonable information.

536 and 540 are the entry control laws declared unconstitutional.

550 Troll license fees for residents are \$15; for non-residents, \$45. Troll lines include hand, jigger and rod & reel lines used commercially.

560 Set or long line license fees: \$25, res; \$50 non-res.

570 Drift gill net license fee: for residents, \$10/first 100 fathoms and \$5/each additional 50 fathoms; for non-res, \$30/first 100 fathoms and \$15/each additional 50 fathoms.

580 Set gill net license fees: for residents, \$5/each 50 fathoms; for non-res, \$15/each 50 fathoms.

590 Beach or drag seine license fees: for residents, \$10/first 100 fathoms and \$5 for each additional 50 fathoms; for non-res, \$30/first 100 fathoms and \$15/each additional 50 fathoms.

600 Purse seine and hand purse seine license fees: for residents, \$40/first 100 fathoms and \$10/each additional 50 fathoms; for non-res, \$120/first 100 fathoms and \$30/each additional 50 fathoms.

630 Shellfish pot license fees: Residents \$15, and non-res \$45 for each 100 pots.

650 A vessel not exceeding 16 feet and powered by no more than 10 horsepower, using troll, long lines, or set lines pays \$3/vessel and \$5/gear license fees.

665 License falsification may bring a fine of up to \$1000 and a jail term of up to 6 months. The license is voided, and the violator is denied a new license for from 2 to 3 years.

670 Gear licenses may be transferred only if sickness, injury, death, unavailability (except under §570-580) or incapacity (except under §570-580) of the licensee keeps a vessel in

port because of lack of other gear. The dept must receive prior notice, detailing the gear license type and number, the licensee's name and commercial license number, the transferree's name and commercial license number, and a sworn statement of the reason for the transfer. Notice may be sent by radio or telegram if a letter follows. The dept will review for fraud. Only a licensee or his transferree may fish commercial gear. Any non-resident gear operator must pay non-resident fees. Licenses must be possessed and available for display at all times.

680 No one may employ an unlicensed fisherman, or buy fish either from him or from an unauthorized fishing derby.

690 Each fish buyer must keep a purchase record showing vessels, landing dates, vessel numbers, pounds per species purchased, numbers per species, catch areas where possible, and additional information.

700 Violation of 680 or 690 is a misdemeanor.

710-720 A first or second violation of a law or regulation can bring forfeiture for up to one year, and a third violation may bring forfeiture for up to three years. Violation of sections 480 to 700 is a misdemeanor which may bring a fine of as much as \$5,000 and a jail sentence of as long as 1 year.

800 Nets, seines, lanterns, snares, devices, contrivances, and materials used in taking or decoying fish in extralegal fashion are nuisances and subject to abatement.

905-910 Aliens not legally in the U.S. may not commercially fish in Alaskan waters. Maximum penalty is any two of the following: (1) vessel forfeiture (2) 1 year in jail (3) \$10,000 fine.

920 Transportation, taking, etc of fish, fish parts, or fish eggs except as specified by chap. 5 or regulations made pursuant to chap 5 is not permitted.

chapter 10 060 Fish traps can not be used in coastal waters to take salmon for commercial purposes.

070 No fish traps are permitted on state lands. This section does not prohibit otherwise legal small hand-driven traps operated on rivers. 100 forbids fish-trap erection or maintenance on state lands. 110 threatens violators of the fish trap ban w/ 1 year in jail and a fine of \$5,000.

120 Drums and reels cannot be used on purse seiners. The penalty listed in 130 is a \$1000 fine and a 6 month jail sentence.

180 Legislative findings: (1) Migratory fish & shellfish exist in commercial quantities inside and outside state waters. (2) Most migratory fish and shellfish don't acknowledge the state boundaries. (3) Migratory fish and shellfish move intermittently across the boundaries. (4) Strictly enforced conservation regulations are called for. (5) Enforcement of some laws is facilitated by making them applicable to high seas. (6) Conservation regulations should not be promulgated to impose economic sanctions.

190 The board may make appropriate regulations for adjacent high seas areas. Fish taken in knowing violation of such a rule can't be brought into the state. (200-210) Penalties are \$5,000 fines and 1 year jail sentences. Exemptions are accorded salmon taken under U.S. law or the Int'l Pac. Salmon

Fisheries Commission, authorized scientific investigation, or existing prohibitions on high seas net use.

240-250 Live king crab cannot be taken from the state.

Violation is a misdemeanor, punishable by \$5,000 fine and 1 year in jail

280 Price disputes between at least 1/3 of fishermen in an area, and processors, as to salmon price, either party may request mediation from a dept of labor representative within 30 days before the season opens.

chapter 15 The chapter authorizes creation and maintenance of a Fisheries Experimental Laboratory.

80
OREGON LAWS:

LICENSING.

TITLE 42

ch 508

025 A license is necessary to take or land fish, deal in fish, or process fish.

030-035 A license is required to operate gear capable of taking food fish. People who need licenses include setnetters, gillnetters, setliners, fishermen. Boats must be licensed, as must otherwise unauthorized single deliveries from the Pacific.

111 Scientific and educational taking permits are issued without fee.

235 Commercial license for anyone who, commercially; takes or assists in taking food fish, operates or assists in operating boats + gear, lands fish from the Pacific; Possession of the license at the time is essential.

240 Licensed fisherman can't keep any fish for his personal use, can't sell to an unlicensed purchaser.

245 Gillnet license. Required of anyone personally operating a gillnet on a stream. One net only per time. License# on net

250 Setline license. A non-transferrable license required for each location; 100 hook limit; personal operation required; license # posting required.

255 setnet license. A non-transferrable license is required for each location; 6 license limit; no setnet of more than 300 ft save 1200 ft in Tillamook Bay Oct. Dec.; Only licensee can operate; license # must be posted.

257 Applications for licenses listed in sections 245, 250 and 255 must be submitted by April 15 of the year in which the privilege is applied for.

260 Each licensed boat must carry two plates

285 License fees: Boat license, \$30; commercial fishing license, \$23; buyer license \$15; resident gillnet, setline, or setnet license, \$8; non-resident for same, \$68; single delivery license, \$23. A resident is one who has actually lived in the state for one year.

290 Columbia River gillnetters must pay an extra \$2.50 per license, the money going to seal control on the river.

406 Licenses are issued or renewed by the Director or his agents.

410 The Director may require necessary information on departmental forms.

460 Oregon and Washington licenses are valid for both Oregon and Washington waters of the Columbia River.

465 to 495 Licenses are nontransferrable. They expire each year on Dec 31, and non-renewal is equivalent to site abandonment for fixed gear (so is failure for two years to install fixed gear at a licensed site. It is within the commission's discretion to revoke licenses for any violation of fishing laws or rules, and to refuse for up to two years to issue a license to a twice-convicted violator. Certificates in lieu of lost or destroyed licenses may be issued.

CALIFORNIA:
LICENSES,
REGISTRATION

FISH AND
GAME CODE

7850 Any person who fishes for or who transports fish for profit must possess a license. "Person" does not include partnership, corporation, etc. Such a body may pay for an individual's license.

7851 Application - Age, height, weight, complexion, eye and hair color, and citizenship must be shown.

7852.5 The license period runs from April 1 to March 31. The fee for a commercial license is \$25, but may revert to \$10 in 1972..

7853 Licenses may be suspended or revoked if a vessel approaches w/in 500 yards of any U.S. gov't vessel, except when compelled to do so by rules of navigation. If any unnecessary approach to a Navy or military transp. vessel is so close as to interfere with the latter's navigation, suspension or revocation may occur.

7854 Procedure for initiating 7853 revocation outlined.

12006 Ordinary minimum penalty for a fishing code violation is \$25 and/or 10 days in jail.

7880 Every fishing-connected vessel needs a visible dept. of fish and game registration number on its side.

7881 7883 Plates, furnished by the dept, must be fastened to the forward superstructure; numbers are not transferrable.

7884 Information required includes the assessor's certificate of registration, evidence of county and city vessel tax payment, owner's name and address, operator's name and

address, vessel type, dimensions, and port, intended fisheries, and other data the dept. may require

7886 Loss or destruction of registered vessel must be immediately reported to dept.

7887 Registration statement must be filed w/ dept.

7888 Statement re 7887 must contain names & addresses of owner and operator, vessel name, registration number, document number, boat dimensions, port, year built, horsepower, if any, and gear type.

7890.5 Fee is \$50; year runs from April 1 to March 31.

8016 Trawler master must keep a record of operations in a logbook furnished by the dept. Monthly, turned in by 10th of following month.

APPENDIX: GEAR RESTRICTION

Summary of significant Pacific state laws and regulations relating to gear restriction, excepting those cited in the text.

WASHINGTON LAWS.
(Taken from Title
75, Revised Code
of Washington.)

Chap.	Sec.	Summary
R.C.W. 75	12. 010	In Puget Sound, and in the Strait of Juan De Fuca as far west as the mouth of the Elwha River, gill nets, round haul nets, troll lines with no more than six hooks are permitted from Oct. 5 to Nov. 30, from 4:00 A.M. Sunday to 4:00 P.M. Friday. In odd years, the regulation also applies from Aug. 1 through Sept. 1 south and east from Dungeness Spit, except for a three mile area off the southern tip of Whidbey Island. The director may impose additional regulations; the regulation applies to the salmon fishery
	12. 040	Columbia River salmon gillnets may not exceed 250 fathoms in length.
	12. 050	Drag seining for salmon in the Columbia is forbidden
	12. 060	No pound nets, lampera nets, fish traps, fish wheels, scowfish wheels, set nets, weirs, or other fixed appliances are permitted for salmon
	12. 080	No explosive discharges are permitted in state waters without the director's approval. If

Chap. Sec.

- R.C.W. 75 12. 080 explosives are used for fishing, the fine levied upon violaters is a \$250 minimum.
- 12. 090 Stealing fish or gear is a gross misdemeanor punishable by a \$250 minimum fine.
- 12. 140 Reef nets are permitted in 19 designated near shore areas. Examples include Point Roberts Reef, Cherry Point Reef, Lummi Island Reef.
- 12. 150 The director is to specify distances between rows of reef net gear.
- 12. 200 Preamble to Washington enactment of joint (with Cal. and Ore.) legislation to protect ocean salmon fisheries in the Eastern Pacific. States that net fishing in the region can't be controlled.
- 12. 210 Net fishing for salmon is illegal in Pacific waters of Washington, save for specified bays and inlets.
- 12. 220 No citizen of the state may net salmon in international waters.
- 12. 230 No illegally netted salmon may be possessed.
- 12. 232 If foreign vessels appear to the director to be fishing in International waters in violation of R.C.W.75.12 provisions, the director may authorize state fishermen to use similar gear, unless foreign vessels are fishing in conformity with treaties signed with the U.S.
- 12. 240 "International waters" are those outside the territorial boundaries of the state or its subdivisions.
- 12. 250 "Citizen of this state" is anyone whose usual place of abode is Washington, or anyone who otherwise qualifies

	chap.	sec.	
R.C.W. 75	12	270	Sections 200 and following are not to be construed so as to restrict the director's authority in such matters as netting for scientific purposes.
	12.	280	Monofilament salmon gill nets are prohibited.
	12.	650	Personal use gear is not allowed for commercial fishing.
	36.	010	The director or officials acting under him may seize fish caught contrary to law without a warrant, and may likewise seize boats, gear, etc which are violating or intending to violate the laws.
	36.	020	Any violation may cause forfeiture of impounded equipment or fish.
	36.	030	Forfeiture can occur absent prosecution.

CALIFORNIA FISH AND GAME CODE

DIVISION 6

GEAR RESTRICTIONS

8210-8211 Ordinarily, the commercial salmon season runs from April 15 to Sept. 30. Minimum permitted size for kings is 26", for silvers, 25". If Oregon and Washington pass similar legislation, the minimum size limit for silvers drops to 22", and the silver season opens on July 1. In districts 6, 7, 10, 11, 15, 16, 17, 18, and 19, salmon may be taken only by hook and line. §9025-9027 limit troll lines in dist 15 to five hooks, in dists 16 and 17 to two hooks, and permit set lines in dists 6, 7, 10, 17, 18, and 19.

8218 Undersized kings or silvers may not be clubbed, gaffed, or otherwise injured.

8220-8221 No net or long line salmon fishing is permitted in California waters of the Pacific, save in dist 16. State citizens can't take salmon in international waters with nets or long lines.

8606 New types of gear development are encouraged.

8630-8631-8632 Dept officials may seize and cause forfeiture of nets used in violations. Nets can be tagged, and tagging equals seizure. Nets can be removed from boats in port.

Owners may recover seized nets by filing bonds.

8670 Salmon netting is banned upstream of Carquinez bridge.

8688 Drift gill net gear for salmon is permitted in dist. 11.

8692 Salmon drift and set gill nets are permitted in dist. 16.

Chapter three of the section indicates that the most likely anchovy gear is round haul nets and trawl nets.

ALASKA REGULATIONS 88

Title 5 of the Alaska Administrative Code contains commercial fishing regulations.

For fisheries management purposes, the state of Alaska divides its waters into twelve areas. Most areas are divided into districts and subdistricts, with various regulations applying. A chapter of Title 5 is devoted to each area. Similarly numbered regulations in each chapter accomplish similar purposes. For instance, §320 always contains weekly fishing periods.

The regulations are complex. To present them here, a code of abbreviations is used. "d" following a name indicates a district. (Yukon d) "s" preceding a number indicates a subdistrict. (Yukon d s2) An "a" or a "p" following a number indicates time. (June 1, 6p indicates June 1, 6 p.m.) "n" = noon; "m" = midnight. Successive dates and times connected by a hyphen indicate open seasons unless otherwise noted. (June 1, 6a-July 30, 6p means open season between June 1 6 a.m. and July 30 at 6 p.m.) This code will be used only in instances where discussions of season and period variations are pertinent and the particular area system intricate.

ALASKA REGULATIONS

KEY

Chapters 3 through 33 of Title 5, Alaska Administrative Code list the regulations for different specific portions of Alaskan waters. Regulations with a common number in these chapters deal with a common topic. For example, a researcher seeking to determine in which areas it would be legal to operate a set gill net with a "hook" in it would look at section .331; he would find that "hooks" are permitted in the Arctic-Yukon-Kuskokwim, Alaska Peninsula, Aleutian Islands, Cook Bay - Resurrection Inlet areas, and parts of the Yakutat area. Regulations in the 300 series apply to salmon. Regulations in the 700 series apply to king crab. Not all areas regulate on each topic. Not all topics are covered in this digest. For example, .334 and .734 are gear identification numbers. Regulations are essentially similar in the various areas. Where gill nets must be identified, the required marking is generally a bright red keg, buoy, or series of floats bearing the department registration number. Crab pot buoys must display the department registration number also. This digest does not list the versions of .334 and .734.

Herewith, a list of sections related to the salmon and king crab fisheries:

- .100 - Area description.
- .200 - Districts, subdistricts, and sections.
- .310 - Seasons.
- .320 - Weekly periods.
- .330 - Gear.
- .331 - Gill net specifications and operation.
- .332 - Purse seine specifications and operation.
- .334 - Gear Identification.
- .335 - Minimum distance between gear units.

- .341 - Vessel specifications and operation.
- .342 - Vessel identification.
- .350 - Closed waters.
- .360 - Quotas.
- .370 - Registration and reregistration.
- .392 - Size limits.
- .710 - Seasons.
- .730 - Gear.
- .750 - Shellfish pot specifications and operation.
- .760 - Quotas.
- .790 - Restrictions.
- .792 - Size limits.

Chapter 39 sets forth general regulations for the Alaskan fisheries.

(91)

5 AAC chap 03 regulates the Arctic-Yukon-Kuskokwim area.

Sec. Summary

.100 The area is defined as between Demarcation Point and Cape Newnham, including St. Lawrence, St. Matthew and Nunivak Islands.

.200 Four districts and five subdistricts are defined

.310 Season June 1, Sept. 30, save by emergency order in Yukon d and Kuskokwim d.

.320 Weekly period. Entire week except:

Kotzebue d and Yukon d s2-5... Mon 6p-Wed 6p; Thu 6p-Sat 6p

Yukon d s1...(A) June 1 to July 10, Mon 6p-Wed 6a; Th 6p-Sat 6p

(B) After July 10, Mon. 6p-Wed 6p, Thu 6p-Sat 6p

Yukon d s2...(A) June 1 to July 10, Sun 6p-Tue 6p; Thu 6p-Sat 6a

(B) After July 10, Mon 6p-Wed 6p; Thu 6p-Sat 6p.

Yukon d s3... Mon 6p-Fri 6p.

Kuskokwim d s1...June 1 to July 31, Mon 6p-Tue 6a; Thu 6p-Fri 6a

After July 31, Mon 6p-Fri 6p.

Kuskokwim d s2...Mon 6p-Fri 6p.

Kuskokwim d s4-5...Mon 6p-Tue 6a; Thu 6p-Fri 6a.

.330 Gear. Kotzebue d, Norton Sound d...set gill nets

Yukon d ...Set and drift gill nets, fishwheels. Fishwheels in s1-2 after July 15. 1 gear type per fisherman at any time.

Kuskokwim d ...Set and drift gill nets, fishwheels. Fishwheels after July 31 in s1. 1 gear type per fisherman at one time; 1 fishwheel per fisherman.

.331 Gill net specifications. Aggregate set net length can't exceed 150 fathoms. (100 fathoms in Norton Sound d; 50

fathoms in Kuskokwim d.) 3 set nets/person. 50 fathom limit on drift gill nets in Yukon d and Kuskokwim d.

Yukon d s1-2 gillnet min. mesh size 8" from June 1-July 10 if net exceeds 50 fathom length.

Kuskokwim d s1... June 1-June 25, 8" min. mesh;

After June 25, 6" max. mesh

" " s4-5, Set net inshore end above mean high water mark
6" max mesh after Jan 1, 1973.

.334 Gear identification

.335 Min. Gear Distance. Norton Sound d, Kotzebue d 300' between set nets.

Yukon d s1...300' between setnets.

" " s2...200' " " .

Kuskokwim d s5...300' between setnets.

.350 Nine closed areas are specified

.360 Quotas. Yukon d s3...3000 king 3000 total chum and coho.

Yukon d s 4...2,000 king, 2000 total red, chum, and coho.

..370 Dist and subdist registration.

.710 Shellfish fishery. No closed season.

5 AAC chap 06 regulates the Bristol Bay area. Most significant Bristol Bay salmon fishery regulations are treated in the text.

Sec. Summary for additional regulations.

.100 The Bristol Bay area includes all Alaskan waters in the bay east of a line from Cape Newenham to Cape Menshikof.

.200 Five districts and nine subdistricts are defined.

.310 Fishing season. All year, save as provided in §.320.

.320 Weekly periods. Togiak d, Cape peirce, Osviak, Matogak and

.320 Kulukak sections, Mon 9a-Sat 9a.
 Togiak d, Togiak River subsec - Mon 9a-Fri9a
 Nushagak d, Naknek-kvichak d, Egegik d, Ugashak d -
 Mon 9a-Sat 9a except during emergency order period.
 Nushagak emergency order period - June 16, 9a-July 17, 9a
 Emergency order period, other districts June 23, 9a-July 17, 9a.

.350 Ten closed water areas are described.

.710 No closed shellfish season.

5 AAC chap 7 provides regulations for the Bering Sea King Crab Area

.110 The are described: All Bering Sea waters and tributary
 bays, save Bechevin Bay and Isanotski Strait, between 54°36' N Lat.
 and 60° N Lat., and east of the U.S. Russian Convention
 Line of 1867.

.710 There is no closed season on king crab.

.730 King crab may be taken only by pot. No vessel in the king
 crab fishery may have aboard an otter trawl w/ a ground
 or head line exceeding 60 feet.

.792 Minimum male king crab size: Sept 1 through Feb. - 7" shell width
 Mar 1 - Aug 31 6¼" shell width

5 AAC chap 9 regulates the Alaska peninsula area

.100 Physical area - includes all Alaskan waters from Cape
 Menshikof to Unimak Pass, then east to Kupreanof Point.

.200 Describes nine districts and twenty-three subsections.

.310 Salmon seasons - Northern district

Cinder River sec. May 1-Sep. 30 in False Ugashik Lagoon
 August 1-Sep 30 otherwise

Port Heiden sec. May 1-Sep 30

.310 Ilnik sec. May 1 through sep 30 in Ilnik Lagoon and inside Seal Islands

July 5-Sep.30 otherwise.

Three Hills sec June 25-Sep.30.

Bear River sec. May 1-Sep 30.

Herendeen-Moller Bay sec May1-July 28.

Nelson Lagoon sec May1-Sept 30.

Caribou Flats sec; May 1-June 20.

Black Hills sec. May 1-Sep.30.

Northwest district - June 1-Aug 10, and after Sep 1 by emergency order. Also applies to Unimak, Southwestern, South Central, and Southeastern districts, except that Southeastern has a normal season from Sep. 1-Sep. 30.

.320 Weekly fishing periods. 16 specific periods are set for particular districts and subsections. 10 are for Mon 6a-Fri 6p. 4 are for the entire week. 1 is for Tue 6a-Fri 12mid. 1 is for Mon 6a-Thu 6p

.330 Gear. Drift and set gill nets are permitted in the Cinder River, Port Heiden, Ilnik, Nelson Lagoon, Caribou Flats, and Black Hills sections.

Only drift gill nets may be used in the Three Hills section. Drift and set gill nets, purse seines, and hand purse seines may be used in the Bear River section, the Northwestern district, and, with the exception of the month of Sep., when only set gill nets may be used, in the Unimak district. Purse and hand purse seines, and drift gill nets are permitted in the Bear River district.

With some local exceptions, fishermen in the Southwestern, South Central, and Southeastern districts may use purse

- .330 and hand purse seines and set gill nets.
- .331 Drift gill net specifications. 200 fathom aggregate length. $5\frac{1}{4}$ " min. mesh, save $8\frac{1}{2}$ " in Caribou Flats sec. 29 mesh depth lim. in Nelson Lagoon.
- Set gill net Specifications. Maximums: each net, 100 fathoms, aggregate, 200 fathoms, two set nets/person. Exceptions: Port Heiden sec, 50 fathom each, 100 fathom aggregate. Ilnik Lagoon, 50 fathom each, 150 fathom aggregate, 3 net maximum. Minimum mesh size, $5\frac{1}{4}$ ", save $8\frac{1}{2}$ " in Caribou Flats sec. 29 mesh depth limit in Nelson Lagoon.
- .332 Seine lengths must be between 100 and 250 fathoms, and leads must fall between 50 and 150 fathoms. (No lead limit in Unimak district or Bear River section.
- .335 900' between set gill nets, save 600' in Port Heiden sec. and 1800' in Nelson Lagoon
- .350 Designates 35 closed areas.
- .710 King crab season. East of Cape Pankof: Aug 15-Jan. 15 or until 4,000,000 lbs of king crabs have been taken from area LM. West of Cape Pankof: Sep 15-Feb 15 or until 4,000,000 lbs have been taken from LM; then area from Scotch Cap to Cape Pankof is taken from area LM. Same area excluded from area 0 on Feb 15, or when 8,000,000 lbs are taken from area 0.
- .730 King crabs can be taken only by pots, only 60 pots/vessel. No vessel taking or transporting king crab may carry an otter trawl w/ a ground or head line exceeding 60 feet.
- .750 King crab pot specifications.. In normal position, 25% minimum non-tunnel vertical area must have 9" min. mesh.
- 5 AAC chap. 12 provides regulations for the Aleutian Islands area.
- .100 Description: All Alaskan waters in the Aleutians, west of

- .100 and including Unimak Pass.
- .200 3 districts and 5 sections are described.
- .310 Salmon season: May 1-Aug. 10, and thereafter by emergency order.
- .320 Weekly period: Mon 6a - Fri 6p.
- .330 Gear. Purse, hand purse, and beach seines, and set gill nets are permitted
- .331 Gill net specifications. Maximums: each net-100 fathoms, aggregate-200 fathoms. Two nets/person. 5 $\frac{1}{4}$ " min. mesh, straight line operation.
- .332 Purse and hand purse seines must fall between 100 and 250 fathoms in length. The same length limits apply to beach seines, as do minimum and maximum depth limits of 3 and 12 fathoms. Lead lengths must fall between 25 and 250 fathoms.
- .710 King Crab season. East of 172° W. long - Sep 15 until 8,000,000 lbs are taken from area O or until Feb 15.
West of 172° W long. - Nov. 1 until 15,000,000 lbs are taken from area R, or until March 31.
- .730 Pots only for king crab. 75 pots from 172° W long to Scotch Cap Long. West of 172° W long, 90 pots.
- .750 King crab pot specs. In normal position, 25% minimum non-tunnel vertical area must have 9" min. mesh.
- .792 Min. size, male king crab = 7", save from Bering Sea in conformity w/ Bering Sea regs

5 AAC chap 15 provides regulations for the Chignik area.

- .100 Description: South side, Alaska Peninsula between southern entrance to Imuya Bay and Kupreanof Point.
- .200 Four districts are described.

- .310 June 14-Aug 13 and Aug 30-Sep 30 in the Eastern, Western, and Perryville districts; June 14-sep 30 in the Chignik Bay district.
- .320 Weekly periods: Mon 6a - Fri 6p in Eastern, Western, and Perryville districts; four stages for the Chignik Bay section which gradually expand the open time to parity with other sections.
- .320 Gear: Purse and hand purse seines in the Eastern, Western, and Perryville districts. Hand purse seines only in the Chignik Bay district.
- .332 Seine specifications: 3 fathom minimum depth...Lead length max. 75 fathoms single. (225 fathoms aggregate in Eastern, Western and Perryville districts.) Eastern, Western and Perryville district hand purse seine lengths must fall between 100 and 225 fathoms, as must purse seine lengths. Hand purse seine lengths must fall between 100 and 125 fathoms in length.
- .350 16 closed areas are defined.
- .710 King crab season: West of Cape Kumlik long.- Aug 15 until 4,000,000 lbs are taken from area LM or until Jan 15.
East of Cape Kumlik long.- Aug 15 until 14,000,000 lbs are taken from area K or until Jan 15.
- .730 King crabs may be taken only by pots. Otter trawls w/ ground lines exceeding 60 feet can't be carried on vessels trafficking in king crab, 60 pot/vessel limit.
- .750 King crab pot specs. In normal position, 25% minimum non-tunnel vertical area must have 9" min..mesh.
- .792 Min. size male king crab = 7". No vessel having king crabs less than 7" aboard may fish king crabs.

5 AAC Chap 18 provides regulations for the Kodiak area.

.100 Description Includes waters from southern entrance to Imuya Bay to Cape Douglas, including Kodiak, Afognak and adjacent islands.

.200 9 districts and 3 sections are defined

.310 Seasons - Basic season: June 14-Oct 31.

Karluk, Uyak, Uganik, Alitak and General districts:
July 5-Oct 31. Graduated seasons in Mainland dist.

Afognak, Sturgeon River and Red River Districts:
Sep. 13-Oct 31.

.320 Basic weekly period is 12:01 a.m. Monday to 6:00 p.m. Friday. Exceptions in Karluk, Uganik, Uyak, and Alitak districts.

.330 Gear Generally permitted gear includes purse, hand purse, and beach seines and set gill nets. In four districts and stated parts of five others, set gill nets may not be used. In parts of Olga and Moser Bays, salmon may be taken by set gill net only until Sept. 4.

.331 Gill net specifications. Maximum aggregate length is 150 fathoms. 2 seines max./person. Seine webbing can be used out to low water. Straight line operation.

.332 Purse and hand purse seine lengths must fall between 100 and 200 fathoms in length. 50 fathoms must be 150 meshes deep. All must be 100 meshes deep. Lead max. = 100 fathoms. Lead + seine max = 250 fathoms. Beach seine lengths must fall between 100 and 225 fathoms, and beach seines must be 100 meshes deep. Only shoreward seine side may be anchored.

.335 Min distance between set gill nets = 900 feet.

.350 54 closed areas are defined.

- .710 King crab season from August 15 until 14,000,000 lbs are taken from area K, or until January 15
 - .730 ~~500~~ pots, and no more than 60, may be used for king crab. No king crab vessel may carry an otter trawl possessing head or gear lines exceeding 60'. Ring nets may be used.
 - .750 Crab pot Specs. In normal position, 25% minimum non-tunnel vertical area must have 9" min. mesh.
 - .792 Min. king crab size = 7" shell width. Smaller legally caught crabs may be delivered into the area if the vessel operator submits a detailed written statement of the intended delivery and radios his plan 12 hrs before the voyage, both notices to the department, and the vessel does not fish king crab in the Kodiak area until after delivery.
- 5 AAC chap 21 provides regulations for the Cook Inlet - Resurrection Bay area
- .100 Description: Waters of Cook Inlet and Resurrection Bay North of Cape Douglas and West of Cape Fairfield.
 - .200 Seven districts are delineated.
 - .310 Salmon seasons All seine and gill net seasons opened and closed by emergency order, save Southern dist. set gill net season opens June 3. Eastern dist seine and drift gill net seasons must be opened and closed before July 1. Troll season in open area: June 1-through Oct 1.
 - .320 Weekly periods. 3 dists 6am to 6pm Mon and Fri. (1 w/ 3 added dates. 2 all week. 2 6am Mon to 6am Wed and 6am Thu to 6 am Sat.
 - .330 Hand purse and beach seines in 4 dists and 1 bay. Set gill nets in 29 shoreline areas.

- .330 Drift gill nets are proper in the North Central and South Central districts, and, before July 1, in the Eastern dist. Trolling is permitted in part of the Eastern District. A salmon fisherman may use one type of gear at a time.
- .331 Gill net specs: Drift and set nets not interchangeable. 6" max mesh size w/ 1 exception. Drift net max. = 150 fathom length, 45 mesh depth. Set net max. = 35 fathom length, 45 meshes. 105 fathom length aggregate. Straight line operation. Net registrant must actually operate or assist.
- .332 Seine specs: Hand purse and beach seines must fall between 90 and 250 fathoms in length and 100 and 300 meshes in depth.
- .335 Set gill nets must be operated at least 600 feet apart.
- .350 10 closed areas and closures for small bays, etc and unlisted stream mouths are listed
- .710 king crab season: Aug 1-Feb 28.
- .730 Pots, no more than 60/vessel for king crab. Ring nets maybe used.
- .760 King crab season-closing quotas: 2,000,000 lbs in Southern District. 2,500,000 lbs total in other districts.
- .792 Size limit = 7" min shell width, but smaller legally caught crabs may be delivered to processors in the area if steps similar to those described in chap 18.792 are complied with.
- .790 No otter trawls with ground or head lines exceeding 60 feet may be aboard king crab vessels

5 AAC chap 24 provides regulations for the Prince William Sound area.

.100 Description: All Alaskan waters between Cape Fairfield and Cape Suckling.

.200 Eleven districts and two subdistricts are designated.

.310 Two districts are closed to fishing. A third district permits drift gill net fishing for salmon from May 15, a fourth from June 17. Salmon seasons in two other districts begin June 21, 6 am. All other salmon seasons begin June 21 6 am, and all seasons continue until closed by emergency order. Troll season continues year 'round.

.320 Weekly periods: Generally, 6 am Monday to 6 pm Friday
Copper River and Bering River districts
are open Mon 6 am to Sat 6 am, except
that fishing from Wed 6 am to Thu 6 pm
is banned before Aug. 7.

.330 Gear: Drift gill nets in five districts. Set gill nets in one district. Purse seines are permitted in eight districts, and troll gear is permitted in all districts.

.331 Gill net specs Copper River and Bering River dists: 150 fathom aggregate max. length. No more than two vessels can operate together. Separately registered nets can't be attached. Eshamy, Coghill, Unakwik dists:

Max limits: 100 fathoms indiv, 150 fathoms aggregate for set gill nets. 3 net max, with registrant working or assisting on each net. Straight line operation.

Drift gill nets can't exceed 150 fathoms. A drift gill net is one not intentionally fixed.

.332 Purse seine depth must fall between $9\frac{1}{2}$ and 17 fathoms; length must be between 125 and 150 fathoms. Only first

25 meshes above lead line may exceed 4 inches. No lead line longer than 75 fathoms may be used. Leads must be out of the water during closed periods.

- .335 100 fathoms must separate set gill nets
 - .350 43 defined regions are closed to fishing
 - .710 King crab may be taken from Aug 1 until March 15 or until 500,000 lbs have been taken from registry area E. In one region the season begins Aug 15.
 - .730 Only pots, up to 60 per vessel, are permitted for king crab. Trawls with ground lines no longer than 60 feet may be used for bait
 - .792 7 inch minimum size limit for red king crab. (shell width.)
5 inch minimum size limit for blue king crab. (eye notch to rear shell center.)
- 5 AAC chap 30 provides regulations for the Yakutat area.
- .100 Description: All Alaskan waters between Icy Cape and Cape Fairweather.
 - .200 Two districts are delineated.
 - .310 Set gill net salmon seasons in one district and one part of the other are opened by emergency order. Four separate opening dates, May 31, June 7, June 14, and June 21 are noted for portions of the second district. Trolling is permitted at all times, with one exception after Aug 1.
 - .320 Weekly fishing periods: Noon Mon to noon Thu in one dist. Other dist open 6 am Mon to 6 pm Wed until Aug 1 (one exception) From Aug 2 until closing, noon Mon to noon Thu.
 - .330 Gear: Set gill nets and troll gear permitted.

- .331 Eleven sets of set gill net specifications are set forth. The max. permitted depth for all nets is 16 feet. Individual net length limits vary from 10 to 25 fathoms. Aggregate net length limits vary from 15 to 75 fathoms. A net may obstruct no more than $\frac{2}{3}$ of a salmon migratory waterway. Straight line net operation is required, with two exceptions. Operating set nets must be separated by at least 100 yards. (Last sentence taken from .335)
- .350 Part or all of nine rivers, lagoons, and inlets are closed.
- .392 King salmon must measure 26 inches from tip to tip to be kept.
- .710 King crab season: Aug 15 until March 15 or until 1,500,000 lbs are taken from registry area AD
- .730 King crabs may be taken only via pots. When season closes, pots must either be removed from water or stored in no more than 5 fathoms with lids open and bait (and bait containers) removed. Vessel can't carry: more than 40 pots, otter trawl w/ lead or ground line longer than 60 feet.
- 5 AAC chap 33 provides regulations for the Southeast Alaska area.
- .100 Descrip. All waters of Alaska between Cape Fairweather and Dixon Entrance.
- .200 16 districts and 23 sections are defined.
- .310 Seasonal and weekly period regs are complex, dotted w/ exceptions. Normal purse seine season opens and closes via emergency order, operates Sun 6 am-Wed 6 pm. Troll fishery normally open all year, but 7 exceptions to the all-year rule are stated, the most general being that trolling for coho is permitted only from June 15 to Sept 20
Drift gill net season: In waters otherwise open. Closure

by emergency order. Normal weekly period noon Sun to noon Wed., with exceptions

- .330 Gear: Purse seines, drift and set gill nets, and troll gear.
- .331 Gill net specs: Reel on operating vessel can't hold more than one limit of gear. 60 mesh depth limit for nets w/ less than 8 inch mesh. 40 mesh depth limit for nets w/ 8 inch or larger mesh. 40 mesh max depth before June 13 in two districts. five sets of length specifications are stated. The shortest minimum is 50 fathoms; the longest maximum is 300 fathoms. (Different districts.)
- No set gill net may exceed 50 feet in length. No individual may operate more than 200 fathoms of set gill netting, and such netting must be operated in straight lines at right angles to the beach.
- .332 Purse seine specs: $8\frac{1}{2}$ to $19\frac{1}{2}$ fathoms depth; 150 to 250 fathoms length. First 25 meshes above lead line must be 7 inch max. mesh. Other mesh must be $4\frac{1}{2}$ inch max. Max lead length is 75 fathoms.
- .335 Operating set gill nets must be at least 200 yards apart.
- .350 Approximately 211 areas are defined and included in the list of low waters.
- .392 King salmon must be at least 26 inches long from tip to tip.
- .710 King crab season: Aug 15 to March 15, or until 1,500,000 lbs of king crab are taken from area AD.
- .730 Gear: Pots, ring nets, and scuba gear are acceptable in the king crab fishery. King crab vessel can't carry more

than 40 pots, can't carry otter trawl with ground or head line length exceeding 60 feet. When season closes, pots must either be removed from water, or stored in no more than 5 fathoms with lids open and bait (and bait containers) removed.

5 AAC chap 36 provides regulations for the International Water area

.010 Description: All waters outside Alaska's 3-mile limit.

.020 Salmon netting and longlining by Alaska citizens forbidden.

.030 Salmon taken by longline or net from the International Area or elsewhere where longlining and netting are forbidden can't be brought into Alaska waters.

.040 No illegally taken king crabs can be carried, sold, bartered etc in or into the state.

5 AAC chap 39 describes general regulatory provisions for Alaskan fisheries.

.105 Gear must be operated according to its design. Gill net mesh sizes must be reasonably consistent. "mesh size" means stretch measure. Legal gear includes: Gill net, which is single web sheet hung between cork line and lead line, catching fish by entanglement; set gill net is fixed, while drift gill net isn't intentionally fixed; 19 other gear types are defined.

.110 Commercial license must be obtained before fishing. One license /person. Salmon net fisherman must be licensed, registered in area of his choice. License valid only for the area. Transfers approved if proper and not threatening to conservation.

.120 Vessels and gear operating in an area must have been previously registered in the area, with the local representative.

Salmon fishing net and registration requirements:

Salmon net and vessels must be registered in area before April 15. (One area excepted.) Registration valid only for that area. Late registration or area transfer possible if serious injury, sickness, death, or sunk, destroyed, or severely damaged vessel is cause. (Commissioner approval necessary.)

King crab gear and vessel registration:

License and registration required prior to fishing, and prior to Aug. 1, the start of the king crab reg. year. Registration only valid for area specified and for Bering Sea king crab area. Transfer possible if sickness, death, or serious injury. Late reg. possible if reg. vessel sunk or destroyed. (Commissioner must approve.)

Code letters - Salmon areas.

- A - Southeastern Alaska
- D - Yakutat
- E - Prince William Sound and Yakutat, Yakataga district
- H - Cook Inlet - Resurrection Bay
- K - Kodiak
- L - Chignik
- M - Alaska Peninsula and Aleutian Islands
- T - Bristol Bay and, save from June 15 to Aug. 1, Cinder River, Port Heiden and Ilnik sections, Northern dist., Alaska Peninsula area.
- W - Kuskokwim dist. Arctic - Yukon - Kuskokwim area.
- X - Kotzebue " " " " " "
- Y - Yukon " " " " " "
- Z - Norton Snd. " " " " " "

Code letters - King crab areas

- AD - Southeastern Alaska and Yakutat
- E - Prince William Sound
- H - Cook Inlet - Resurrection Bay and waters described in 5 AAC 36.040 (2). (description omitted.)
- K - Kodiak, Chignik area east of Cape Kumlik longitude,

and waters described in 5 AAC 36.040 (1). (descrip-
omitted).

- LM - Chignik area west of Cape Kumlik longitude, Alaska Peninsula Pacific Ocean waters east of Scotch Cap light longitude, including some waters of Bechevin Bay and Isanotski Strait
- O - Aleutian Islands east of 172° w longitude, and Alaska Peninsula area west of Cape Pankof, south of 54° 36' N. lat, including Unimak Pass and waters off the south side of Unimak Island
- R - Aleutian Islands west of 172° w long.

Bering Sea King Crab area

All eastern Bering Sea waters north of 54° 36' N lat, save those described in area LM, are open. Any licensed and registered vessel may fish the area. From January 15 through Aug. 15, a crabber can't fish crab in any other area while fishing king crab in the Bering Sea area.

Bering Sea King Crab registration, vessel inspection.

Registration mandatory at Sand Point or Unalaska after Feb 15 if operator is to fish for king crabs under 7". Vessel, w/o crabs, must be submitted for inspection. Anyone landing crabs less than 7" must possess a registration copy. Reg. number must be placed on ticket at delivery

Proper registration evidence must be possessed during all operations, must be shown on request to department representatives.

- .130 Fishermen must report to buyers catch data necessary for buyer to complete dept. reports. Shellfish fishermen shall submit required data to the department.
- .150 Except for chemical shellfish lures, no explosives, chemicals, or poisons may be used.
- .155 Seine vessels may not carry seine drums or reels.
- .170 No monofilament purse seine webbing may be used.
- .180 To be sold for food, salmon must be processed within 48 hours after they are killed
- .190 Salmon can't be driven or forced outside protected areas at stream mouths.
- .195 If possible, emergency orders are to be made via at least one of the following: Radio transmissions, public notices,

press releases and announcements, telegrams.

- .230 Permitted salmon gear includes drift and set gill nets, purse, hand purse, and beach seines, fish wheels, troll gear, and subsistence gear.
- .240 A vessel may carry only one legal limit of gear, except where otherwise provided. Vessel may carry unhung gear for mending. No simultaneous seining and gill netting by any vessel. Nets measured by measuring cork line max. or min. length with net fully extended and traction at one end.
- .250 Gill net specs: No webbing may be trailed in closed areas or at closed times. Set gill nets must be removed during closed periods. No monofilament webbing.
- .260 Seine specs: Only one holding anchor. No hammerhead, heart, or arrowhead traps. Seining stops when all rings leave water for purse seine, when both ends are tied to vessel for hand purse seine, and when all lead line is on beach above water for beach purse seine. No more than one legal lead, no rings, and 7" minimum mesh.
- .270 Maximum of four troll lines per vessel. Troll vessels may have bait gill nets with maximums $2\frac{1}{2}$ " mesh and no. 20 thread.
- .280 Stationary gear identification requires, on or near the net, owner and operator's name and dept registration number. (Numbers 6" high w/ 1" wide lines, in contrasting colors.)
- .290 No commercial salmon fishing w/in 500 yds of mouth of defined salmon streams or in any stream or river. Closed areas may be posted. Exception for Ugashik,

Yukon, and Kuskokwim Rivers, Yakutat area, and other rivers with pre-existing legal commercial fisheries.

.620 King crabs may be taken by pots, ring nets, or diving gear.

Buoys must be marked w/ reg. number of vessel.

Unless otherwise provided, king crab traps must be removed from water during closed seasons, or must be stored in not more than 15 fathoms of water with doors fully open and bait and bait containers removed.

.625 Unless otherwise provided, no male king crabs less than

7" wide at the shell may be taken. Measure straight across

the carapace (include spines) at a right angle to

line from between eyes to posterior midpoint of carapace.

.630 No female crabs or undersized male crabs may be taken.

.975 contains definitions

.997 explains abbreviations.

WASHINGTON ADMINISTRATIVE REGULATIONS

Ch 220-12-001 Rules are promulgated to protect, preserve, perpetuate and manage the fishery resources of the state of Washington.

16-010 No listed gear may be used save in a time, manner, and in the pursuit of species stated in the regulations.

(From 220-16-015 to 220-16-145, gear types are defined.)

16-015 Beam Trawl Bag-shaped trawl net not using weighted otter frames or doors. Min mesh size...food fish= 4½"; shrimp = 1½".

16-018 Bottom sink set net...Gillnet w/ whole or part lead line on bottom; immobile, anchored; attached to licensed marker buoy.

16-025 Brush weir - Stationary impounding net, one lead, no more than 2 hearts; inside brush lining; built to director's specifications

16-028 DIP BAG NET netting section distended by rigid frame.

Net used to dip. 18' max. inside length.

16-035 Drag Seine lead line, cork lines, auxiliary lines, mesh net webbing. Built to encircle fish in beach-adjacent waters, w/ catch landed on beach.

16-040 Gillnet, Driftnet single webbed, non stationary gillnet except double webbing (trammel nets) OK in Columbia.

16-045 Hand dip Net dip bag net w/ up to 36" max. width, (72" for Pac. ocean commercial smelt) (48" for Puget Sound commercial herring + candlefish)

16-050 Hand line One line w/ 3 hook max.

055 Hook and line Angling 060 Jigger

065 Lampara Roundhaul:...: No purse line, rings, but lead line, cork line, tag or auxiliary lines attached to lead line. Webbing used to encircle fish in open water. Not OK for salmon.

070 OTTER TRAWL tapered, funnelshaped net w/ forward, intermediate, and codend sections. Floats along mouth's upper edge and weighted line. Otter doors, boards spread net mouth horizontally when towed. Roller and bobbin gear on rope attached to footrope (to aid in fishing rocky grounds.) Telemetry gear: precision net-depth indicator continuously reporting net position re bottom or surface. Double layer codends tied together so that knots and meshes coincide for double layer's full length. Hog ring and rope-type chafing gear meshes = min 7" Hide or canvas chafing gear max. 1/2 codend circumference.

075 PURSE SEINE lead line, cork line, auxx. lines purse lines, and purse rings mesh net webbing fashioned so as to encircle fish and prevent escape under bottom or lead line by drawing in net bottom via purse line so that it forms a closed bag.

080 reef net non self fishing open bunt square or rectangular mesh net section. Suspended between 2 anchored boats. Fashioned so that salmon passing over top are caught by raising net. Leads must be floating at all times save under tidal stress. can't be fixed to pilings, can't be constructed of mesh webbing (leads) No fyke net or fish trap principles permitted.

085 Ring net circular or hoop shaped net distended by rigid frame measuring no more than 10' in diameter, w/ recovery or buoy line attached.

090 Set line... Line w/ baited hooks; lain on bottom or suspended, tied to shore or anchored, and attached to a licensed marker buoy.

095 Set Net.... Stationary gillnet.

100S

105 Snag line...Line w/ 1 or more unbaited hooks, used to snag foodfish.

- 110 Snag net single web gill net, 14 " min stretch measure mesh, used to clear obstructions
- 115 Suspension set net... Anchored gill net floating between bottom and licensed marker buoy.
- 120 Trammel net...gill net hung w/ 2 or more substantially parallel Mesh nets, suspended from a common cork line and having one or more lead lines.
- 125 Troll line for commercial purposes, a line dragging one or more lures behind a moving boat. 6 maximum limit.
- 145 Bottom fish pot...portable trap, one or more gates, line or lines attached to licensed surface buoy, and used for taking bottom fish. A section of one vertical wall must be constructed of cotton, or, one wall must be attached with cotton hangings to permit escapement if the pot is lost.
- 200 District 1 waters include the Pacific Ocean and the Strait of Juan de Fuca, excepting bays, inlets, coves, canals, sounds and estuaries. District 2 includes all other state waters.
- 205 District 2 - All waters of state jurisdiction save Dist. 1.
- 210 - 240 Puget Sound, Gray's Harbor, Willapa Harbor, Columbia River, Initiative 77 division, and coastal waters defined.
(See Laws appendix.)
- 245 River Mouth - Line between outermost uplands not covered at ordinary high tide.
- 250 Mile = nautical mile
- 270 Skagit River line - from white monument on east point of Ika Island to terminus of McGlinn Island jetty.

- 300 Personal use Taking for personal use by director-authorized means, possessing fish so taken, taken not for sale or barter.
- 305 Commercial purpose. Taking with gear unlawful for personal use, or over personal use limits, etc.
- 310 Net length measurement...Length along cork line.
- 315... Net Mesh Measurement...from inside of one knot to outside of opposite vertical knot of one mesh when wet mesh is stretched vertically by 10 lbs tension on three consecutive meshes. Middle mesh measured.
- 320 Fish length measurement Shortest distance, tip to tip while in prone position.
- 325 Dressed fish measurement...shortest distance between posterior end of gill opening and the fork of the tail
- 330 Dressed fish. No viscera, or no viscera, no head.
- 335 Spawning male salmon has free flowing milt. Spawning female salmon has free flowing eggs, or eggs which can be extruded by abdominal pressure.
- 340 "Bottomfish" does not include halibut.
- 345 Time means Pacific Standard, except Pacific daylight from the last Sunday in April to the last Sunday in October.
- 350 Jack Salmon...Matured and started spawning run 1 yr ahead of normal maturity, and has visibly developed eggs or milt.
- 220-20-010...No fish takings or dealings save as provided by regs. No possession of foodfish save where lawful. Halibut and salmon can be taken only for human consumption or for bait. (4) No commercial vessel can have aboard, no commercial fishermen can take fish smaller than lawful commercial size. (5) Unattended gear must have licensed buoy; no unattended salmon gear. (6) No commercial

gear in closed waters save reef and brush nets and DEPT gear.

(7) DEPT representatives have unlimited right to inspect gear.

(8) Similar unlimited right to inspect fish (9) ALL fishery takings or dealings must be reported to the dept. even on reservations.

(10) No taking or interference in or near fish ladders. (11) No

clubbing , gaffing, shooting, snagging , dipnetting, etc for

commercial purposes. (12) No fish under limits kept; must be

returned to the water, and can not be permitted to pass onto

power block or over power reel or drum. (13) Except as otherwise

provided, it is unlawful for a vessel to carry a number of nets

whose combined size is larger than the max. for one net. (14) All

permit provisions must be complied with. (15) No predator control

chemicals, etc harmful to foodfish allowed in water w/o director's

approval (16) In an emergency which the director sees as a hazard

to fishery resources, WAC 220 seasons can be closed, opened extended

by the dir w/o public hearing. Notice to news services in affected

counties and in an Olympia daily paper.

220-015 SALMON (1) No motor propelled air devices, electronic

devices for spotting salmon. No fish can be taken or possessed

as a result of such spotting. (2) No taking or possessing

salmon caught w/in 3 miles of a Puget Sound river or stream,

except where specified. (3) No gear may cover more than $\frac{3}{4}$

the width of a stream or channel. (4) A permit is necessary

to operate a snag net. (5) Spawning salmon may not be taken,

possessed, or sold. (6) Minimum size limits: Chinook-26"; Coho-20".

Exceptions to(6) limits are listed for several areas:

(a) Puget Sound Coho Min. = 16" (b) Gray's Harbor and Willapa Bay

Chinook and Coho minimum = 20" (c) Columbia River mature Jack limit

= 15" (7) No reef net where stern end of either boat less than 800'

in front or rear of head gear buoys of the Lummi Island Reef Net Fishing Area. (8) Permissible to possess salmon lawfully obtained from state or Federal hatcheries. (9) Salmon trolling vessel can't fish for other food fish with non-trolling gear while fishing for or possessing salmon.

24-010 (1) Unlawful to possess chinooks in or take chinooks through district 1 waters between Nov 1 and the following April 14. (2) Similar restriction applies to silvers from Nov. 1 to the following June 14.

24-020 Legal to take chinooks by trolling in district 1 west of a true north line from Cape Flattery from June 15 through Oct. 31. (2) Trolling for silvers in dist. 1 is legal from June 15 through Oct 31. (3) a permit can be obtained for legal offseason transport of chinooks and silvers.

28-010 All emergency regulations must be obeyed. Limited duration emergency regulations aren't included in the Wash. Admin. Code, are available from code revisor's office, director's office.

36-010 Divides Gray's Harbor into two areas.

36-020 Gillnetting legal in area 1 from 6:00 pm July 6 through December 12. Trolling legal from 6:00 pm July 6 to 6:00 pm Oct 31. Area 2 is closed. Area 1 is closed during the following times: from 6:00 pm to 6:00 pm each, Aug 29-31, Sep 6 - Sep 7, Sep 20 - Sep 21, Oct 18 - Oct 19, Nov. 1 - Nov 2, Nov 15 - Nov 16. No gill net may exceed 1500' in length. Until Nov 25, mesh minimum = 5"; after Nov 25, mesh min. = 7½". From 6:00 pm Fri to 6:00 pm Sun during period from Sep 21 to Oct. 18, maximum gill net mesh is 7".

WASHINGTON ADMINISTRATIVE CODE

Title 220 010 Willapa Harbor is divided into three fishing areas,
chapter 40 areas 1, 2, and 2a.

020 Normal salmon gill net season runs from 6 pm July 6 to 6 pm Nov 21. Normal salmon troll season runs from 6 pm July 6 to 6 pm Oct 31. From Aug 28 to Nov. 2, various weekly periods are set up for the areas. Gill nets may be as long as 1500 feet, and may have mesh as small as 5 inches. (In area 1 from Sep 21 to Oct 11, 1970, mesh was not permitted to exceed 7 inches.) Part of area 2 is closed after Oct 4.

chapter 44 010 Coastal waters are divided into three areas. (1) runs from the Columbia River to Point of Arches. (2) runs from Point of Arches to the Canadian boundary. (3) is those rivers which flow to the Pacific.

020 Area 2 is closed each Saturday and Sunday during the season. Except from 8 am Friday to 8 am Sunday, salmon may be taken by hand net gear in all areas. Otherwise, purse seining, drag netting, and gillnetting are banned.

chapter 47 010 For regulatory purposes, Puget Sound is divided into 11 areas.

020 18 salmon preserves are described. In them, it is unlawful to take salmon for commercial purposes except as specified in sections 040 and 060 of the chapter.

030 In areas where purse seines are permitted, they may not exceed 1800 feet in length, wet along the cork line. With leads, the lines may not exceed 2200 feet. Minimum permitted mesh size is 4 inches. The seine and lead may

not be lashed together. The minimum permitted twine is no 12 thread. Vessels may not carry extra leads.

Gill nets may not be longer than 1800 feet. The minimum permitted mesh is 5 inches. Gillnets must be operated in a straight line.

Reef nets may be no larger than 300 meshes per size. Minimum permitted mesh is $3\frac{1}{2}$ inches. The maximum allowable lead, from bow of boat to head buoy, is 200 feet. False, detached, or auxilliary leads are not permitted.

A maximum of 6 troll lines per vessel is permitted.

040 Purse seining - For certain areas, complex and varying seasons are established. Weekly and daily periods are specified for areas 1, 4, 4a, 5, 6, 8, and 10, outside tthe "Initiative 77" line. In 4a, 5, 6, and 10, the first 100 meshes below the cork line through the length of the seine must be at least 5 inches, excluding the bunt, between Oct 5 and Nov 30. In five parts of area 1, special closures are decreed.

050 During particular periods, reef nets are allowed in area 1.

060 Gillnetting is permitted in all areas during specified weekly and daily periods of the open season. Different minimum mesh sizes are listed for the areas. In some areas, the minimum changes during the season. Special closures are decreed for some area portions.

070 Trolling is permitted in area 2 (inside "Initiative 77") from June 15 through Oct 31, closed on Saturdays and Sundays.

