

A Review of California's Limited Entry Programs

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INTRODUCTION

Access to California's commercial fisheries has been increasingly restricted through a variety of limited access programs. Until 1974, when the state limited the number of licenses in the herring roe fishery, all of California's fisheries operated under the traditional open access system. Commercial fishing vessel registrations and annual commercial fishing licenses have long been required by the state, but these were available to all applicants at a nominal fee. Since 1974 seven restrictive licensing systems have been established, and the pace of change in the licensing systems seems to be accelerating.

The California Department of Fish and Game (CDF&G) distinguishes three different types of limited access systems: (1) qualified entry, (2) entry moratorium, and (3) limited entry. The first type is designed to assure that fishermen are knowledgeable and/or experienced in a fishery before they are permitted to operate a vessel in that fishery. For example, the Fish and Game Commission requires that new recipients of gillnet permits meet specific qualifications. These include having either a year's experience as a crew member on a licensed vessel, a history of activity in the fishery, or a passing score on a proficiency examination administered by CDF&G. Qualified entry programs do not place a limit on number of participants in a fishery, but they may slow down the pace of new entry.

A moratorium on new permits puts a stop to all new entry and is usually a preliminary step to setting up a limited entry system. As the name implies, a moratorium freezes the num-

ber of permits issued for a particular fishery as of a specific date. Although a moratorium temporarily permits no new entry, it also seeks no reduction in numbers of fishermen. Two examples are the 1980 temporary moratorium on salmon fishing licenses (replaced with a limited entry system in 1982) and the moratorium on general gillnet fishing permits that went into effect on January 1, 1986. Implementing legislation for the latter moratorium requires CDF&G to prepare a report assessing the need for a limited entry program for the gillnet/trammel net fishery by January 1, 1989.

A full-blown limited entry program has specific procedures and conditions for licensing new fishermen. California fisheries under limited entry programs include (1) the herring roe fishery, (2) the commercial abalone fishery, (3) the salmon fishery, (4) the drift gillnet fishery for shark and swordfish, (5) the experimental driftgill net fishery for swordfish off central California, and (6) the nearshore set gillnet and trammel net fishery off central California. Some of these programs set goals for total numbers of participating fishermen or vessels. Others simply control the conditions of entry. The legislature did not establish numerical goals for the salmon limited entry system, for example, but it did require that the Commercial Salmon Fishing Review Board and Fish and Game Commission determine the number of new permits to be issued annually. In contrast, the Fish and Game Commission set a specific goal of 100 operators in the abalone license limitation program.

This paper describes the objectives sought and principles adopted in California's limited access systems, followed by a brief description of each existing program. The final section offers a summary and some observations regarding present difficulties and future directions for limited access systems in California.

PRINCIPLES AND OBJECTIVES IN CALIFORNIA'S PROGRAMS

California's limited access programs have sought a wide variety of objectives, including (a) to enhance conservation of fish resources, (b) to protect the commercial fishing industry, (c) to reduce the numbers of incidentally killed marine mammals and seabirds, (d) to minimize potential conflicts between competing commercial fisheries and between sport and commercial fisheries, and (e) to "insure efficient and economic operation of the fishery." Only the experimental central California drift gillnet swordfish permit program fails to mention fish stock conservation as an objective. That program seeks "to allow increased access to the swordfish resource." The central California gill and trammel net program is most concerned with incidental take of mammals and birds, while the drift gillnet shark and swordfish program seeks to minimize conflicts and to conserve shark populations. Only the herring roe license limitation program includes economic efficiency as a specific objective.

Our review of stated objectives for limited access programs reveals that traditional notions of physical conservation and equitable allocation remain central to the state's conception of its role in regulating commercial marine fisheries. Stability of the fishery and reduction of social conflicts play somewhat smaller roles. The standard economic objectives of efficiency and rent-maximizing have a minimal influence on California's decisions. CDF&G personnel have frequently stated that CDF&G is primarily responsible for conservation of the fish stocks and secondarily for the resolution of user conflicts, while the industry itself must take the lead in developing management programs specifically intended to increase economic efficiency.

Besides avoiding economic efficiency objectives CDF&G generally prefers to prevent fishery permits from becoming assets of value to individual fishermen. When transferable permits are sold on the open market, they may take on significant value, as has happened in Washington and Alaska. Two objections are raised to the transferable permit. One objection is that potential regulatory problems may arise when fishermen with a substantial investment in their permits resist necessary restrictions on the fishery. A second and more important objection is that a substantial price attached to a transferable permit represents a windfall gain attributable to the newly created property right. Furthermore, this permit price creates a discriminatory barrier to new entrants. Only those citizens who inherit a permit or are sufficiently affluent to purchase one will have access to the fishery. These objections have extensively influenced the character of all limited entry programs in California.

Transfer of permits to heirs and working partners is permitted under specific conditions in all California limited entry programs. For example, a spouse, child or sibling of a deceased, retired or incapacitated permittee can obtain the permit if proof can be given of physical, working participation, aboard the permittee's vessel, in the limited entry fishery.

There are some additional common characteristics found in California's limited entry programs. Eligibility for initial permits is based upon past participation in the fishery or upon substantial investment prior to the enactment of the limited entry or moratorium program. California law specifically permits entry during the first year of a limited entry program to any commercial fisherman with twenty years of general experience and at least one year of participation in the target fishery. Permits are generally issued annually, and retention of permits from year to year is often contingent on continued participation in the fishery. Permits may not be held by corporations or partnerships and are attached to the person except in the salmon fishery, where they are attached to vessels. Allocation of new permits when they are available is generally based upon qualifications, including past participation and experience. Selection among

equally qualified applicants is usually accomplished through a drawing.

LIMITED ACCESS PROGRAMS

Herring

The modern California herring roe fishery began in the San Francisco and Tomales Bays to satisfy Japanese demand during a period of shortage and high roe prices in the early 1970s. Salmon sport fishermen and local residents were disturbed and concerned by the sudden emergence of the fishery. At their behest, legislation was introduced in 1974 to prohibit commercial take of herring except for use as bait. Before the beginning of the 1974 winter fishing season, CDF&G negotiated a compromise bill which gave the agency authority to establish a permit system and an annual catch quota. During 1974 and 1975 the number of permittees was limited to the number of participants in 1974--seventeen. Participants were chosen by drawing from among qualified applicants. As roe prices escalated, CDF&G was pressured to allow additional fishermen to participate. In 1976 a total of 57 fishing vessels were licensed to fish in the two bays.

The limited entry system established in 1977 allowed a total of 267 vessels to enter. All previous participants were "grandfathered" into the fishery and an additional 150 new licenses were allocated in 1977. That number steadily increased to 447 in 1982. To qualify for renewal, a permittee must have had a valid permit the previous year and must have actively fished, or demonstrated an intent to fish, the previous year. Permits cost \$50 per year and may be revoked for fishing violations.

In addition to control over the number of participants, the management system enforced quotas based on spawning biomass estimates derived from surveys of roe depositions in the bays. To reduce the congestion and competition in restricted fishing areas, an odd-even platoon system for gillnet vessels was introduced. Vessels with odd-numbered permits fished during odd-numbered weeks, and vessels with even-numbered permits fished during even-numbered weeks. In addition, a small number of purse seine and lampara vessels were licensed to fish. A third "experimental" gillnet platoon was added in 1980, and these vessels are permitted to fish only during the month of December, before the opening of the traditional fishery in January.

The increasing complexity of regulations was not necessitated by fish stock depletion. In fact, spawning biomass estimates indicated that herring populations were increasing. Management measures were designed more to alleviate social problems than to provide protection to the resource. Intense fishing pressure was motivated by extremely high ex-vessel prices. The reported price rose to nearly \$4,000 per ton in 1980. A highlining purse seine vessel in 1979 reportedly sold more than \$120,000 of fish in little more than

two weeks. The prospect of extraordinary profits brought intensely competitive fishing into a part of San Francisco Bay that is highly urbanized and environmentally sensitive. Fishing boats were competing for limited space with each other, commuter ferries, and yachts. If the resulting conflicts had not been addressed, non-fishing interests would have pushed harder for prohibition of the commercial fishery.

A nine-member advisory committee was formed to advise the CDF&G director on annual regulation changes. The Fish and Game Commission establishes a maximum limit of permits to be issued by gear type and area. These permits are issued to the owner, operator or leasee of a fishing vessel. The vessel to be used must be specified in advance, and the permits are nontransferable, except that permittees may designate another fishing vessel under certain circumstances.

New permits are issued whenever the number of permits allowed exceeds the number of renewals. Applicants must be licensed commercial fishermen and must own, operate or lease a currently licensed fishing vessel. The method of selection is a public drawing from among the qualified applicants.

Abalone

The abalone limited entry system adopted in 1977 was one aspect of a comprehensive program established by the Fish and Game Commission with the goal of restoring abalone stocks and increasing yields. After an intensive study it was concluded that one cause of declining abalone stocks was mortality of abalone under legal size that were picked and replaced. This problem was largely due to the excessive number of divers in the fishery, many of whom were inexperienced. From 1973 to 1975, 30 percent of the divers active in any year were new to the fishery and about 50 percent had less than 2 years' experience. CDF&G, with the support of industry organizations, recommended a limited entry program to remove inexperienced divers from the fishery and to reduce overall fishing effort to reasonable levels. The Fish and Game Commission established a limited number of non-transferable diving permits and made provision for issuing new licenses when the number of permittees fell below a set number. Crew members are also required to purchase permits, but there is no limit on the number of crew permits. Diver permit fees were set at \$200 annually and crew permits at \$100.

In 1977 licenses were initially issued to 397 divers who had participated in 1976. Annual renewal of the license requires a minimum landing of 6,000 lbs or 20 landings, defined as a minimum of two dozen abalone per landing. Permittees may obtain a waiver of the minimum landing requirement under certain circumstances. Permits may be revoked due either to failure to meet minimum landing requires or to fishing violations. From 1976 to 1985 the number of diver permits issued dropped from 397 to just under 1975. In

1985, further amendments to the regulations established the target number of diving permits at 100. To qualify, new applicants for permits must have at least three years experience as an abalone diver or crew member or must pass a proficiency test. When there are more applicants than permits available, a public drawing is held among qualified applicants.

Salmon

During 1979 the California legislature passed a bill establishing a two-year moratorium on participation in the commercial salmon fishery. This followed a recommendation from the Pacific Fishery Management Council calling for all Pacific Coast states to limit entry into the salmon fishery. The stated objective was to halt the increase in fishing effort while the merits of a permanent limited entry program were examined. Some concern regarding the salmon fleet was warranted by the long-term trends in the fishery. Between 1960 and 1978, the number of commercial vessels landing salmon in California grew from 1,365 to 4,919, while inflation-corrected ex-vessel value of salmon landings per vessel fell from \$8,290 to \$3,460 (in 1985 dollars).

The moratorium required commercial salmon vessel operators to have a salmon validation permit as well as the usual California commercial fishing license and a salmon stamp. This validation permit was nontransferable and revokable. Each permit holder was authorized to have up to two crew members on board with him who were not qualified individuals, and, after approval of a substitution application submitted to CDF&G, he could have another person serve in his place under his permit for up to 15 calendar days.

To qualify for a salmon validation permit, an applicant needed to show only that he or she had sold at least one salmon during at least one of the years 1974 through 1979, or that he had possessed a commercial fishing license and assisted with the capture and sale of at least one salmon, or that he had made a substantial investment in becoming a commercial salmon fisherman in California during the qualification period. During 1980, a total of 5,119 troll vessels landed salmon in California. In 1981 the number dropped to 4,102, and in 1982 the number of active trollers in California was 4,013.

During the moratorium various segments of the commercial industry in California, led by the Pacific Coast Federation of Fishermen's Associations, developed a comprehensive proposal for a limited entry system. As amended and enacted into law, the limited entry system creates a commercial salmon vessel permit which is issued to owners of vessels used to land salmon in California during 1980-82, to persons who possessed a commercial salmon permit under the moratorium and who had under construction or contracted for construction a vessel for entry into California's salmon fishery, and to other persons who meet specific criteria as determined by the newly-created Commercial Salmon Fishing Review

Board. The permits are to be renewed annually by application to CDF&G. They may be suspended or revoked by the Fish and Game Commission for violation of fishing regulations or because application for renewal is not submitted.

A person may gain new entry to the fishery by purchasing a vessel already licensed under a vessel permit. Licenses are attached to vessels and cannot be sold or transferred separately from the vessels. If a licensed vessel is lost or retired from the fishery, the permit is reissued to the vessel owner and can be placed on another vessel within one year if that new vessel has a salmon fishing potential no greater than the original vessel, as determined by the review board. New entry may also be obtained by application for a new vessel permit issued by CDF&G. New permits may be issued by lottery in the future, under criteria to be established by the review board. The number of new permits is to be based upon the health and status of the salmon resource, and on the economic stability of the commercial salmon industry. To date, no new vessel permits have been issued.

The salmon limited entry system is still an interim system. To devise a permanent system the law calls for collection of information on the salmon fishery, including the impact that equipment and experience have on the fishery; and submission to the legislature of a report containing this information. Originally the interim system was to expire on January 1, 1986, but it has been extended. During the first three years of operation of the new system, the number of vessels landing salmon in California has dropped from 3,223 in 1983 to 2,308 in 1985. The number of permits issued dropped from 4,617 to 3,712 during the same three-year period. The shrinking fleet size is largely due to diminishing abundance of salmon stocks, which necessitated increasingly restrictive ocean fishing regulations, and to a host of adverse economic conditions. No buy-back or other directed fleet reduction program has been enacted.

General Gillnet Permits

These general permits were created in 1981 to apply to all state waters. This permit program constituted a "qualified entry system" until a moratorium on new permits was established on January 1, 1986. These are annually renewable, nontransferable, revokable permits issued to applicants who have worked for at least 12 months on vessels using gillnets or trammel nets, or who have passed a proficiency examination administered by CDF&G, or who have landed at least 10,000 lbs of fish worth at least \$10,000 during a 12-month period, or who have landed at least 1,000 lbs of fish taken in gillnets in at least four of the five license years prior to date of application. Until 1986 there was no specific attempt to limit the numbers of such permits. The qualification requirements and annual \$50 fee may have restrained entry somewhat.

The new moratorium prevents the issuance of new gillnet or trammel net permits except to people applying before January

1, 1986 to take the examination, and then passing it. Renewal of existing, valid permits is allowed; and permit holders having landed fish in at least 15 of the preceding 20 years may transfer their permits to other qualified persons. CDF&G is to prepare and submit to the legislature by January 1, 1989 a report assessing the need for recommending a limited entry program for gillnet permits. The temporary moratorium expires on January 1, 1990.

The permit moratorium was accompanied by additional restrictions on the use of gill and trammel nets in harvesting California halibut. These included altered minimum fish size limits, a requirement that mesh size be no less than 8 1/2 inches, and a limit on the amount of net to be fished by any permittee to 1,000 fathoms (6,000 ft). All those fishing under the drift gillnet and gill/trammel net permit described below must also possess one of these general gillnet/trammel net permits.

Drift Gill Fishery for Shark and Swordfish

In the late 1970s it was found that drift gillnets with greater than 8 inch mesh size are effective at capturing thresher shark, bonito (or mako) shark, and swordfish. A new fishery developed, primarily in southern California waters, using this gear, but it faced several problems that resulted in public pressure to limit or eliminate the fishery. First, the use of drift gillnets to take swordfish provoked a "turf battle" for swordfish with the established harpoon fishery. Secondly, the reported take of marlin, a species strictly reserved for recreational fishing in California, was a severe provocation to numerous and influential recreational fishing interests. Thirdly, scientific research suggests that the shark populations are relatively slow-growing due to low reproductive rates, and that they could be rapidly depleted by excessive fishing. Finally, protected marine mammals (such as the California gray whale) can be inadvertently entangled, harmed and killed by the nets. All of these factors contributed to political pressures which called for limiting entry.

Initially, most of the fishing covered by this permit occurred south of Point Arguello, but it was not limited to the southern California region. Drift gillnet fishing spread as far north as Oregon and out to sea beyond 200 miles. A special permit for shark drift gillnet fishing was instituted in 1980. These nontransferable, revokable permits were initially issued to persons who had taken shark by drift gillnet in 1978 or 1979, or who had made prior significant investments in the fishery. The program also established a permit fee of \$150, restrictions on the size of nets used, restricted fishing seasons, a logbook requirement, and an observer program. The 1980 regulations also included allowable incidental catch tolerances for marlin and swordfish. Permit holders are required to designate which vessels they intend to use, but they may transfer to another vessel after notifying CDF&G by written request.

In 1982 the program was modified to reduce fishing effort on the highly depletable shark populations by implementing a limited entry system with a target limit of 150 permits. Because more than 200 permit holders were active in 1982, no new permits were to be issued until the number of active permits fell below the target fleet size. In addition, modifications were made to unrestrict the catch of swordfish, to close the fishery from February 1 through April 20, to reduce the incidental take of marine mammals, and to establish various other time-area closures which reduce conflicts with commercial harpoon and recreational marlin fishermen. In order to provide additional protection to thresher sharks, in 1985 additional regulations were implemented that prohibit fishing within 75 miles of the coast during June 1 to August 15. In effect the program now recognizes the drift gillnet as a directed swordfish fishery, which needs to be managed to protect the marine mammals and thresher shark populations and to reduce conflicts between the drift gillnet fishery and other sport and commercial fisheries.

Central California Special Gillnet and Trammel Net Permits

The gillnet and trammel net fishery for halibut, white croaker and rockfish in central California between Monterey and Point Reyes (including the Gulf of the Farallons) expanded rapidly in the early 1980s. The number of general gillnet permits issued in central California increased from 97 during 1981 to over 500 during 1984. Many of the new fishermen were recent immigrants from southeast Asia. As with the southern California drift gillnet fishery, the growth of the gillnet and trammel net fishery spawned tensions and controversies with better-established commercial fishermen, recreational fishermen, and other marine interests. Of particular concern was the widespread killing of seabirds and marine mammals in the nets deployed in nearshore, shallow water. Many of the birds and mammals affected are legally protected by the Migratory Bird Treaty Act, the Marine Mammal Protection Act and the establishment of the Point Reyes/Farallon Island National Marine Sanctuary.

All commercial operators in this fishery were, of course, required to obtain general gillnet and trammel net permits. Under intense public pressure to resolve the incidental mortality problem, the state restricted the use of the nets in shallow waters (waters of less than 10 fathoms in depth). After extensive meetings between CDF&G personnel and concerned groups, the legislature passed a bill in 1984 expanding the closed areas, creating closed seasons, restricting the allowable length of nets, and requiring that fishermen obtain a nontransferable special permit to use a set gill or trammel net in the nearshore area (generally within 3 miles of land) off San Francisco and other central California areas. Licensed gillnet fishermen operating further offshore are not required to have this special permit. Some closed areas and seasons were designed to protect sea otters in Monterey Bay and to protect sea lions and harbor seal rookeries at Ano Nuevo Island. Others were intended to re-

duce seabird mortality and to reduce conflicts between gillnet fishermen and salmon troll fishermen in the Farallon Islands.

Fishermen were issued new special gillnet permits until March 31, 1986. To obtain a permit, a licensed owner or operator of a vessel must have possessed a valid general gillnet permit and must have presented evidence of (1) 10 or more landings of halibut, croaker or rockfish caught by net, or (2) an investment of at least \$2,000 in nets, or a net reel, or other kinds of gear; this investment had to be substantiated by receipts and matching cancelled checks. (This requirement was a problem for the southeast Asian refugee fishermen, most of whom do business in cash; the problem was remedied through subsequent legislation.)

Since April 1, 1986, only previous permittees who have demonstrated involvement in the fishery have been able to renew. Each permittee may miss one year out of five in order to fish in some other fishery.

The number of permits for the fishery is now limited to 135. When the number of annual renewals falls below 135, new permits will be allocated by a random drawing among qualified applicants. An annual renewal fee of \$125 is levied on permit holders. The permit system is scheduled to expire on April 1, 1989. CDF&G is required to prepare a report before the expiration date determining the optimum number of gillnet fishermen for the fishery.

Central California Experimental Drift Gillnet Swordfish Fishery

To allow increased access to the biologically healthy swordfish population off California, 35 experimental fishing permits were created in 1984. These nontransferable, revokable and annually renewable permits were made available to persons holding a valid general gill and trammel net permit, possessing a California commercial fishing license in each of at 10 previous years, and having a gillnet with mesh of at least 14 inches and a net reel for retrieving the net. If there are more than 35 qualified applicants, the 35 permits are allocated by random drawing. All permit holders can renew without demonstrating participation. If not all 35 permittees apply for renewal, the excess permits will again be distributed by random drawing to new applicants who meet qualifying conditions. Since holders of drift gillnet permits in southern California may also fish north of Point Arguello, this special license does not limit the number fishing in central California, but it does prevent the central California special permittees from fishing in the south.

A fee of \$150 is charged for the permit. Restrictions on the use of this experimental permit are similar to restrictions on drift gillnet fishing south of Point Arguello. These include a maximum length of net (no longer than 6,000 ft), prohibition of fishing within 12 miles of shore, clo-

sure of the Gulf of the Farallons, a closed season from February 1 from August 15, and a requirement that nets not be in the water from two hours after sunrise to two hours before sunset.

CONCLUSIONS

Our review of limited entry programs in California provides ample evidence that this form of fishery regulation can be adapted to a wide range of circumstances and can be implemented in combination with various other regulations. The systems have been tailored to each fishery's particular problems, needs, and political situation. Although California has not ventured beyond the nontransferable fishing license, it has explored a surprising number of variations of license limitations. Licenses are limited by gear (general gillnet) or species/gear combination (salmon troll, abalone diver), or gear and area (drift gillnet). In the case of San Francisco Bay herring roe fishermen, an almost inconceivably complex set of regulations has been developed (two gears, two platoons of gillnets, special "experimental" permits, annual quotas split into gear types, individual seasonal catch limits for purse seine vessels, etc.).

Initial allocation of permits generally "grandfathers in" all past participants (at least if they have written documentation), and all limited entry systems provide means for new fishermen to enter when there are additional permits available. Although the criteria are not clear for determining the optimal number of permits in some fisheries (and are still being studied for salmon troll and gillnets), the bureaucratic mechanism for regulating entry at the desired level has been established. Discussions are currently proceeding on future limited access systems for sea urchin divers, groundfish trawlers and lobster fishermen.

The licensing programs have established useful overall limits on new entry to many of the state's crowded commercial fisheries. In several instances the limited entry systems are simply one part of a complex regulatory response to serious social and political pressures. Some of the fisheries (herring roe and possibly inshore gill/trammel net) could have been legislated out of existence if the license limitation response had not been invoked. Thus the permit system can be rated a success at dealing with some social and political difficulties. Also, where limiting entry has placed an upper bound on fishing effort, it has probably enhanced the efforts to reduce mortality of seabirds and mammals and may provide some protection to easily overfished shark populations.

Conservation policies behind California's limited entry systems have not begun to deal explicitly with the standard economic issues concerning commercial exploitation of depletable resources. The state government has not publicly acknowledged the need to assess economic aspects of fisheries, including the assessment of potential economic rent,

effects of regulations on "capital stuffing" and overcapitalization in the fishing fleet, and equitable allocation of net resource values and resource management costs. Some of the limited entry legislation calls for a report on optimal or desirable number of licenses. This may imply a need for detailed economic analysis, but it is not yet clear how CDF&G and the Fish and Game Commission intend to deal with the economic issues. Past policy has tended to ignore these by insisting that CDF&G has no such responsibility and that the industry should develop proposals to deal with economic factors.

The history of commercial fisheries regulation clearly suggests that this is an unrealistic approach; private industry does not normally deal very successfully with overall economic efficiency issues in the absence of clearly defined property rights in the fish populations. So long as California's governing institutions adhere to the concept of "public resource" in ocean fisheries, and prefer to allocate fishing rights through public administrative rather than private market systems, it is likely that California will continue to use nontransferable fishing license systems.

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