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**THE ELEVENTH HOUR FOR ALASKA'S SALMON FISHERY: A PROPOSED REGULATORY SOLUTION**

The depletion of the Alaska salmon fishery has reached critical proportions. This Comment initially discusses the fishery’s historical development and the biological and economic factors that are causing the depletion. A solution is proposed that will enable the fishery both to recover its biological equilibrium and to provide economic support for those fishermen most dependent on the resource. Since the proposed gear reduction program will necessarily exclude some present and future fishermen from the fishery, the potential legal challenges to this form of state regulation are also analyzed.

The Alaska salmon fishery has become increasingly depleted by overfishing since the introduction of commercial salmon fishing in the 1880's. While biologists and fishery users were aware of the growing depletion problem, little was done by the commercial users, the territorial government, or the United States government to alleviate the problem. After Alaska achieved statehood, stricter regulations were enacted by the state legislature, but even these regulations have been ineffective in halting the depletion of the salmon resource. This Comment examines the ecology of the Alaska salmon fishery, as well as the biological and economic consequences of the increased use of the fishery. A proposed regulatory solution to the fishery depletion problem, in the form of a gear limitation program, designed to restore the fishery’s commercial viability while ensuring continued access for those fishermen most dependent on the fishery for their livelihood, is suggested. While this gear limitation program is firmly grounded in the exercise of the state’s police power, it does raise federal constitutional questions concerning the commerce clause, the article IV privileges and immunities clause, and the equal protection clause. An analysis of these problems indicates that the proposed program can withstand these constitutional challenges.

In 1973, Alaska established the Alaska Commercial Fisheries Entry Commission which is empowered, inter alia, to regulate fishery entry and types of gear and to issue entry permits and interim-use permits. The gear limitation program proposed in this Comment can be submitted to the Commission for consideration and adoption pursuant to the Commission’s power to make regulations for the fishery.

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b. *Id.* § 16.43.100.
c. *Id.* § 16.43.110.
I

EXPLOITATION OF THE ALASKA SALMON FISHERY

A. Historical Production

Historically, salmon were important as a food source in Alaska; while Eskimos, Aleuts and Indians were heavily dependent on salmon, they used the fishery in a manner unlikely to cause damage to it. In the early days of the commercial fishery in Alaska, the resource was considered inexhaustible by those most concerned with its exploitation. The fishing levels during the first years skyrocketed: the number of fish traps increased from 60 to 600 in the period from 1906 to 1920. During the same period the number of gillnet boats rose from 1,000 to 5,000, and the number of seiners increased from 200 to 800. There was a rapid increase in consumer demand for canned salmon from the inception of commercial fishing in the 1880's until the end of World War I. Fishing levels and industry expansion in Alaska reflected this demand. In the twenty year period from 1899-1918 the Alaska salmon pack rose from approximately

1. See generally G. Hewes, Aboriginal Use of Fishing Resources in Northwest North America (1957) (unpublished Ph.D. dissertation, Dep't. of Anthropology, Univ. of California, Berkeley) for a discussion of the degree of use of the resource by native Alaskans on a regional basis.

2. It has been suggested that "some of the recent and most constructive proposals for a more rational approach to the conservation of the resource amount to little more than a return to the aboriginal institution of private property and resource use-rights." R. Cooley, Politics and Conservation: The Decline of the Alaska Salmon 21 (1963) (hereinafter cited as R. Cooley).

3. The salmon processing industry maintained that it was merely protecting streams against overspawning and that the resource would benefit from a high fishing level. As late as 1936, A.W. Brindle, who is still a dominant figure in the salmon industry, stated that if the processors were no longer permitted to use fish traps (see note 4 infra) "too many fish would go up the streams and creeks; they would overcrowd and pollute the streams and in succeeding cycles the runs would be a failure." Hearings on H.R. 4254 and H.R. 8213 Before the House Comm. on the Merchant Marine and Fisheries, 74th Cong., 2nd Sess., 192 (1936).

4. A fish trap is a device placed in the course of salmon migratory routes that captures and holds salmon for a time without killing them, pending harvest by the processor. The largest and most efficient fish traps block most of the mouth of a stream and can catch almost all approaching fish. Escapement can be controlled by releasing fish through the trap.

5. A gillnet boat uses a net that enmeshes and traps salmon attempting to swim through; the net is then drawn into the boat and the salmon are removed.

6. A seiner is a boat utilizing a "purse seine," which is a net that encircles the salmon, is closed at the bottom and then is retrieved.

7. R. Cooley, supra note 2, at 47-48. The industry expanded so rapidly that the largest processor, the Alaska Packers Association, which canned an average of eighty percent of the total pack from 1893-99, canned forty-six percent in 1901 and by 1920 accounted for only thirteen percent of the total output. J. Crutchfield & G. Pontecorvo, The Pacific Salmon Fishery: A Study in Irrational Conservation 75 (1969) (hereinafter cited as J. Crutchfield & G. Pontecorvo).
1,000,000 cases to over 6,500,000 cases. This growth occurred in the absence of any effective governmental regulation and, had it not been for the sharp drop in demand after the First World War, might have very rapidly destroyed the fishery. Production continued to increase and reached a peak in the late 1930's despite that drop in demand. Then the commercial catch began to decline significantly until in the mid-1960's it reached a level less than half the maximum yields of the late 1930's. Several factors must be considered in evaluating the reasons for this serious continuing decline in production. The first factor to be examined is the increase in the number of fishermen.

B. Commercial Viability

In the first years of the Alaska commercial salmon fishery a relatively small number of fishermen harvested large numbers of fish. The years thereafter were marked by an enormous increase in the number of commercial fishermen. In the peak fishery period from 1934 to 1939 an average of 8,383 fishermen caught an average of 593,719,000 pounds of salmon annually, whereas for the more recent period from 1963 to 1967 an average of 16,764 fishermen harvested an average of only 254,771,000 pounds annually. By the mid-1930's the average catch had peaked and had started its precipitous decline. The average catch per fisherman dropped from a high of 89,236 pounds in 1934 to 18,763 pounds by 1966. As a result of these developments, the almost 18,000 fishermen employed in 1966 caught twenty-five percent fewer fish than did 7,408 fishermen in 1930.

The declining size of the average catch of each fisherman and the increased number of fishermen in the fishery are related phenomena. It would be possible for both of those conditions to exist in an economically viable industry if the average catch and the number of fishermen leveled off at some point, but the trends outlined above indicate that this is not the case in the Alaska fishery. The fisherman in the boom period of the mid-1960's earned less gross real income than his counterpart fishing in the depression period of the mid-1930's, notwithstanding an increase of over 300 percent in the real value price of fish. This situation is caused partially by the fact that, for a given output, the cost of catching each fish increases as the average catch per fisherman decreases. Thus, today's fisherman has significantly less

8. R. Cooley, supra note 2, at 35-36.
10. Under 3,500 fisherman were able to harvest an average of over 7,500 fish a piec during these years. United States Bureau of Fisheries, Alaska Fishery and Fur-Seal Industries (1905).
12. Id.
net income than did the fisherman engaged in the fishery in its early years.\textsuperscript{13}

General economic theories of common property resources\textsuperscript{14} do not completely explain the great expansion in the number of Alaska salmon fishermen. One must also consider numerous short-run factors peculiar to the Alaskan fishery. One such factor is the relative ease of entering the fishing industry compared with the difficulty of leaving it. Business practices common to the major industry processors compound the problem.

It is relatively expensive to equip a new boat, and banks usually are not willing to lend money to independent fishermen to purchase fishing gear. The processors, however, are willing to extend credit,\textsuperscript{15} provided that all fish caught by the fisherman are delivered to the creditor-processor.\textsuperscript{16} The Alaska processors thus increased the number of fishermen rather than compete among themselves for the available fish supply by offering better prices to fishermen already in operation. Established processors used their right to purchase the total catch of independent fishermen to exclude potential competitors. With no possibility of obtaining a supply of salmon from local fishermen, outside processors were discouraged from competing—a factor which limited the independents ability to command a favorable price for their catch. These exclusionary practices and mergers within the industry concentrated processing activity in the hands of a few businesses.\textsuperscript{17}

Processor financing with exclusive supply contracts facilitated entry by those wishing to fish, but the independent fishermen bore all the risks of the market. In a good year, after delivering his fish and making boat payments, with interest, the fisherman might still realize a

\textsuperscript{13} Id. at 204.

\textsuperscript{14} See text accompanying notes 54-57 infra.

\textsuperscript{15} The author conducted extensive interviews with salmon fishermen in the Kodiak and Bristol Bay areas of Alaska. Of those interviewed, none had succeeded in obtaining bank financing of fishing gear and almost all of those who "owned" their own boats were financing them through processors. The consensus of opinion among independent fishermen was that it was rare for a boat to be paid off prior to the expiration of its effective life.

\textsuperscript{16} The author has inspected boat financing contracts prepared by the Red Salmon Company, Columbia Ward's Fisheries and others and found that aside from requiring that the entire catch be delivered to the lender, it is often required that a minimum term of five years for paying off the boat be accepted; that the fishermen agree to fish where assigned by the processor; and that the company be allowed to refuse delivery in cases of insufficient capacity. Thus, the fisherman is an independent operator in name only.

sufficient profit to justify his participation in the fishery. But in bad years he might not even earn enough to make his boat payments. With the exception of increasingly rare bumper years, many fishermen, especially natives whose sole income is derived from the salmon fishery, have been forced to accept credit from the processors to live through the winter and attempt to pay it back out of the following season's settlement.

Not all fishermen suffer the hardships of the poorer native fishermen who are most dependent on the industry for a livelihood. Some boats are operated directly by the processors with employees on board. While the companies take a somewhat greater risk with these boats, as all costs are borne by the processor rather than the fisherman, their use guarantees a minimum supply of fish and thereby gives the processors enormous bargaining power vis-à-vis the independents.

The processors' bargaining power is further enhanced by the fact that many of them also finance boats for out-of-state fishermen who may fish part of the season in Alaska and part of the season in some other state. These are the "high-line" fishermen on whom the processors rely to land consistently high catches. One processor, whose desire to remain anonymous is understandable, told the author that he had to bring in outsiders because "the natives couldn't catch fish in a bathtub." Such a statement might be dismissed as racial prejudice but for its effect as a self-fulfilling prophecy. The out-of-state "high-liners" are provided with better boats and are given significant incentives to come to Alaska. Mr. Jack Lechner, Area Management Biologist for the Kodiak area, expressed the opinion that native and non-native fishermen could perform equally well if given similar equipment.

Part-time fishermen, also frequently financed by the processors,

18. In almost every recent fishing year the fishermen have caught sufficient numbers of fish to make the bulk of their payments to the processors. In a few years, however, this has not been the case and in the future, if entry continues unchecked, it is unlikely to remain the case. If default occurs the processors retain the power to repossess the boats of any fishermen and to make good any pre-existing deficits out of the fishermen's equity.

19. Most of the local native fishermen at Alitak on Kodiak Island are deeply in debt to Columbia Wards Fisheries cannery through the use of company store credit and pre-season advances. Any attempt by such fishermen to sell elsewhere or to assert any independence could be met by the repossess of their boats, most of which are in default. This author was informed by several local villagers that A.W. Brindle, one of Columbia Wards' owners, is called the "axe-man" because on one occasion he cut loose from their moorings the boats of ungrateful fishermen.

20. In many areas the processors attempt to hire out-of-staters to run the company boats. Every possible attempt is made to keep the independents and the employees from associating for their mutual interest.

21. Interview with Mr. Jack Lechner, Area Management Biologist, Alaska Department of Fish and Game, Kodiak, Alaska, July 7, 1972, (hereinafter cited as Lechner interview).
constitute a final source of new entrants into the fishery. In recent years more individuals with jobs or businesses outside the fishery have sought to supplement their incomes by fishing. Some individuals such as teachers, who do not have to take time off from their jobs and who are dependent on fishery income, fish largely during vacations and consider any profit a windfall.

The problem of increased entry has persisted and is geographically widespread. The number of units of licensed salmon gear rose from 5,110 to 8,923 in the decade from 1960-1970. While the bulk of this growth has occurred in the western area of Alaska from Bristol Bay west and north to the Kuskokwim River, established areas like Kodiak Island also have seen steadily increasing amounts of gear catch fewer fish.

The entire blame for the decreasing salmon return cannot be placed on American overfishing in Alaskan waters. The Soviets, Koreans, and Japanese have expanded their salmon fishing activities on the high seas. While the effects of the high seas fishing on the return of salmon to Alaska has yet to be precisely determined, Japan has become a scapegoat for both Alaskan and out-of-state fishing interests. The high seas fishing by Asian nations is a variable that makes the accurate prediction of the size of salmon returns very difficult. This problem of prediction complicates any attempt to regulate the salmon fishery effectively and is perhaps intrinsic in the biological make-up of the resource.

C. Environmental Management Problems

1. The Ecocycle of the Alaskan Salmon

It is inaccurate to speak of the Alaskan salmon fishery as a single unit. The most important error of Alaska's commercial salmon industry was its failure in early years to analyze the individual viabilities of the various salmon species and its consequent inability to predict

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23. Lechner Interview, supra note 21.
25. Lechner interview, supra note 21. Mr. Lechner noted that local fishermen believe gear limitation would be unnecessary if the Japanese left "their" salmon alone.
26. "Viability" of a species is used here to mean the ability of that species to continue to produce in commercially harvestable quantities.
There are five major species of salmon caught in Alaska: kings, reds, cohos, pinks and chums. These fish follow over two thousand individual salmon streams to approximately ten thousand separate spawning beds. In the early days it was assumed that if some fish of a given species successfully followed each stream they would spawn and assure an adequate return in the next cycle. This assumption did not recognize that within each stream there may be several spawning beds, some used by more than one species which, due to the timing of the catch, may not receive adequate escapement to insure propagation of the species within that spawning bed. Removing too many of the members of a weaker species from a particular spawning bed can totally eliminate that breeding unit as a durable stock.

In attempting to formulate a method for maximizing the runs, one must decide what levels of mortality from fishing are acceptable, consistent with maximum propagation. The effect of natural environmental conditions on the size of the run in a given year must be considered as well. Two early fishery researches wrote in 1921:

27. Escapement is the term to describe the return of salmon up their ancestral streams to their spawning beds.
28. R. COOLEY, supra note 2, at 4-7.
29. Id. at 8-9.
30. See note 3 supra.
31. The viability of individual spawning units, all having specialized characteristics, varies greatly. In some areas a species or subspecies may be barely able to survive, and may face total destruction if there is any change in the balance of nature. In that same area, another species or subspecies may be so well adapted to the environment that it would be very difficult to destroy it as a viable breeding unit. The varying survival rates, one measure of viability, indicate the necessity of adapting different escapement ratios to individual spawning beds so that each species can continue to produce. The failure to recognize this factor at an earlier time might have devastated the fishery had it not been for the influence of "strays," fish who either get lost during their time cycle or have failed in the quest for their home stream. If conditions are right, "strays" can colonize and repopulate a previously dormant spawning bed. A successful recolonization may take several years to become securely implanted, but this phenomenon has a positive effect in repopulating overfished streams.

When adequate escapement is discussed hereafter, it refers to that certain minimum number of fish which must return to a given spawning bed to maintain the production of salmon from that bed. Escapement is inadequate when the number of fish of a given species returning to the spawning bed are insufficient to assure continued propagation in a year of adverse conditions. Planning for adequate escapement is complicated by all of the biological complexities outlined above. Recognition of these numerous biological variables is essential in attempting to formulate a system of escapement that goes beyond biological adequacy to maximize the return in each stream. See Thompson, The Research Program of the Fisheries Research Institute in Bristol Bay, 1945-58, in STUDIES OF ALASKA RED SALMON 13-16 (Thompson ed. 1962).
32. Droughts or other severe water shortages may cause the loss of large numbers of eggs. Floods may wash out spawning beds. Landslides across a stream may partially or completely prevent salmon from reaching the spawning beds. Sea gulls, bear, beluga, whale, trout and many other predators of
Some seasons are far less favorable than others, both on the spawning beds in the lakes, where the fingerlings live for one, two, or three years, and in the sea. The number of spawning fish which would be adequate in favorable years, it must be recognized, would fail utterly to produce a run when the eggs, the fingerlings and the growing fish in the sea had been exposed to unusually severe conditions and to more formidable attacks from their innumerable enemies.  

Clearly, gear levels should be correlated to the size of the run expected, based on observation of the natural exigencies of a given region in a given year. Examination of the Kodiak Island experience demonstrates that this is not an easy process.

2. The Kodiak Island Management Example

Kodiak Island is located south of the central Alaskan coast and east of the Aleutian chain. In the ten-year period from 1960 to 1970 the Kodiak fishery averaged a catch of eighteen percent of the total statewide harvest of 52.5 million salmon, thus providing a useful example of the salmon fishery patterns. No Alaska fishing region has mirrored the annual performance of the entire Alaska fishery precisely because local factors affect the salmon harvest. However, the trends of the Kodiak salmon fishery have been similar to those statewide. Comparisons also are facilitated by Kodiak's long-established practice of maintaining excellent records of catch levels.

Kodiak Island Area Management Biologist Jack Lechner and other individuals have extensively researched escapement patterns in the Kodiak area. In a recent survey undertaken during the 1970 season, Lechner measured the escapement levels of pink salmon in 229 streams. Such surveys provide a basis for estimating the future levels of return by progeny of the fish in the escapement and for judging when to close areas in order to protect an adequate number of fish for the return cycle.

the salmon may become so active on a particular run as to materially reduce its size.

R. Cooley, supra note 2, at 10. It should be noted that significant reduction in salmon levels due to overfishing may detrimentally effect the ecosystems of these same predators.

33. C. Gilbert & H. O'Malley, Special Investigation of Salmon Fishery in Central and Western Alaska 150-51 (1921).


35. See note 31 supra.

At first glance the Kodiak fishery appears to be in excellent condition, having a ten year average catch from 1962-1971 of 9,607,000 fish per year compared to an average 9,135,000 fish per year over the period from 1934-1971. A more careful examination reveals that the salmon industry suffers from overfishing. The most important commercial species has always been the red or sockeye salmon. The average annual catch of this species in the Kodiak fishery decreased from 1,847,000 three decades ago to 569,800 in the most recent ten year period. In the same periods the number of king salmon landed dropped from an average of 3,300 per year to 1,100 per year. Pink salmon, always the most plentiful in the Kodiak fishery, dropped from an average of 9,274,700 to 8,303,100. For cohos or silvers the earlier harvest exceeded the latter by 1,156,000 to 430,00 fish per year. Only in the case of chum or dog salmon, the least valuable species, was there an increase in harvest: 72,000 as against 516,000 fish per year. The interim period from 1946-1961 was characterized by generally lower runs, a legacy of the earlier unregulated fishery. Only chum salmon were caught in greater numbers during this period, probably because they had been ignored when the more valuable species were available in abundance.

A closely regulated fishery would not be expected to produce at levels comparable to an unregulated fishery during its peak period. Gilbert and O'Malley analyzed the effects of overfishing over forty years ago and concluded:

> Decreased production is accomplished by an increase of gear. Fluctuations in the seasons become more pronounced. Good seasons still appear in which nearly maximum packs are made. But the poor seasons become more numerous.

The severe fluctuations witnessed in the Kodiak fishery in the last ten years, ranging from a high of 15,824,000 fish in 1962 to a low of 704,000 fish in 1967, conform to Gilbert and O'Malley's description. Under heavy pressure to make at least their costs in bad years, fisher-

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38. The bright red color, high oil content and good processing characteristics cause the canners to seek out the red salmon and pay a premium price for it. R. Cooley, supra note 2, at 4-5.
40. Id. Kings, the largest breed of salmon, while always being fewest in number, have consistently brought the highest price per pound. R. Cooley, supra note 2, at 5.
41. Kodiak Statistical Review, supra note 34, at 12.
42. Id.
43. Id.
44. C. Gilbert & H. O'Malley, Special Investigation of Salmon Fishery in Central and Western Alaska 151 (1921).
45. Creek robbing is the taking of fish in or near the stream mouth. It is illegal
men have been forced into creek-robbing, which endangers escapement in those very years when it is most vulnerable and aggravates fluctuations in the size of the annual catch.

Under present regulatory policy, the Alaska Department of Fish and Game (ADF&G) exercises emergency closure and opening powers over the entire fishery. This power, which is the cornerstone of the present regulatory system, was not intended to deal with economic conditions in the fishery but rather was an attempt to assure adequate escapement in each of the salmon regions. Escapement surveys are made continually during the season to determine whether each stream is receiving adequate escapement of each species. If escapement is too low the emergency closure powers are utilized to stop fishing in the afflicted area. An area previously closed might be opened to reduce excess or unnecessary escapement. The emergency closure and opening powers cannot be truly effective unless they are based on a full knowledge of escapement patterns. The Kodiak office of the ADF&G uses an index of twenty-five streams in its attempt to analyze the level of return, and the Kodiak area is broken into nine management districts for convenience in supervising escapement of the individual salmon stocks. With all this care in the management of the fishery, it might be expected to remain biologically, if not economically, sound. Yet in 1972 the return from the 1970 bumper harvest of pink salmon was abysmal, requiring early closure of the salmon fishery in an attempt to salvage some escapement.

One explanation for the failure of the present management system is that biological and economic regulation have not been separated in the commercial fishery. In light of the great efforts to preserve the

under Alaska Department of Fish and Game regulations. Lechner interview, supra note 21. Mr. Lechner noted that the lack of funds for enforcement of fishing regulations permits violators to act with impunity. He also suggested that some processors indirectly pressure fishermen into such illegal actions, through the onerous terms they impose in their agreements with the "independents." Id.

46. The Alaska Dept of Fish and Game has the power to "summarily open or close seasons or areas. . . ." ALASKA STATUTES § 16.05.060 (1962).
47. Kodiak Statistical Review, supra note 34, at 1-5.
48. Id. at 1, 44-70. Graphs have been prepared which measure the rate of return against the escapement rate for the prior cycle, over a twenty year period.
49. In the 1972 salmon season a record number of boats landed the smallest even-year harvest in many years. ALASKA, Nov. 1972, at 27. The use of the emergency opening and closure power in 1970 apparently was insufficient to guarantee an adequate return in the next cycle.
50. If the management goal is couched in terms of assuring a harvestable crop of salmon in the return year, economic factors must be considered. The presence of too many boats during open fishing periods brings about a lower catch per boat, and complicates the process of facilitating escapement. Due to the established pattern of salmon runs, 100 boats on the water for a 10 hour period will do more damage to the
Kodiak fishery, one must conclude either that there is insufficient knowledge available to make the emergency order system effective or that there is a basic imbalance in the fishery. An examination of the economics of the fishery indicates that such an imbalance indeed exists.

**D. Economic Principles Controlling a Renewable Common Property Resource**

A common property resource\(^{51}\) is a resource that belongs to no user exclusively and which may be exploited without the consent of any other user. It has been suggested that the costs of appropriating and defending common property resources, which usually extend indivisibly over wide areas, are greater than the return on such costs.\(^{52}\) Thus, an anadromous fish such as the salmon, whose life cycle takes it thousands of miles into the ocean, is clearly not susceptible to private cultivation.

From a brief examination of the commercial viability of Alaska salmon, it is apparent that over the years too many units of fishing gear and too many fishermen have entered the fishery.\(^{53}\) This progressive destruction of the fisherman's livelihood was not unexpected, but eminently predictable under basic economic theory.

1. **Long Run Static Analysis**

It is undisputed that there must be some function determining how many fishermen actually will enter, since all may enter, the salmon fishery. The identification of that function has elicited a number of

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\(^{51}\) J. CRUTCHFIELD & G. PONTECORVO, supra note 7, suggest that "the term 'common property', as it has been used by economists, is incorrect in a strict legal sense. If a resource is not owned, it is not property." They prefer to use the term "open access resource." *Id.* at 11.


\(^{53}\) See section B supra.
economic analyses of fisheries as common property resources. Cheung states:

In the absence of legal and contractual restraints on the use of the fishing ground, a fisherman will enter the industry so long as the residual (that is earnings in excess of his alternative wage) for him is positive. With each new entrant, however, the marginal product for all fishermen will fall, and, following the equimarginal rule, each of them will curtail their fishing effort (or labor input).  

Stated more simply, "as long as there is some profit to be shared, additional fishermen will be attracted into the fishery."  

Constantly increased entry into the fishery in Alaska is undisputed and the predicted lessening of profit has occurred. Not only is there decreased individual net return; the net return diminishes for the fishery as a whole as fishing effort rises, even before any permanent depletion danger is created. 

![Figure 1](image)

In Figure 1, curve $y,x,w,z$ represents total revenue for the whole fishery; as it moves upward towards point $x$ each additional unit of fishing gear adds more to total revenue than the increment in total


55. F. CHRISTY & A. SCOTT, *supra* note 52, at 11. This evaluation differs slightly from Mr. Cheung's as it suggests that any profit will attract new fishermen, whereas Mr. Cheung relates the entry to residual profit (that above alternative sources of income). These views are reconcilable in that the latter formulation relates to the entry choice of an individual fisherman whereas the former is important with respect to the possibility of any additional rational entries. They are consistent in that both would expect entry at any level of profit by a fisherman with no alternative source of income.

56. See text accompanying notes 12-13 *supra*.

cost. For ease of analysis the price of fish and the incremental cost of adding fishing gear are assumed to be constant. At point \( w \) the maximum sustained yield of the fishery is reached, and any addition to the fishing gear will lead to long term depletion of the resource. Along the revenue curve from \( x \) to \( w \) each additional unit of gear inflicts greater costs on the fishery than its addition to production generates in dollars; the average catch per unit of gear decreases. Nonetheless, since total revenue exceeds total costs, in a free access system entry into the resource will continue until point \( z \) is reached, the point where total revenue equals total cost. Beyond point \( w \) fishery depletion occurs, with total yield continuing to fall through point \( z \), after which it is unprofitable for additional boats to enter the fishery.

While this long-run view of the fishery provides a method for analyzing the long-run tendencies of the resource, it is a static analysis and is not tied empirically to the special local factors which determine current performance. Thus, it is useful to examine the short-run factors affecting entry into the Alaska salmon fishery.

2. Short Run Entry

The numerous factors that facilitate entry into the fishery have been discussed. Once in a fishery, however, it is not as easy for users to exit. One commentator has suggested that even in a totally free entry and exit situation the "entry-speed coefficient" may not be equal to the "exit-speed coefficient" because specialized vessels are often unsuitable for other uses. A fisherman experiences three types of costs: the fixed annual amortization cost of purchasing the boat; the generally lower annual cost of operating the boat; and a profit or wage for himself or his operators. In lean years he may desire to sell the boat or use it for profitable substitute purposes, but in Alaska these possibilities are generally unavailable. Thus a fisherman may rationally choose to continue fishing in a situation where his revenues barely cover operating costs. Such a decision would enable him to recoup at least part of his fixed costs. It is only when the catch raises insufficient revenue to cover operating costs that he may decide to stop fishing. Thus Alaska fishermen may remain in the fishery although they are beyond point \( z \) on the total revenue curve (Fig. 1) and their revenues are exceeded by total costs.

58. Line \( yz \) represents total costs which are assumed to increase proportionately as fishing gear units are added.
60. See text accompanying notes 15-21, supra.
In Figure 2, curve \( y_1x_1w_1z \) (the long-run revenue curve) is situated between broken curves \( y_1y_2 \) and \( y_1y_2^2 \) which represent the range of possible annual revenues. Any point in the shaded area represents a fishing level where the annual cost of production exceeds annual revenue. In some areas of Alaska, many recent fishing years have been characterized by fishing levels and returns at points in the shaded area. An analysis of the short-run ramifications incident to a bumper year explains this result.

In year one we assume that the number of fishing units and the level of revenue are at the long-run equilibrium point, \( z \), where the cost of harvesting the salmon equals the revenue derived therefrom. In year two it is assumed that the same number of fishing units are operating but the revenues increase up to point \( z^2 \) due to an increase in the catch resulting from favorable natural conditions (a bumper year).\(^{62}\) Profits to those participating in the fishery for that year would thus be above the level for year one. During and immediately following year two the increased profits would attract an increased number of new entrants and would reduce the level of exiting due to financial hardship. The net increase in the number of fishing units would be exaggerated by the artificial ease of entry.\(^{63}\) It is unlikely that year three would be a bumper year; it might produce even less total revenue than the long-run average point \( z \). Profits would be squeezed and new entries would fall off. Exits, which are significantly less easy for fishermen than entries, would not occur immediately, and the reduced total revenue would be shared among the increased fishing units. This would be represented by a point in the shaded area. This continued fishing in the shaded area could result in

\[62. \text{A bumper year could occur for many reasons: optimal weather conditions resulting in larger runs; a smaller harvest in the high-seas fishery; an increase in price for fish related to a lower level of production in competing fisheries; or any combination of these and perhaps other factors.}
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\[63. \text{See text accompanying notes 15-17 supra.}\]
the inability of the fishery to produce any commercially significant yield, until a number of years passed without any commercial harvest. It would be expected that due to the relatively low exit speed fishing levels of point z might not be reached for a period of time. The situation could be further complicated by an intervening bumper year which might "bounce" fishing levels further into the shaded area and thus cause accelerated depletion of the stock.

E. The Proper Environmental Management Goal

Economists have referred to increases in the number of fishing boats beyond that represented by point x in Figure 2 as dissipation of economic rent or economic waste. Professors Crutchfield and Pontecorvo observed that it is irrational to permit this dissipation of rent and that any knowing attempt to permit a fishery to produce at other than its maximum economic efficiency is unsound. The maximization of efficiency principle dictates that limitations be placed on entry at the point where the greatest rent attributable to the resource occurs—that is, where the marginal revenue equals marginal cost and thus where there is the greatest difference between total revenue and total cost. It is contended that the further expenditure of labor beyond this point constitutes a misallocation of resources. While in a perfect, abstract economic setting these assertions might be uncontestable, they disregard some of the most basic problems of any immediate attempt at enforcement.

There are many fishermen participating in the salmon fishery who are residents of Alaska's small towns and bush villages and who derive their sole support from the fishery. The threshold question in attempting to set a management goal is to what extent fishermen who are totally dependent on the resource should be displaced. The fish trap, the most efficient method of harvesting salmon, could effectively displace almost all on-the-water fishermen at a relatively low cost. While use of the fish trap might almost achieve Professors Crutchfield and Pontecorvo's aim of "devising workable approximations to conditions of private ownership" in the fishery, it would inflict heavy, possibly intolerable social costs. There is no alternative livelihood for most of the resident and many of the nonresident fishermen.

64. J. CRUTCHFIELD & G. PONTECORVO, supra note 7, at 104-05.
65. Id. at 120-21.
66. F. CHRISTY & A. SCOTT, supra note 52, at 11.
67. J. CRUTCHFIELD & G. PONTECORVO, supra note 7, at 38, 111.
68. Id. at 13.
69. While no comparable statistics on the composition of the Alaska salmon fishery are available, a survey of education levels of Boston offshore fishermen would shed some light on the ability of Alaskan fishermen to adapt to other jobs in the domestic labor force:
order not to deprive those fishery-dependent individuals of their only source of income, any management plan which excluded them from the fishery would have to provide for their support.70

The exclusive fish trap permits would undoubtedly be acquired primarily by the processors, thereby causing further economic concentration in the industry. The costs of attempting to regulate and efficiently tax the resulting monopoly and to redistribute monopoly profits to displaced fishermen through the tax system, together with the social costs inherent in denying individuals their sole means of self support, would in themselves provide sufficient grounds for defeating any such program in the real world of Alaska politics. In addition, it is clear that the Alaska constitution would preclude any such granting of exclusive rights even to the most persuasive monopolists.71 Thus some other management goal must be established.

Ultimately, the Alaska Commercial Fisheries Entry Commission must limit participation in the fishery to an optimum number of boats.72 The determination of the optimum number, however, will require information that is presently unavailable to the Alaska salmon fishery. An interim fishing level could be set—perhaps at the point where, given a priority list that ordered fishermen according to their dependence on

<table>
<thead>
<tr>
<th>Male Civilian Labor Force</th>
<th>Boston Offshore Fishermen</th>
</tr>
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<tbody>
<tr>
<td>Attended College</td>
<td>23</td>
</tr>
<tr>
<td>Did Not Attend College</td>
<td>77</td>
</tr>
<tr>
<td>High School Diploma</td>
<td>54</td>
</tr>
<tr>
<td>No High School Diploma</td>
<td>46</td>
</tr>
<tr>
<td>Some High School</td>
<td>73</td>
</tr>
<tr>
<td>No High School</td>
<td>27</td>
</tr>
</tbody>
</table>


70. A plan excluding these dependent fishermen could provide for a system of taxation in the fishery that would provide income to be distributed to those unable to find employment in another occupation. If that were done, the costs of operating the distributive system as well as the amounts paid out through such a system would have to be computed as costs of operating the fishery and might lead economists to an entirely different result.

71. Article VIII of the Alaska constitution provides:

“Section 3. Common Use. Wherever occurring in their natural state, fish, wildlife and waters are reserved to the people for common use...”

“Section 15. No Exclusive Right of Fishery. No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State.”

While Section 15 was amended in 1972 to permit limitation of fishing when necessary for biological reasons or to prevent economic hardship, it would certainly be utilized to strike down any attempt to displace the bulk of Alaska’s resident fishermen and vest effective control of the fishery in a few private hands.

72. The optimum number of fishermen should be calculated by considering such social costs as the cost of removing fishermen from their sole means of support, and costs expressed by the market price of resources.
the fishery, the first individual excluded from the fishery derived more income from his alternative sources than the fisherman immediately above him on the list derived from his participation in the fishery, and both received an adequate living wage.\textsuperscript{73} But an interim program would be difficult to institute now for several reasons: 1) there is not sufficient knowledge to predict upcoming catch levels in the fishery and thus no way to forecast total income; 2) due to severe overfishing in recent years, there is little reason to believe that even if the number of boats were cut back to a very low level there would be enough income in the next few years to provide an adequate return in several of the fishing regions; and 3) there is no economic data on the alternative income sources of the salmon fishery users.

Thus, as a preliminary step, the number of boats must be immediately reduced to include only the boats of those fishermen who would be unable to support their families without the income they derive from the salmon fishery. This would significantly reduce the present level of overfishing and depletion that was reached while the fishery operated as a totally open-access resource. In the period thereafter, the necessary data on economic and biological effects of various fishing levels could be discovered by appropriate studies. After such studies, fishing levels in each region could be raised or lowered to the interim point described above as long as no dependent fisherman was excluded. The final step would be to determine whether these interim levels were above or below the point at which economic efficiency was maximized when calculated to include the social costs previously discussed. If the fishing levels were above, as they certainly would be for a number of years, natural attrition could be allowed to reduce the levels; if they are below, former, albeit less dependent, users could be permitted to reenter according to their degree of dependence. Once all individuals who had previously utilized the fishery had been given the opportunity to reenter, the fishery could then be reopened to enough new users to achieve the optimum level.

\section*{II}
\textbf{A PROPOSED REGULATORY SOLUTION TO PRESERVE THE ALASKA SALMON FISHERY}

The foregoing sections have indicated the major factors contributing to the worsening economic and biological condition of the Alaska

\textsuperscript{73} Clearly this is an economic and not a biological test. It is known, however, that the cutbacks inherent therein cannot but improve the biological situation in the fishery. Further, a cutoff at this point would prevent windfall profits from being derived from the fishery by creating a balance at the cutoff point between the income that the individual gained in the fishery and what he gained outside.
salmon fishery. This chapter proposes a regulatory solution designed to prevent further deterioration of the fishery while steps are taken to evaluate both the ecology of the fishery and the proper utilization of this valuable state resource. The regulations advocated would achieve this objective by imposing limitations on the entry of fishermen into the industry.

A. Previous Regulation of the Alaska Salmon Fishery

In the period from 1880-1906 federal fish commission researchers began to realize that the salmon resource could be badly depleted in the absence of effective regulation.\(^\text{74}\) In the early years of the commercial salmon fishery Alaska, as a territory, had no control over the regulation of the resource. The lobbyists for the commercial processing interests held the federal policymakers well within their sway. Although Alaskan conservation interests previously won minor concessions,\(^\text{75}\) the White Act of 1924 represented the first significant control of the fishery.\(^\text{76}\)

The White Act was not calculated to solve all the biological problems of the fishery—it was clearly a compromise with the processing interests.\(^\text{77}\) The Act recognized the need for protecting escapement by requiring at least a fifty percent escapement in each stream.\(^\text{78}\) The Secretary of Commerce was given power to fix the time, place and method of salmon fishing with the proviso that “no exclusive or several right of fishery shall be granted therein.”\(^\text{79}\) Thus, the fishery had to be operated as an open resource, although it could be regulated with an eye towards conservation. There can be little dispute that the White Act failed to achieve its conservationist objectives;\(^\text{80}\) the obvious continuing destruction of the commercial resource called for more effective government involvement.\(^\text{81}\)

In 1949 the Territory of Alaska began to assert power over the

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\(^{75}\) R. Cooley, supra note 2, discusses in great detail the politics responsible for the long-term mismanagement of the resource by federal authorities and provides a full description of the prior legislation. Most of the regulations pertained to methods of fishing and allocation of responsibility for the policing of the fishery. However, sufficient funds for effective policing of the coastline were never appropriated.


\(^{77}\) I. Crutchfield & G. Pontecorvo, supra note 7, at 96.

\(^{78}\) Act of June 6, 1924, Pub. L. No. 68-204, § 2, 43 Stat. 464. A fixed level of escapement is not the optimum method as it takes no account of the different requirements of each subspecies—which vary significantly in their viability. See note 31 supra and accompanying text.


\(^{80}\) See, e.g., R. Cooley, supra note 2, at 128-54.

salmon fishery. An effective tax reform program was passed, despite the vehement opposition of outside commercial interests. In the same year the legislature created a Territorial Department of Fisheries for the purpose of eventually assuming full management responsibility from federal authorities. In the mid-1950's, when the disastrous condition of the resource could no longer be ignored, the Fish and Wildlife Service finally attempted to decrease the pressure on the fishery by limiting fishermen to specified regions; but this had no effect on territory-wide fishing levels. When Alaska assumed control of its own natural resources, the state increased its enforcement efforts, but the general methods of conservation remained the same. Neither the income of participating fishermen nor the supply of salmon in the fishery increased. The continuing decline in income of such fishermen and the threat to the salmon resource suggest that limitation of entry into the fishery is essential.

B. A Responsible Program of Gear Limitation

The program suggested below is based on the biological and economic characteristics of the Alaska salmon fishery. It is designed both to preserve a valuable common property resource and to assure those fishermen most dependent on the resource a continuing livelihood. Due to some inaccuracy in available statistics it is impossible to predict the precise number of units that will be excluded by the program. Therefore some minimum flexibility is built into the program to add or remove units from regions where such action will advance the purposes of the program.

82. G. ROGERS, THE FUTURE OF ALASKA 255 (1962). Although some of the provisions were ruled unconstitutional, most of the program was sustained. See text accompanying notes 113-17 infra.

83. Ch. 68, Session Laws of Alaska (1949). This department was to have no effective power until after statehood, a full ten years away.

84. R. COOLEY, supra note 2, at 187.

85. The mainstays of the regulatory system are the emergency "opening" and "closing" powers referred to above, (see text accompanying notes 46-48 supra), permitting the Alaska Dep't of Fish and Game to fix the periods of fishing as the season progresses with reference to seasonal conditions. R. COOLEY, supra note 2, details the resistance of the Fish and Wildlife Service to any attempt "to include the consideration of socially desirable ends" in the conservation program, at 176-79.

86. See text accompanying notes 12-13 supra.

87. Minor alterations can be made as necessary by requiring all applicants to submit copies of their tax returns for the previous five years. If the levels set appear to exclude too many units, they could be formally adjusted downward, and a reverse adjustment could be made if too many units remained.

88. While the entire limitation program could be drawn on a more flexible basis this would not serve the interests of the class the regulations are intended to benefit—the fishermen. In the absence of fixed admission standards, it would be impossible for a fisherman to plan firmly on participation. While flexible standards would permit the exact level of permissible fishing to be reached, the weighing of subjective factors
The Gear Limitation Program

Section 1. The purposes of these regulations are: (a) to reduce fishing levels to a point where the fishery will be safe from continued depletion; (b) to permit those fishermen most dependent on the resource to support themselves and their families; (c) to stabilize a level of participation in the fishery that will, without unjustly enriching those permitted to take part, reduce the fluctuations of catch experienced in recent years.

Section 2. Until all current participants so desiring are re-integrated into the fishery, no gear license shall be issued to any individual not previously holding a salmon gear license; provided that members of the immediate family of one currently holding a license may be so registered upon transfer of the license within the family.\(^{89}\)

Section 3. No gear license shall be issued to cover any gear owned by a corporation, whether or not the license is in the name of the corporation, unless the majority shareholder of that corporation actually operates the licensed unit. Further, no individual shall be allowed to own an interest in more than one salmon gear license. A license may issue to the lessee of a corporation-owned boat or unit of gear who has leased said boat or gear in the previous year, so long as such lessee is free to sell his catch to whoever he desires and is not treated as an employee of the corporation. An individual who held a gear license on a corporation-owned boat in the prior season may retain such license if he utilizes it to operate another unit in a manner otherwise consistent with this Act.\(^{90}\)

Section 4. No unit of gear shall be licensed if the holder of such license or the owner of the gear shall have earned more than
50 percent of his income in each of the previous five years from non-fishing sources; provided that no individual shall be found ineligible for a license under this section whose average non-fishing income for the previous five years was under $10,000 adjusted gross income.91

Section 5. No license issued under this act is transferable except to a member of the present holder's immediate family and after one transfer within the family it too shall become non-transferable.92

Section 6. The Alaska Commercial Fisheries Entry Commission shall be charged with the responsibility of estimating an optimum number of units for participation in each Alaska fishing region. The department shall thereafter assign all presently active units to the various regions using the following criteria:
   (a) Prior history of participation in that region.
   (b) Adaptability of gear to fishing in other regional waters.

Section 7. After initial allocation of units to the various regions, the following criteria will be used in granting interim permits for additional units when a deficiency of units occurs in any region:
   (a) Extent of applicants' past dependence on income derived from the fishery.
   (b) Prior history of participation in that region.
   (c) The Commission may suspend or revoke such interim permits upon a determination that continued participation would commercially or biologically endanger the resource.

Section 8. After initial allocation of units to the various regions, when an excess of units occurs in any region, the Department shall have the power to reassign units to other regions or to limit the participation of units in that region using the following criteria.
   (a) Adaptability of gear to fishing in other regional waters.

91. This section is aimed at reducing the number of part-time nondependent fishermen. As no individual would be excluded unless he had substantial and long term nonfishery income, this classification is again consistent with reserving the fishery in its first years under the program for those most dependent on it.

92. The restriction on transferability has several purposes. It prevents the state from losing control over the issuance of licenses to private persons uninterested in promoting the purposes of this Act. Free transferability would create a cash value for the licenses encouraging an individual about to retire from the fishery or the family of a deceased participant to sell the license rather than allow it to be retired. If there was a commercial market for all licenses, there would be no natural reduction in the number of fishing units since all fishermen would be replaced by the highest bidder for the license. This would preclude any reduction towards the optimum level and would destroy any possible effectiveness of the program.
(b) Extent of license holders' past dependence on income from the salmon fishery.

(c) Prior history of participation in that region.

Any license holder limited, excluded or transferred under this provision shall be entitled either to a return of his license fee or to priority for entry in any region where he would choose to fish if an opening occurs.

Section 9. The gear license fee is increased by $25.00, with this license revenue to be used by the Department of Fish and Game for enforcement of these regulations.

C. The Constitutionality of the Proposed Gear Limitation Program

The classifications in the gear limitation program are designed not only to maximize the economic yield of the fishery, but also to distribute the maximum sustainable income of the fishery among those fishermen who are most dependent on it for their families' support. As indicated above, increased fishing effort over time has had the inevitable effect of causing depletion of the resource. It is submitted that the proposed program is sustainable both as social welfare regulation and as a conservation measure under the police power of the state. Further, the proposed program does not infringe upon rights guaranteed under the United States or Alaska constitutions. The State's power to regulate its inland and coastal fisheries has long been established. After entering Alaska's waters, the salmon never leaves; the inward migration to spawn culminates its life cycle. It has been suggested that the salmon, upon its return to Alaska, belongs to the people of the state. Under that view the state has the power,

93. See text accompanying notes 54-63 supra.
94. In Skiriotes v. Florida, 313 U.S. 69 (1941), the Court held:

    It is also clear that Florida has an interest in the proper maintenance of the sponge fishery and that the statute so far as applied to conduct within the territorial waters of Florida, in the absence of conflicting federal legislation, is within the police power of the State.

Id. at 75. While having the power to preempt the field, Congress has chosen to encourage the states to implement responsible programs of fisheries management and research. See Fish Restoration and Management Act, 16 U.S.C. §§ 777 et seq. (1970).

95. Several older cases suggest that, due to its "ownership" of its natural resources, a state may have more authority to implement conservation legislation which impairs the flow of interstate commerce than it would have in other commercial areas. See, e.g., McCready v. Virginia, 94 U.S. 391 (1877); Geer v. Connecticut, 161 U.S. 519 (1896). The McCready holding of absolute state power over its wildlife was limited in Toomer v. Witsell, 334 U.S. 384 (1948), but still stands for the proposition that a state has a powerful interest in the preservation of its natural resources to be weighed against any countervailing federal interest in relatively unburdened interstate commerce. Maine v. Tumano, — F. Supp. —, 5 ERC 1379 (D. Me. 1973).
as trustee, to regulate the manner in which fish can be taken or to prohibit their taking entirely, if either approach serves the public interest in the resource.

In recent years, the ownership theory of state natural resources regulation has tended to merge with the broader concept of state police power. The weakness of premising such state regulation upon the concept of "ownership" alone was demonstrated by Justice Holmes in Missouri v. Holland, a case involving an alleged state right of ownership over migratory birds. Holmes, for the Court, stated:

No doubt it is true that as between a State and its inhabitants the State may regulate the killing and sale of such birds, but it does not follow that its authority is exclusive of paramount powers. To put the claim of the State upon title is to lean upon a slender reed. Wild birds are not in the possession of anyone; and possession is the beginning of ownership.

As the Supreme Court stated in Toomer v. Witsell, "[t]he whole ownership theory, in fact, is now generally regarded as but a fiction expressive in legal shorthand of the importance to its people that a State have power to preserve and regulate the exploitation of an important resource." Whatever the precise source of state authority to regulate fisheries, it is clear that the power is plenary, subject only to constitutionally imposed limitations. It has been suggested that the state has an affirmative duty to regulate the fishery in such a manner as to preserve and protect it for the common good.

In Alaska, however, the exercise of this state power to regulate fisheries has not always gone smoothly. For example, use of the sal-

96. Lawton v. Steele, 152 U.S. 133 (1894).
98. In the recent case of Askew v. American Waterways Operations Inc., 41 U.S.L.W. 4507, 5 ERC 1209 (U.S. Apr. 18, 1973), the Supreme Court unanimously upheld a Florida statute governing liability for oil spills occurring in the coastal or marginal sea. The Court refused to infer a Congressional intent to preempt this field of legislation. The state police power interest in protection of its ocean resources, the Court concluded, justified tolerating a dual system of regulation of the area.
100. Id. at 434.
mon trap produced an early conservation battle.\textsuperscript{104} By the nature of their construction and placement, fish traps tend to obliterate entire returning schools of salmon and thereby destroy the productivity of upstream spawning beds.\textsuperscript{105} Throughout the territorial period all attempts to outlaw the traps were lobbied to death in Congress by national processing interests\textsuperscript{106} despite overwhelming public sentiment within Alaska for their abolition. At the inception of statehood the legislature immediately passed a statute barring the use of traps in commercial fishing.\textsuperscript{107} Under the Statehood Act\textsuperscript{108} the Secretary of the Interior was charged with the protection of Alaska's natural resources pending the state's assumption of those duties. In his capacity as "trustee" of Alaska's resources, the Secretary banned all fish traps from Alaskan waters, except for those of certain Indian groups. The Secretary's order was deemed a valid exercise of authority under state and federal law in \textit{Ketchikan Packing Co. v. Seaton}.\textsuperscript{109} Later that year the state challenged the exemption conferred on the Indians. In \textit{Metlakatla Indian Community v. Egan}\textsuperscript{110} the Alaska supreme court ruled that Alaska had the power to regulate the fishery by regulating the conduct of all individuals involved in it. The court found the legislation banning fish traps justified both as a conservation and a welfare measure:

Ordinance No. 3 [prohibiting the use of traps] is a welfare measure. Its objects are stated to be the relief of economic distress among fishermen, to conserve the dwindling supply of salmon and insure fair competition in commercial fishing. Alaska had every right to adopt such a policy. \ldots \textsuperscript{111}

The proposed gear limitation program has the same objectives and would rest on the same power as that used to ban traps. However, three constitutional arguments can be raised against this type of exercise of state regulatory power.

\begin{itemize}
  \item \textsuperscript{104} See generally R. \textit{Cooley}, \textit{supra} note 2, for the history of fish trap regulation in Alaska.
  \item \textsuperscript{105} See generally \textit{Metlakatla Indian Community Annette Island Reserve v. Egan}, 362 P.2d 901, 903 (Alas. 1961), for discussion of the construction and effect of fish traps.
  \item \textsuperscript{106} See, e.g., A. \textit{Greuning}, \textit{The State of Alaska} 169, 395 (1954). The book details the power of out-of-state processing interests to control Congressional legislation relating to the governance of the territory of Alaska.
  \item \textsuperscript{107} \textit{Alaska Stat.} §§ 16.10.060-16.10.070 (1962).
  \item \textsuperscript{109} 267 F.2d 660 (D.C. Cir. 1959).
  \item \textsuperscript{110} 362 P.2d 901 (Alas. 1961), \textit{vacated}, 369 U.S. 45 (1962). In a letter to the Secretary of the Interior, Governor Egan claimed that it was Alaska's sovereign right to regulate the fisheries. Thereafter Indians engaged in the building of fish traps were arrested. \textit{Id.} at 906-08.
  \item \textsuperscript{111} \textit{Id.} at 915.
\end{itemize}
1. The Commerce Clause

Undoubtedly, the proposed gear limitation program will have an effect on interstate commerce. The flow of fishermen into the Alaskan salmon fishery, in itself interstate commerce, will be regulated. Although Congress has not enacted supervening or conflicting legislation on this subject, it could be asked whether Alaska has the power to enact such legislation affecting or regulating interstate commerce. To answer this we must look to the numerous cases that attempt to define the parameters of state power in this area.

In Brown v. Anderson, the first attempt by the state of Alaska to limit fishing on a differential basis was challenged by nonresident fishermen as being unconstitutionally discriminatory. While the case held that the discrimination against nonresident fishermen violated the privileges and immunities clause of article IV and the fourteenth amendment, the Court also indicated that the statute violated the commerce clause. That decision, while not well reasoned, draws some support from the prior case of Anderson v. Mullaney which held that since nonresident fishermen move in "inter-state commerce," a greater tax upon them would have a "discriminatory impact upon some aspect of interstate commerce." The decision in Anderson v. Mullaney was affirmed in the Supreme Court on privileges and immunities grounds without reference to the commerce clause argument. But

112. Anderson v. Mullaney, 191 F.2d 123 (9th Cir. 1951).
114. Ch. 62, Session Laws of Alaska (1961). The bill attempted to limit the catch of non-residents during inadequate salmon runs on the grounds of destitution of Alaskan fishermen. The non-residents were banned during designated emergency periods.
116. Id. at 100-02.
117. The provisions of Chapter 62 . . . place a burden on the movement in interstate commerce of the non-resident fishermen, who must of necessity be transported annually . . . We hold that Chapter 62, SLA 1961 violates Article I, Section 8, Clause 3 of the Constitution.
118. 191 F.2d 123 (9th Cir. 1951), aff'd on other grounds, 342 U.S. 415 (1951).
119. Id. at 129.
120. 342 U.S. at 417-20. The Court's hesitancy to use the commerce clause in a case where a statute discriminates on its face against individuals engaged in interstate commerce may arise from the difficulty the Court has had in formulating a consistent commerce clause doctrine and its desire to use the more easily applied test for a violation of the privileges and immunities clause of article IV.

Under the Court's analysis of the commerce clause, once a statute is found to discriminate against interstate commerce, the inquiry is not over. If the state has some interest greater than local economic protectionism, the court must consider whether the state had "reasonable and adequate alternatives" which would achieve the legitimate purpose without imposing the discriminatory burden on interstate commerce. Dean Milk v. City of Madison, 340 U.S. 349 (1951). The Court in Dean Milk suggested that some state regulations based upon a legitimate interest would be upheld despite their discrimination against interstate commerce.
even the circuit court of appeals in *Anderson v. Mullaney* recognized that only undue or discriminatory burdens on interstate commerce were forbidden in the absence of federal legislation.\(^{121}\)

The Supreme Court has upheld taxes which seemingly discriminate heavily against interstate commerce.\(^{122}\) *Alaska v. Arctic Maid*\(^{123}\) considered a challenge to an Alaska raw fish tax law which charged one percent for shore-based freezing units utilized in the commercial salmon fishery while levying a four percent tax against freezer ships and floating cold storage facilities.\(^{124}\) The Ninth Circuit Court of Appeals, relying on *Anderson v. Mullaney*, found the tax discriminatory against interstate commerce.\(^{125}\) The Supreme Court reversed, holding that Alaska was merely taxing a local incident of interstate commerce and that the tax was "not so 'palpably disproportionate' . . . as to run afoul of the Commerce Clause."\(^{126}\) This result was consistent with the decision in *Toomer v. Witsell*\(^{127}\) upholding a statute taxing the shrimp catch taken in South Carolina. In *Toomer* the Court stated that the South Carolina statute "does not discriminate against interstate commerce in shrimp, and the taxable event, the taking of shrimp, occurs before the shrimp can be said to have entered the flow of interstate commerce."\(^{128}\)

The states can impose some burdens on interstate commerce, at least to the extent that they are not "palpably disproportionate" to the burdens imposed on purely intrastate activities. The statutes before the courts in both *Brown v. Anderson* and *Anderson v. Mullaney* discriminated on their face against nonresident fishermen, a situation much more suited to consideration under the article IV privileges and immunities clause, than under the commerce clause. The statutes in both cases were so clearly invalid under the privileges and immunities clause that it should have been unnecessary to look to the commerce clause and its more subtle weighing of discriminations. This position is consistent with that of the Supreme Court in *Toomer v. Witsell*, where no commerce clause violation was found despite the fact that the burden on interstate commerce resulting from the variation between resident and nonresident fishermen's licensing fees was almost identical to those in *Anderson v. Mullaney*.\(^{129}\)

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121. 191 F.2d at 130.
124. ALASKA STAT. § 43.75.060 (1962).
125. 277 F.2d 120, 128 (9th Cir. 1960).
126. 366 U.S. at 205.
128. Id. at 394-95.
129. Id. at 394.
The view that the commerce clause does not undermine state regulatory power over its natural resources is reinforced by the Supreme Court’s decision in *Cities Service Gas Co. v. Peerless Oil and Gas Co.* which held that a state could fix a minimum wellhead price on the removal of natural gas in order to prevent economic and physical waste of its natural resources. The Court also stated that the legislation was not rendered suspect by the fact that a certain group of private producers derives substantial gain from the regulation. This decision gives significant support to the recent Alaska case of *Glenovich v. Noerenberg* which sustained a state statute designed to limit the overall catch by banning a type of gear common to out-of-state boats. The court noted that while the legislation might burden fishing boats moving in interstate commerce, this fact alone was not dispositive:

In the fishermen vs. management of fisheries field the authorities hold fast in holding the interests of the state in the management of its fisheries is [sic] of paramount significance and that the invasion into the realm of the commerce clause, if slight, is outweighed by the local benefits which the legislation is designed to achieve. The Court observed that the legislation did not discriminate on its face, but applied “whether the owners are nonresidents or residents of the State of Alaska and without regard to citizenship. . . .” The *Glenovich* opinion may stand for the proposition that legislation for the purpose of fishery conservation, so long as it is non-discriminatory on its face, does not violate the commerce clause unless it imposes a burden on interstate commerce disproportionate to the legitimate state interest served.

While it is true that the proposed gear limitation program does place some burden on interstate commerce, the burden is not so “palpably disproportionate” as to invalidate the plan under the commerce clause. There is no doubt that Congress could regulate the interstate commerce aspects of the Alaska salmon fishery. But in the absence of such legislation, the proposed gear limitation program would certainly be found valid if challenged on commerce clause grounds.

2. *The Privileges and Immunities Clause*

The proposed gear limitation program is not framed in terms of “resident”—“nonresident” or “citizen”—“noncitizen.” On its face and

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131. Id. at 187.
133. Id. at 1293, 4 ERC at 1777.
134. Id.
in operation, the program is not oriented towards local economic interests in the allocation of commercial licenses for participation in the Alaska salmon fishery. Those nonresidents who are and have been dependent on the resource for their livelihood may receive licenses—in preference to those residents who are not so dependent. The test is truly neutral and thus differs from past Alaskan gear limitation programs that discriminated against nonresidents. Although no statistics are available, it is likely that proportionately more nonresidents than residents initially would be excluded under this program. Even if nonresidents may bear a greater burden of the reduction, this alone does not undermine the program’s constitutionality. As the Supreme Court stated in *Toomer v. Witsell*:

> Like many other constitutional provisions, the privileges and immunities clause is not an absolute. It does bar discrimination against citizens of other States where there is no substantial reason for the discrimination beyond the mere fact that they are citizens of other States. But it does not preclude disparity of treatment in the many situations where there are perfectly valid independent reasons for it. Thus the inquiry in each case must be concerned with whether such reasons do exist and whether the degree of discrimination bears a close relation to them.

The gear limitation program meets this test; the purpose of the regulations is to conserve the fishery from over-exploitation, by allocating licenses to those who are most dependent on the fishery as a commercial resource. As defined under this program, individual fishermen who have outside incomes adequate for the support of their families are to be barred from the fishery because they are not sufficiently dependent on it for their livelihood. In economic terms their continued participation would constitute misallocation of the scarce resource. If a nonresident fisherman is excluded by the program, he is excluded solely because he is not sufficiently dependent on the fishery for his support. The neutral nature of the classifications proposed in the limitation program is calculated to provide access to those whose need is greatest. Hardships imposed on individual excluded fishermen should not be dispositive of the program’s validity. As noted in *Mirkovich v. Milnor* a law having a reasonable relation to such [state policy] and its accomplish-

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137. 334 U.S. at 396. Such was certainly the result of the statute challenged in Glenovich v. Noerenberg, 346 F. Supp. 1286, 4 ERC 1772 (D. Alas. 1972), but there the court noted that it was merely a matter of choice whether the fishermen wanted to accept the burden of refitting his vessel to fish in another state. *Id.* at 1293, 4 ERC at 1777.

138. 34 F. Supp. 409 (N.D. Cal. 1940).
ment, and which is not unduly oppressive upon individuals must be upheld as a legitimate exercise of the state's police power without inquiry into the possible soundness of legislative judgment in the premises, and *without consideration for possible individual hardships*.\(^{139}\)

In many Alaskan villages there is no alternative source of employment outside the fishery; in a program that considers fishery dependence in determining whether one will receive the privilege of fishing, residents of such villages may have an advantage. That advantage is not derived from their Alaskan citizenship, but rather from the close relation to the resource inherent in the individual's life style. A regulatory scheme that protects the interest of these persons along with the interests of any nonresidents who have also traditionally utilized the resource as a basic source of income does not have a discriminatory purpose. No fisherman would be treated differently if he were to move his residence to or from Alaska. Furthermore, no case has ever held that a violation of the privileges and immunities clause could be found in legislation which was not directed at creating a special privilege for residents of the state.\(^{140}\)

139. *Id.* at 411 (emphasis supplied).

140. Mullaney *v.* Anderson, 342 U.S. 415 (1952); Toomer *v.* Witsell, 334 U.S. 385 (1948); Anderson *v.* Mullaney, 191 F.2d 123 (9th Cir. 1951); Brown *v.* Anderson, 202 F. Supp. 96 (D. Alas. 1960); Edwards *v.* Leaver, 102 F. Supp. 698 (D. R.I. 1952); Russo *v.* Reed, 93 F. Supp. 554 (D. Me. 1950). In all these cases the statutes discriminated on their face against nonresidents.

It is possible that the right to travel may be employed to protect the right of nonresident fishermen to fish for salmon in Alaska. While the "right to travel" was early thought to abide in the privileges and immunities of article IV, (see, e.g., Corfield *v.* Corvell, 6 F. Cas. 546, 552 (No. 3230) (C.C.E.D. Pa. 1823); Paul *v.* Virginia, 8 Wall. 168, 180 (1869); Ward *v.* Maryland, 12 Wall. 418, 430 (1871)), and was later assumed to rest on the privileges and immunities clause of the fourteenth amendment (see, e.g., Edwards *v.* California, 314 U.S. 160, 181, 183-85 (1941) (Douglas and Jackson, J.J., concurring)), more recent cases have suggested that it is a fundamental right firmly established by the Constitution even if not explicitly mentioned therein (see, e.g., Shapiro *v.* Thompson, 394 U.S. 618, 630-31 (1969); Dunn *v.* Blumstein, 405 U.S. 330, 338-42 (1972)).

The essence of a violation of the right to travel must be some discrimination or burden upon the exercise of that right. Thus, durational residence laws which would deny benefits to individuals for having chosen to move to a new state are invalid in the absence of a compelling state interest. On the other hand, if the individual's treatment under a statute is no different whether he elects to travel or not, the right to travel is not infringed and the compelling state interest test is not applied. To hold otherwise would be to contend, for instance, that a state could not constitutionally impose taxes at a higher rate than a sister state, as that might chill the exercise of the right to travel. The right to travel is not infringed by laws which apply even-handedly to residents and nonresidents alike. As the Supreme Court wrote in Toomer *v.* Witsell, "It [the privilege and immunities clause] was designed to insure to a citizen of State A who ventures into State B the same privileges which the citizens of State B enjoy." 334 U.S. at 395. Since the proposed gear limitation regulations do not discriminate on the basis of residency, a right to travel claim will not prevail.
3. The Equal Protection Clause

The strongest claim against the gear limitation program is that its classifications are arbitrary and unreasonable as to both residents and nonresidents and therefore violative of the equal protection clause of the fourteenth amendment.

In *State ex rel. Bacich v. Huse*,' a state statute predicating the issuance of commercial salmon gill net licenses on participation in the fishery in prior years was invalidated under the equal protection clause and the state constitution as being “unreasonable” and “wholly arbitrary and capricious.” The case was cited with approval in *Bozanich v. Noerenberg* which struck down a 1968 attempt to enact a gear limitation program. The statute challenged in *Bozanich v. Noerenberg* required that in order to qualify for a salmon net gear license in any Alaska fishing region, one either had to have been previously licensed to operate such gear there or had to have fished the region for three years with a commercial fishing license as a crew member. The court found that the statute created an exclusive right of fishery in violation of article VIII, section 15 of the Alaska constitution. The statute was also held violative of the Alaska constitution’s “common use” and equal protection clauses.

The legislation had been previously invalidated by a three-judge district court in *Bozanich v. Reetz* but that decision was vacated by the Supreme Court as being in violation of the abstention doctrine. The district court in *Bozanich v. Reetz* attempted to deal with the constitutional issues arising under the equal protection clause. The court held, *inter alia*, that the statutory scheme was an arbitrary and irrational way to achieve the goal of conservation. Relying on *Morey v. Doud* for the suggestion that unusual classifications may be invidious, the court stated:

142. *Id.* at 81, 59 P.2d at 1104. It should be remembered that this decision was written in 1936 during the period when “substantive due process arguments still prevailed.
145. Article VIII, sec. 3 provides: Common Use. Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for common use.
146. Article I, sec. 1.
149. 297 F. Supp. at 305.
150. 354 U.S. 457 (1957). The case arguably can be considered an aberration since it is the only decision since 1937 in which a state commercial regulatory scheme was struck down for lacking a rational basis. See text accompanying notes 155-61 infra.
We can reasonably conceive of no hypothetical state of facts which would justify discrimination in favor of salmon fishers who happened to have held commercial licenses in three years since 1960 or gear licenses in a year since 1962.\(^{151}\)

The *Bozanich* conclusion that gear licenses cannot be frozen in the hands of those who presently have them is not compelled by the equal protection clause. That clause protects individuals from arbitrary and unreasonable classifications. Most classifications, even those that may disadvantage certain individuals or groups can withstand judicial scrutiny of equal protection challenges. In 1947 the Supreme Court in *Kotch v. Bd. of River Pilot Comm'rs*\(^{152}\) upheld a licensing system that in practice admitted only friends or relatives of currently licensed ship pilots. The Court viewed the practice as reasonable in light of the special knowledge of the harbor and rivers acquired by individuals raised in pilot towns. The Court seemed willing to accept any reasonable legislative purpose supporting the restriction,\(^{153}\) even though the licensing scheme favored strictly local interests and precluded outsiders from participation. While noting that discriminatory classifications "wholly irrelevant to achievement of the regulation's objectives"\(^{154}\) might offend the equal protection clause, the Court held that discriminations rationally related to a valid legislative purpose will be sustained.

In the area of economic regulation, the proper scope of review under the equal protection clause requires that the states have great leeway in the construction of systems of classification; with the exception of *Morey v. Doud*,\(^{155}\) this rule has been uniformly applied since the *Kotch* decision. Brief examination of two major cases reveals that when a court evaluates a legislative program alleged to violate the equal protection clause it must ascertain whether any reasonable legislative purpose is advanced by the program.

In *Goesaert v. Cleary*,\(^{156}\) the Court refused to invalidate a Michigan statute banning women from bartending jobs, reasoning that the purpose of the legislation could have been to protect women from the

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151. 297 F. Supp. at 305. The court focused on the fact that a fisherman without a license could not get one until he had been employed for three years by a license-holder, and found this to be an irrational vesting of power in private interests. The broader suggestion inherent in the court's opinion is that licenses could not be frozen in the hands of those presently possessing them.


153. The Court remarked: "In these communities young men have an opportunity to acquire special knowledge of the weather and water hazards of the locality and seem to grow up with ambitions to become pilots in the traditions of their fathers, relatives, and neighbors." *Id.* at 559.

154. *Id.* at 556.


156. 335 U.S. 464 (1948).
social evils that might result from their employment in bars. The presupposition of constitutionality was used to preclude an inquiry into the actual purposes of the legislation, reaffirming the view that economic regulations must be upheld so long as any demonstrable relation between its purpose and the contested classification exists. Rarely will a court attempt to restrict the legislature by narrowly construing the purpose of specific regulatory legislation. In the recent case of Richardson v. Belcher, involving a challenge to a federal statute withdrawing certain Social Security benefits from individuals receiving workmen's compensation, the Supreme Court again considered the scope of review under the equal protection clause. In holding the discrimination to be supported by a "rational basis," the Court observed:

We agree that a statutory discrimination between two like classes cannot be rationalized by assigning them different labels, but neither can two unlike classes be made indistinguishable by attaching to them a common label.

The proposed gear limitation program can withstand this standard of review. The program has two basic purposes: first, to halt the current depletion of the Alaska commercial salmon fishery by decreasing the level of fishing, and, second, to grant the fishermen most dependent on the fishery for the necessities of life the opportunity to continue their trade as long as such conduct is not destructive of the fishery. Fishery-dependent individuals are a class which can be separately identified from other users of the resource. In furtherance of its fishery management program, Alaska may pass regulations that will reduce the level of fishing pressure on the resource. Likewise, the state may ex-

157. Id. at 467-68. See F.S. Royster Guano Co. v. Virginia, 253 U.S. 412 (1920). In McLaughlin v. Florida, 379 U.S. 184 (1964), the Court stated that "courts must reach and determine the question whether the classifications drawn in a statute are reasonable in light of its purpose. . . ." Id. at 191.
159. 404 U.S. 78 (1971).
160. While the fourteenth amendment equal protection clause does not apply to federal legislation, discriminations by the federal government that would be violative of that clause if committed by a state may be prohibited by the due process clause of the fifth amendment. Bolling v. Sharpe, 347 U.S. 497 (1954).
161. 404 U.S. at 83. In Railway Express Agency, Inc. v. New York, 336 U.S. 106 (1949), a statute with the ostensible purpose of furthering traffic safety banned all vehicular advertising except advertising for a company's own products on its own trucks. Although it was contended that the distinction was irrational in view of the legislation's purpose, the Court held that the legislature could have perceived a greater danger from paid advertising. The opinion made clear that such classifications must be upheld unless palpably arbitrary. See also Von Stauffenberg v. District Unemployment Compensation Bd., 459 F.2d 1128 (D.C. Cir. 1972) (legislative system excluding certain employees from unemployment insurance scheme upheld on finding of a reasonable basis for the exclusion); Developments in the Law—Equal Protection, 82 HARV. L. REV. 1067, 1167-69 (1969).
exercise the long recognized power to distribute benefits in accordance with need and thus prefer fishery-dependent individuals.

CONCLUSION

Any new regulatory program threatening long-established commercial traditions regarding a common property resource is bound to provoke judicial disputes. However, the present depleted condition of the Alaska salmon fishery requires forceful action to preserve it as a viable commercial resource. The many residents and nonresidents who are truly dependent on fishing for their livelihood can properly be given preference in the division of the fishery's benefits. The reduction of gear advocated in the proposed legislation is perhaps the only method that can guarantee the existence of a salmon fishery for future generations. Considering all of these factors, as any reviewing court must, the program should withstand all constitutional attacks.

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