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ECONOMIC AND LEGAL ASPECTS OF JAPANESE FISHERIES REGULATION AND CONTROL

SALVATORE COMITINI*

INTRODUCTION

Japan is unique among the so-called free-market economies in that over 85 percent of all fishing operations is regulated and controlled by law.¹ This distinguishing characteristic of Japanese fishing operations has led some observers to infer that it may be the most significant factor in the seemingly "comparative advantage" which Japan enjoys over Western nations in high seas fishing. However, the regulations, as they have developed, are not as rigidly imposed and inflexible as those under a centrally planned economy such as that of the Soviet Union. Nor are the regulations quite as limited—in the economic sense of that term—as in Western nations such as Canada and the United States which impose practically no limits on entry of economic resources into the fisheries. Rather, the regulations are more a blend of these extremes. That is, although subject to close state supervision and controls, private enterprise is the prevailing form of economic organization throughout all sectors of the Japanese fishing industry and, through trade association and union pressure, can influence the nature of the control mechanism and fishery policy in general.²

From factual reports and general knowledge it is clear that both Japan and the Soviet Union are rapidly building up extensive and modern deep-sea fleets capable of fishing all over the world and even on grounds close to foreign nations. The United States and Canada, on the other hand, are still focusing the major part of their effort on the coastal fisheries.³ What are the factors responsible for this

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¹ FISHERIES AGENCY, MINISTRY OF AGRICULTURE AND FORESTRY, *GYOYŌNI KANSURU KIHONTEKI SEIDO NO GENKYŌ* (Present condition of the basic regime of fisheries) 2 (1958).

² For a comprehensive treatment of the development of Japanese fisheries regulations see Comitini, *A Sectoral Study of the Economic Development of Japanese Fisheries Exploitation* (1960) (doctoral dissertation in University of Washington library).

³ F. CHRISTY & A. SCOTT, *THE COMMON WEALTH IN OCEAN FISHERIES: SOME PROBLEMS OF GROWTH AND ECONOMIC ALLOCATION* (1965); BUREAU OF COMMERCIAL FISHERIES, U.S. DEP'T OF INTERIOR, *1963 REPORT OF THE BUREAU OF COMMERCIAL FISHERIES* (1965).

trend of events? In the case of the Soviet Union the motivation seems to stem primarily from recent calculations which tend to show that animal protein procured from the marine fisheries can be provided more cheaply to the economy than an equivalent amount can be obtained from livestock husbandry.⁴ In the case of Japan, given her high population/land ratio, it is obviously cheaper to exploit the rich marine resources to secure animal protein for her masses than to attempt to produce meat products on her relatively scarce land resources. Fish consumption in Japan accounts for almost three-fourths of the total intake of animal products, practically all supplied from domestic landings, and per capita consumption has increased more than 30 percent since prewar years. This is quite unique among the nations of the world—and reflects both taste preferences among the Japanese for fish and the conscious strategy of the central authorities to regularly reallocate economic resources from crowded coastal waters to the offshore and the high seas in preference to importing animal protein products.

The pattern of the Japanese demand for fish is also unique in its high diversification in contrast to the more specialized demand of North American and West European nations. For example, the most important single species—the jack mackerel—accounts for only 8 percent of Japanese landings whereas over a third of the catches of Norway, the United Kingdom, and the United States are dominated by a single species.⁵ The significance of this is that Japanese fisheries management has tended to focus more on optimizing the aggregate fisheries haul and stabilizing economic conditions within each operational sector of the industry than on optimizing the sustainable yield of particular stocks of fish, which is the apparent objective of the management policies of Western nations.

Of the distant-waters fish catch, Japanese fishermen take over half from the North Pacific Ocean and slightly more than 20 percent from the South Pacific Ocean. Almost three-fourths of the high seas catch, therefore, is taken from the fishery resources of the Pacific Ocean.⁶ The stability of these operations is being threatened from essentially two different directions. On one flank is the relatively recent intrusion of fishing vessels of the Soviet Union, South Korea, and Taiwan into

⁴ Mikhailov, *On the Comparative Efficiency of Production of Some Products of the Land and Sea*, 2(3) OKEANOLOGIJA 385 (1962).

⁵ CHRISTY & SCOTT, *supra* note 3, at 109.

⁶ MINISTRY OF AGRICULTURE AND FORESTRY, 1964 FISHERIES STATISTICS OF JAPAN (1966).

waters traditionally developed and exploited by Japanese fishermen, e.g., high seas salmon, tuna, and the trawl fisheries. On the other flank, meanwhile, Japanese high seas fishing is caught in the crossfire of increasing numbers of coastal nations who are unilaterally extending fishing limits; presently, those adhering to the old 3-mile territorial limit—e.g. Japan—are clearly in the minority. As a result of these events, traditional Japanese thinking on the freedom of the seas is undergoing serious reconsideration. This is apparent from official interest being shown toward catch quota regulations on the high seas and international agreements recognizing wider territorial rights of coastal nations. In view of these postwar occurrences there is some concern in Japan that traditional regulation of the fisheries will prove inadequate to meet the changed conditions. The purpose of this paper is: (1) to study the legal foundations and policies of the present system and demonstrate how it has molded the fishery and how it has, in turn, been molded by the fishery; and (2) to question whether the present system can continue to allocate resources effectively in the light of the aforementioned events and suggest possible alternatives which might better allocate the economic resources of Japan.

I. THE FISHERIES CONTROL SYSTEM

It is generally felt by those who have studied Japanese fisheries management that the decision of the new Meiji regime in 1868 to retain the feudal fishery right system strongly influenced the course of development of the Japanese fishing industry from that time onward.⁷ Historically speaking, the Japanese fisheries have been the most extensively regulated, by both custom and law, in the world. The basic legal regulation is composed of two primary parts: the fishery right system and the licensing system—the former applying to coastal fishing and the latter to deep-sea fishing. This scheme of fisheries management is a curious combination of both common and private fishing rights.

A. *The Fishery Right System*

The fishery right system, descending from feudal days, assigned operational control of the coastal fisheries to village bosses (*oyakata*) who as the boat and net owners (*junamoto* and *amimoto*) constituted

⁷ See Kasahara, *Japanese Fisheries and Fishery Regulations*, in CALIFORNIA AND THE WORLD OCEAN 58 (1964); KONDO, *GYOGYŌ KEIZAI GAIRON* (A survey of the economics of the fishing industry) 1-5 (1959); Comitini, *supra* note 2, at 124-34.

the employing class within the fishing villages. The Meiji Government, in a move designed to enlist support for the new regime, extended legal status to the traditional community fishery right system by enacting the Fishery Union Regulation of 1886. Under this act, the adjacent coastal waters were regarded as the "real property" of the village fishing associations, and all households were required to join the cooperative in order to have fishing privileges. Actually, such cooperative societies, dominated by the *oyakata*, existed in virtually all fishing communities purely as a matter of economic organization. The practical effect, then, was to legalize the de facto feudalistic institutions which customarily prevailed in the fishing communities.

The Fishery Law of 1901 was enacted for the chief purpose of systematizing the legal meaning of fishing rights throughout Japan; it thus forms the legal basis of the modern fishery right system. The law, in effect, clearly distinguished between "common" rights and "private" rights in the coastal waters. The former were the exclusive rights granted to the fishery cooperative allowing member households to fish in community "right" waters on an equal basis. The latter applied to specific undertakings within the coastal waters—namely, the fixed-net, drag-net, beach-seine, and aquicultural operations—limiting utilization of a specific area, or a specific season of the year, to private operators engaged in these enterprises.

Even though the fishermen's association was the legal owner of the fishing right, it could not itself (*i.e.*, *qua* association) engage in fishing operations. Its importance lay primarily in its control over the fishermen. Thus, even though the fishermen fished independently, they were subject to regulations laid down by the association. The section of the law prohibiting the association from directly operating the fishing rights ensured that the large-scale fixed-net rights remained in the hands of the "customary" users. These private-right fisheries, preempting the best fishing grounds, were several times more productive than the common-right fisheries.⁸

As a result of the chaotic situation in the coastal and offshore fisheries in the post-World War II period, the central government, with the assistance of the SCAP Authority, sought to reform the traditional institutions in an attempt to increase output in these areas.

⁸ CIVIL INFORMATION AND EDUCATION SECTION, GENERAL HEADQUARTERS SUPREME COMMANDER FOR THE ALLIED POWERS (hereinafter cited as SCAP), SOME ASPECTS OF THE FISHERY RIGHT SYSTEM IN SELECTED JAPANESE FISHING COMMUNITIES 16-17 (1948).

A new fishing code was consequently enacted in 1949.⁹ The new Fisheries Law reorganized the whole regulation system except that no significant reforms were made in the prefectural permission system. The government provided financial assistance to fishermen's associations for vessel building and repair, ports, and market improvements. Under the old law, licenses were given to those who previously held fishing rights thus extending legal protection and maintaining the status quo of feudal Japan. Under the new law, fishing rights were to be issued by prefectural governors, with the assistance of district arbitration committees, according to eligibility and in conformity with the aggregate fishery development plan. One of the most significant changes in the law was prohibiting the transfer or leasing of fishing rights. Previously, associations frequently leased their fishing rights to the person paying the highest rent. This was thought to have led to excessive concentration of control over fishing rights. Thus the new fishing code reflected an attempt to "democratize" the institutional structure of Japanese coastal fishing.

In systematizing the fishery right system, the law subclassifies fishing rights into three types:

1. *Common right.* This right corresponds to the former "exclusive right" and is granted on a first-priority basis to fishermen's associations and then to municipalities. Unless specified, no exclusive right on an individual basis can be claimed. Although not too substantial in relation to total catch, almost all near-shore fishing operations are dependent upon these rights and are therefore of major concern to small-scale fishermen.

2. *Fixed-net right.* This right grants an exclusive right to an individual or cooperative for fixed-net fishing within the common right area. Since these operations must correspond to the specific definition under the law, they must be licensed by the prefectural governor. The reason for this stricter regulation than for common rights is that, under the new code, fixed-net rights are required to be balanced against other fishing operations in the aggregate fishery development plan. The law provides for district arbitration committees, whose members are elected by the fishermen of the respective districts, to advise the prefectural governors on planning of fishing areas, issuance of licenses, and implementation of administrative codes. In most cases, however, the granting of fixed-net rights has been on a seniority basis

⁹ FISHERIES AGENCY, MINISTRY OF AGRICULTURE AND FORESTRY, THE FISHERIES LAW (1949).

so that the traditional holders of these rights have been able to retain exclusive control.

3. *Demarcated right.* Under the new law this right retains its customary meaning as a right to engage in shallow sea culture. Since this also requires an exclusive right to operate in a common right area it is as rigidly controlled as are fixed-net rights.

B. The Licensing System

All types of fishing are regulated by the Fisheries Law and the Marine Resources Conservation Law.¹⁰ Under these two laws, regulations may be issued for purposes of conservation and controlling wasteful competition or as a means of aggregate planning. The new law is much more positive in its provisions for controlling the fishery resources than the old law which was mainly negative in its approach. An important reason for this change stems from the international restrictions and regulations imposed upon Japanese fishery expansion following World War II.

The administrative method of balancing the existing aquatic resources with the existing catch capacity utilizes the licensing system. Licenses, or permits, for operating in certain types of fisheries are granted by either the Ministry of Agriculture and Forestry or by the prefectural governors depending upon the nature of the fishery. Under the Fisheries Law, the designated high seas fisheries require permission from the Ministry while the small and medium dragnetters, operating in coastal and offshore waters, are required to obtain prefectural permission. Legally, the prefectures are precluded from having any jurisdiction over the fisheries. Generally, however, the Fisheries Agency, which is responsible for implementing the law, delegates the responsibility for matters of local interest to the prefectural governors according to tradition and convenience. The governor then, acting as a national officer, can issue regulations having the effect of national regulations.¹¹ Administrative codes relating to areas, seasons, gear, etc., can be promulgated by the respective authorities to prevent conflicts among fishermen and to maintain maximum utilization of the resources. Under the Marine Resources Conservation Law,

¹⁰ FISHERIES AGENCY, MINISTRY OF AGRICULTURE AND FORESTRY, *GYOGYŌ NI KANSURU KIHINTEKI SEIDO NO GENKYŌ* (Present condition of the basic regime of fisheries) 30-53 (1958).

¹¹ Cf. R. CROKER, *JAPANESE FISHERIES ADMINISTRATION 5* (SCAP, Natural Resources Section, Mar., 1951); *ECONOMICS BRANCH, FISHERIES DIVISION, UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION, ORGANIZATION OF FISHERIES ADMINISTRATION IN SELECTED COUNTRIES 49* (1964).

the authorities can issue regulations almost at will in order to protect the resources. Usually, however, the authorities consider the fishermen's position in such matters.

It is important to recognize that implementation and enforcement of the regulations have as their main objective the reconciliation of offshore and inshore fishing interests. The evolution of restrictions was such that a strip along the outer fringe of the fishery right area was closed to medium trawlers in order to safeguard the small trawler operations, then certain offshore grounds were open only to medium trawlers and off-limits to large trawlers, so that the larger boats were steadily pushed out to the more distant grounds. This form of "fishery husbandry" focused not on economic efficiency nor on rational management of fishery resources but rather on securing the survival of the smaller-scale, labor-intensive coastal and offshore operations.¹²

Between the prewar and postwar periods the percentage of the total catch from fishery right fishing substantially declined while that from license fishing surged far ahead. It is estimated that the prewar output from fishery right fishing was 65 percent of the total catch and that from license fishing about 30 percent.¹³ Currently these proportions are approximately reversed, reflecting the steadily increasing importance of the offshore and high seas fisheries. In view of this occurrence, many observers have questioned whether the Fisheries Law, which stresses fishery right rather than license fishing, is appropriate to cope with these latest developments.

A recent official report¹⁴ noted that if Japanese fisheries exploitation is divided up between less than and more than 10 miles from shore, within the 10-mile zone (and especially within 3 miles of the coast) the prefectural governors' authority overwhelmingly predominates. As the distance away from the coast increases, the Ministry's authority increases proportionately. Within each division, however, the different authorities (thus regulations) tend to overlap causing serious conflicts within the regulatory system. Since the prefectural authorities are largely involved in all three divisions, their partiality to local interests often clashes with the general aims of the national administration. This suggests a lack of coordination within the Japanese fisheries

¹² See Comitini, *Marine Resources Exploration and Management in the Economic Development of Japan*, in ECONOMIC DEVELOPMENT AND CULTURAL CHANGE (1966).

¹³ FISHERIES AGENCY, MINISTRY OF AGRICULTURE AND FORESTRY, *Gyogyō ni Kansuru Kihonteki Seido no Genkyō* (Present condition of the basic regime of fisheries) 3 (1958).

¹⁴ *Id.* at 9.

control system in the sense that the Ministry has no *direct* influence on nearshore operations. This conflict was clearly exemplified in the prewar period when as the Ministry restricted both the number and area of operations of the otter trawlers in the East China Sea fishery, the prefectural authorities allowed the bull and medium trawlers to quickly take up the slack thus leading to the overcapacity which the Ministry was attempting to prevent.¹⁵

The licensing system was applied to different fisheries at different time intervals. In many cases a license limiting entry into a fishery was required only after overexploitation and excessive competition became apparent. The simplest solution was to divert part of the fleet to other fisheries or regions which were relatively underdeveloped, *e.g.*, the North Pacific Ocean. When it is considered necessary to curtail excessive inputs, usually the first step is to place restrictions on fishing grounds according to size of boats. For example, trawlers larger than 50 tons must operate west of longitude 130° E. in the East China Sea while trawlers less than 50 tons must operate east of this line.¹⁶ The next step is to allocate inputs by types of boats and tonnage of individual vessels. For example, licensed trawlers in adjacent waters are subject to stringent restrictions on fishing equipment, method of fishing, and horsepower of engines. Also, tonnage restrictions curb their efficiency and radius of operations. In contrast, no (or only relatively mild) restrictions are placed on these characteristics for trawlers operating in offshore and high seas waters while a higher minimum boat size is stipulated.¹⁷

In awarding licenses, the law gives priority to applicants who have fishing experience and sufficient capital to engage in fishing operations. In order to stabilize fishing effort on the traditional grounds, licenses for new vessels require scrapping or converting an equivalent tonnage. This requirement may be waived in cases where a vessel agrees to operate either wholly or partly in newly opened distant grounds. For example, new licenses are granted only for trawler operations in the Bering Sea and other deep-sea areas on the condition that otter trawling in the East China Sea be given up.¹⁸

Although the law forbids transfer of a license, technically it can

¹⁵ See Oka, Watanabe & Hasagawa, *The Economic Effects of the Regulations of the Trawl Fisheries of Japan*, in *ECONOMIC EFFECTS OF FISHERY REGULATION* 203 (Hamilisch ed. 1962) (hereinafter cited as Oka).

¹⁶ *Id.* at 192.

¹⁷ *Id.* at 194.

¹⁸ *Id.* at 188.

be transferred when a vessel is sold by cancelling the seller's license and simultaneously issuing a new one to the buyer. There is an element of economic rent in the sale since the price paid reflects the profitability of the operation. The price of a license would therefore differ for different fisheries, being higher, for example, for the salmon fisheries where entry is closely controlled. The government, however, does not consider this rent element in determining the number of licenses to issue. Generally, when a particular fishery is profitable, the Fisheries Agency is subjected to strong political pressure to issue more licenses.¹⁹

II. EVALUATION OF ECONOMIC EFFECTS OF THE CONTROL SYSTEM

The Meiji regime left the feudalistic fishery institutions pretty much intact in order to avoid friction and social unrest. Therefore, productivity and efficiency in the coastal fisheries were sacrificed for allegiance to the new regime. This policy affected the government's attitude toward new techniques and large-scale operations. In essence, these were controlled to prevent conflicts with the nearshore fisheries. Eventually, practically all offshore and high seas fisheries were brought under the "licensing system" which limited entry by requiring vessels to have licenses. The size of vessel, area, method, species, and period of fishing are all regulated primarily to control the amount of fishing effort so as to protect the economic welfare of the different classes in the industry.²⁰ If, as a result of limited entry, rent is created in a fishery so that profits are better than in other fisheries, then the government is faced with political pressure to issue more licenses. Under this type of system the only way to attain a maximum sustained yield is to cut back on efficiency (*i.e.*, raise costs) which is accomplished by pushing the more efficient vessels outward and restricting the size of offshore vessels.²¹

¹⁹ Keen, *Some Aspects of the Economic Geography of the Japanese Skipjack-Tuna Fishery 38-9* (1965) (doctoral dissertation in University of Washington library).

²⁰ The following statement is made in Oka, *supra* note 15, at 180: "The principal object of control must be an easing of competition between different regions and class interests in the industry." The authors also state, *id.* at 190: "Regulation has been enforced not for the direct object of maintaining an equilibrium between fishing effort and resource yield. Rather, restrictions have been imposed, wherever necessity arose, as a countermeasure against a recession in the fishery business caused by fluctuations in the Japanese economy."

²¹ This is implied from the following statement in Oka, *id.* at 196:

It follows, therefore, that fishing grounds meeting the above mentioned conditions (*i.e.*, high productivity fishing grounds along the coast) should be left entirely to low efficiency boats, while high efficiency boats should be used to open up low productivity offshore fishing grounds which cannot be developed satisfactorily by low efficiency boats. This may be regarded as the implicit objectivity of fishery control in Japan.

Due to the unique development of the regulatory system, control through licensing has become "institutionalized" in the system so that other methods of regulation which might have merit from a biological standpoint—*e.g.*, a quota system and mesh-size regulations—have been largely ignored. Whatever conservation aspects there are to the system are primarily oriented to coastal and offshore fisheries where the effects of fishing are more readily apparent. On the high seas, however, the effects are much less apparent and in the postwar period restraints on fishing intensity have come primarily from international pressure through conventions²² and in some cases unilateral restrictions imposed by other countries.

The requirement to retire an equivalent tonnage when adding to vessel capacity has resulted in a sharp increase in the number of large vessels and a concomitant decrease in the number of smaller vessels. This is clearly implied by the relative changes in the number of powered boats between 1953-1963 shown in appendix B. Also clearly reflected from the data in appendix A is a significant reallocation of effort from the nearshore grounds to more distant fishing areas. Since there is no maximum tonnage limit for vessels fishing on the high seas, the possibility of transferring licenses has stimulated a sharp increase in the number of vessels 200 tons and over. The policy of the government to lessen the pressure on domestic grounds by encouraging the larger craft to shift to more distant waters led to increased exploitation of the South China Sea in the early post-occupation years and thence to the North Pacific grounds and the high seas in recent years (see appendix E). This policy is officially credited with increasing the catch of the whole Japanese fishing fleet.²³ Costs and earnings figures for 1964 are available for the fishery enterprises operating within each tonnage stratum²⁴ and the gross rate of return from fishing operations has been calculated (*i.e.*, fisheries net income as a percent-

²² To United States fishery experts assigned to the SCAP Authority during the Occupation, the Japanese fisheries research and control program was most vulnerable in the emphasis which was placed on increased production and protection of income classes rather than on conservation and "rational" fisheries management. Also severely criticized was the extent to which this policy carried over into high seas fisheries, thus creating international friction and antagonism. It was strongly recommended, therefore, that in the post-treaty period Japan participate in international fishery agreements which have as their basic objective the "proper" management of the high seas fisheries. SCAP, Fisheries Programs in Japan, Rep. No. 152, 28-45 (1951); Croker, *supra* note 11, at 9; W. HERRINGTON, A PROGRAM FOR JAPANESE COASTAL FISHERIES 8 (1951).

²³ See the statement by Kamenaga of the Japanese Fisheries Agency in Oka, *supra* note 15, at 217-18.

²⁴ This is based on a sample operating within each category.

age of invested capital, as shown in appendix B. The gross rate of return appears to have a downward tendency as one moves from the lower toward the higher tonnage classes. When a cost of capital of approximately 9.5 percent is imputed²⁵ the smaller operations exhibit a tendency to be more profitable than the larger. In fact, the largest tonnage class—that between 200-500 tons—shows a *negative* net rate of return of almost 3 percent, strongly suggesting overcapitalization of this particular tonnage category. This class displays the most rapid rate of increase in number of operating units. Most of the boats between 200-500 tons operate in the skipjack-tuna long line fishery.²⁶ One can clearly see the effects of the control system by the relative rates of change in the number of management units of some of the major fisheries shown in appendix C. Between 1954-1961, the number of management units in the large trawl fishery west of longitude 130° E. declined by 25 percent. Other substantial declines occurred in the medium trawl fisheries east of longitude 130° E. and the skipjack pole and line fishery. Conversely, by 1961 the number of management units operating in the long line fishery increased by more than 50 percent. The saury stick-held dip net fishery, which is one of the few free fisheries in Japan, during this period displayed a rather unstable tendency toward increase in the number of operating units.²⁷ These tendencies may be compared with available data on costs and earnings of these enterprises in 1964.²⁸ Computation of the net rate of return, which is the profit rate (before taxes), is shown in appendix D. There tends to be an inverse correspondence between the trend in the number of management units in the various fisheries (appendix C) and the average rate of return (appendix D). That is, the most profitable are the trawl fisheries and skipjack pole and line fishery which experienced significant declines in the number of operating units in recent years. On the other hand, the tuna long line and saury fisheries had negative returns in 1964. These are the fisheries which had rapid increases in the number of management units over this period. While these comparisons are admittedly rough,

²⁵ This is the average interest charge for borrowed and invested capital for those boats operating in the major fisheries shown in appendix D.

²⁶ In 1960 skipjack-tuna vessels accounted for 70% of the fishing boats between 200-500 tons. By contrast, only 20% of the boats 500 tons and over were skipjack-tuna vessels. MINISTRY OF AGRICULTURE AND FORESTRY, STATISTICAL YEARBOOK 73 (1961).

²⁷ This fishery absorbs a large number of vessels during the offseason or period of restricted fishing of other fisheries.

²⁸ MINISTRY OF AGRICULTURE AND FORESTRY, 1964 FISHERIES STATISTICS OF JAPAN 34-5 (1966).

they do tend to reflect in a very general way the basic objectives of the control system. That is, the policy of switching craft from relatively congested fisheries to other operations, *e.g.*, saury dip net and tuna long line, has tended to raise the rate of return of the former and to depress the rate of return of the latter.²⁰

The fact that the government in issuing licenses is susceptible to pressure generally means that whenever there are good profits to be made in a fishery, there is a tendency to issue more licenses so that capacity tends to be built up rapidly. Good profits can occur either through a general increase in the demand for fish as the economy grows or through technological improvements which reduce costs of fishing. Both of these developments have occurred since the commencement of industrialization in Japan. The basic policy objectives of maximizing fisheries production, maximizing capital investment in the fisheries, and maximizing the aggregate income of fishermen inevitably has led to conflicts with other objectives which could have been sought, *e.g.*, efficiency of operations, allocation of economic resources which recognizes the gain in economic welfare from equating rates of return in all fisheries, and marine resources management which promotes conservation. Given the objectives sought, the control system lacks a general decisional standard regarding the proper number of licenses to issue to check excessive entry. In the past, Japan considered the high seas a "safety valve" which was eternally capable of absorbing the excess capacity created by a combination of economic growth, technological advancement, and the basic objectives of the control system. However, the postwar existence of international fisheries conventions to which Japan subscribes and other international pressures which limit Japanese encroachment on formerly accessible grounds, have set visible limits to the high seas horizon. In this new setting Japan may find it desirable to attempt a reform of the fisheries control structure so as to lend more of a flavor for basic economic considerations, *e.g.*, allocating economic resources to minimize cost and maximize net economic yield.

The present period appears to be a transitional one for Japan. As the domestic catch levels off she will find it necessary to import

²⁰ The comparatively profitable operations shown here for the trawl fisheries closely correspond to the rate of profit for those operations in 1958 as reported in Oka, *supra* note 15, at 208. From 1953 to 1956 the 2295 medium-sized trawlers aggregating 75,000 tons were reduced by 910 or by 25,300 tons through subsidies but mainly by switching to other operations, *e.g.*, salmon drift net, saury dip net, and tuna long line. *Id.* at 188.

increasing quantities of fish to keep up with the growing demand. Since exports will, inevitably, also level off, this will cause a strain on the balance of payments as the previous gap between export ability and import requirements continues to narrow. It is even conceivable—and if present trends continue, likely—that Japan may become a *net* importer of fish. What alternative approaches can Japan take in seeking a stable solution to this problem? She can negotiate and conciliate with the nations who have expanded their territorial waters in an attempt to retain access to former fishing grounds. These agreements, for the most part, tend to be of a short-term nature and are therefore, merely temporary expedients which provide no guarantee toward a long-lasting solution. She can, on the other hand, by subsidizing research vessels and conducting experimental fishing operations in unexplored waters, vigorously search out and exploit new fishing grounds. Whether conducted on a private or a governmental basis, however, these operations are costly and, given the uncertainties involved, there is no guarantee of long-term success, especially when one considers the common property aspect of marine resources. Another possibility is for Japan to enter into joint business ventures with countries offering new competition or expanding territorial waters, *e.g.*, South Korea, the CEP (Chile, Ecuador, Peru) countries, Argentina, the United States and Canada. However, the joint ventures engaged in thus far have not generally proved profitable and, in any case, may not be equally attractive to these other countries. In fact, the heaviest sellers in the Japanese market are just those countries offering new competition, *e.g.*, the Soviet Union, South Korea, and Taiwan, and countries claiming expanded territorial limits, *e.g.*, Australia, Peru, Mexico, and Spain. This raises the possibility of still another alternative, which is for Japan to export capital and technology to these countries. The advantage to Japan is that by thus financing the fishing operations of countries who now have the “comparative advantage” she can thereby earn the necessary foreign exchange to meet her growing import requirements. From a long-run point of view, this may turn out to be the most realistic policy and one which would be the most consistent with a major reform of the fisheries control structure.

APPENDIX A

Indexes of Marine Fisheries Catch
(1955 = 100)

Year	Total Marine Fisheries	High Seas Fisheries			Tuna Long Line	Domestic Marine Fisheries
		Total	North Pacific Ocean	South China Sea		
1955	100	100	100	100	100	100
1957	106	111	99	146	187	107
1959	117	196	168	99	424	115
1961	132	478	461	13	640	119
1963	132	372	338	2	783	121

Source: OFFICE OF THE PRIME MINISTER, 1964 STATISTICAL YEARBOOK 130 (1966).

APPENDIX B

Indexes of Powered Craft by Gross Tonnage
(1952 = 100)

Year	10-29 t.	30-49 t.	50-99 t.	100-199 t.	200 t. & Over
1953	98	102	110	103	120
1955	92	103	138	147	187
1957	89	96	161	156	269
1959	82	100	167	152	320
1961	74	123	171	131	473
1963	74	130	182	167	615
Gross Rate of Return (1964)	13.8	11.2	9.4	10.6	6.6*

*For vessels between 200-500 tons.

Note: Gross rate of return is net income from fisheries (inclusive of interest charges on invested capital) as a percent of capital invested in fishing. To compute a net rate return, an imputed interest rate of 9.5 percent should be deducted.

Source: OFFICE OF THE PRIME MINISTER, 1962 STATISTICAL YEARBOOK 124-25 (1964). OFFICE OF THE PRIME MINISTER, 1964 STATISTICAL YEARBOOK 128-29 (1966). MINISTRY OF AGRICULTURE AND FORESTRY, 1964 FISHERIES STATISTICS OF JAPAN 33 (1966).

APPENDIX C

Indexes of Management Units By Type of Operation
(Jan. 1, 1954 = 100)

Survey date	Large trawl west of 130° E.	Medium trawl east of 130° E.	Skipjack pole & line	Saury stick- held dip net	Tuna long line
Jan. 1, 1954	100	100	100	100	100
Jan. 1, 1956	95	87	99	115	102
Jan. 1, 1957	88	80	92	110	111
Jan. 1, 1958	80	72	85	108	105
Nov. 1, 1958	75	63	95	141	117
Jan. 1, 1960	78	63	67	145	121
Jan. 1, 1961	75	63	61	129	153

SOURCE: MINISTRY OF AGRICULTURE AND FORESTRY, 1961 STATISTICAL YEARBOOK 70-1 (1963).

APPENDIX D

Average Net Rate of Return of Major Japanese Fisheries*
(1964)

Tonnage & Type of Operation	Average Net Rate of Return
10-30	
One boat medium trawl East of 130° E.	5.4
30-50	
One boat medium trawl East of 130° E.	7.7
Tuna long line	3.4
50-100	
Large trawl west of 130° E.	8.8
One boat medium trawl East of 130° E.	15.3
Saury stick-held dip net	(-5.7)
Tuna long line	(-8.9)
Purse-seine	3.3
100-200	
Skipjack pole & line	9.5
Tuna long line	(-2.8)
200-500	
Tuna long line	0.6

*In 1963 these operations accounted for approximately 51 percent of the domestic marine catch.

Note: The average net rate of return was computed by taking the difference between net income from fishing and interest charges on invested capital as a percent of capital invested in fishing. This measures the rate of profit (before taxes) from fishing.

Source: MINISTRY OF AGRICULTURE AND FORESTRY, 1964 FISHERIES STATISTICS OF JAPAN 34-5 (1966).

APPENDIX E

Indexes of Major High Seas Fisheries Catch
(1961 = 100)

Year	Floating Factory Type Fishing			Tuna ^d	Trawling ^e	Tuna ^a	Trawling (South China Sea)	Otter trawling (Bering Sea)	Otter trawling (High Seas) (Pacific, Atlantic & Indian Oceans)	Tuna Long Line Fishing	
	Salmon ^a	Crab ^b	Trawling ^c							Based at Foreign Ports	Foreign Ports
1953	—	—	—	28	—	—	—	—	—	—	—
1955	—	—	—	47	—	—	—	—	—	—	—
1957	—	—	—	49	—	—	—	—	—	—	—
1959	132	89	25	72	—	—	427	51	14	—	96
1961	100	100	100	100	—	—	100	100	100	—	100
1963	86	124	50	49	—	—	18	396	286	—	162

(a) North Pacific Ocean

(b) Bering Sea & Okhotsk Sea

(c) Bering Sea

(d) Pacific Ocean

Source: OFFICE OF THE PRIME MINISTER, 1962 STATISTICAL YEARBOOK 131 (1964). OFFICE OF THE PRIME MINISTER, 1964 STATISTICAL YEARBOOK 136 (1966). MINISTRY OF AGRICULTURE AND FORESTRY, 1964 FISHERIES STATISTICS OF JAPAN 82 (1966).