United Nations Environment Programme
برنامج الأمم المتحدة للبيئة · 联合国环境规划署
PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT · PROGRAMA DE LAS NACIONES UNIDAS PARA EL MEDIO AMBIENTE
ПРОГРАММА ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ ПО ОКРУЖАЮЩЕЙ СРЕДЕ
UNEP

Division of Technology, Industry and Economics

ECONOMICS AND TRADE UNIT

Fishery Subsidies: Japan

UNEP Fisheries Workshop

Geneva, 12 February 2001

Problems
in the Fishery Management of International Tuna Fisheries
and its Relation with Fishery Subsidies

by

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Tuna fisheries are composed of various kinds of fisheries from the purse seine fishery with modernized bigger vessels, whose size are larger than 3,000 gross tones, to the artisanal fishery such as hand line fishery with very small canoes. These fisheries often target same tuna resources. The fishing grounds of tuna species, which are highly migratory species, are widely distributed and straddled among the high seas and many national economic zones. The economic values of tunas are very variable among the countries and among regions even in a same nation. Furthermore, the economic values are also variable with the size of fish even in a region. There is a big difference in the prices between the sashimi and cannery markets, and there is also a substantial difference in a sense of values for tuna between commercial and recreational fisheries. It is necessary for the international management of tuna fisheries to consider these variations in the fisheries and the differences in the economic value among the fisheries and regions.

There are several international fisheries management organizations, the International Commission for the Conservation of the Atlantic Tuna and Tuna-like species (ICCAT), the Inter-American Tropical Tuna Commission (IATTC), Indian Ocean Tuna Commission (IOTC), and the Convention for the Conservation of Southern Bluefin Tuna (CCSBT) etc., which are now responsible for management of the tuna fisheries in each Ocean. Recently the regulations such as the catch limitation have been introduced in some tuna stocks such as bigeye tuna and swordfish in addition to Atlantic and Southern bluefin tunas. Under the present circumstance, some problems, which are

related with fishery management, are becoming serious. In this paper, these problems are reviewed and the relation between these problems and fishery subsidies are discussed.

A. Highly Migratory Characteristics

The vessels, which are engaged in tuna fisheries, also have highly migratory characteristics, especially for purse seine and longline boats operating in offshore waters. The distributions of these highly migratory vessels are not only influenced by the abundance of fish, but also by the difference in the degree of regulations among different fishing grounds.

Fig. 1 shows the historical changes of US swordfish catches by Ocean. Due to the increase of swordfish catch by various nations and consequent overfishing of swordfish in the Atlantic Ocean, the catch regulation has been introduced for swordfish stock in the North Atlantic in 1991 by ICCAT. Fig. 1 clearly shows that the US catch in the Atlantic side decreased, presumably due to the introduction of the regulation, while the catch in the Pacific side increased substantially during this period. The number of vessels, which are engaged in swordfish fishery and operated in the US Pacific side, had increased rapidly from less than 10 in the late 1980s to 114 in 1991 (Ito and Coan, 1999). This phenomenon was not only observed in the US fishery, but also observed in the general trend of swordfish catches by Oceans as shown in Fig. 2. There is a clear time lag among the peaks of catches in the Oceans, which shows the shift of fishing effort from one Ocean to another due to the changes in the stock condition (CPUE) and regulations. The introduction of regulatory measures caused not only the shift of the fishing ground, but also an incentive for fishing nations especially in the other oceans to increase the catch, because the catch limitation is one of the causes to raise the price of fish at the market.

Fig. 3 shows the historical trend of bigeye catches by Oceans. The Pacific Ocean is the major fishing ground for bigeye tuna. Due to the decrease of abundance, fishing vessels changed their fishing grounds from the Pacific to Atlantic and then to the Indian Ocean.

These phenomena show that the tuna fisheries generally change their fishing ground quickly, depending on the condition of stock and regulations for the fisheries. Consequently, the fishing efforts tend to be concentrated in the region where the fishing vessels can operate more freely without strict regulations. Then it is desired to manage the tuna fisheries in the global scale, not independently in each region. Furthermore, it is recognized that the effort control in the global scale is necessary for the effective management of the tuna fisheries over the world, because the overcapacity of the fishing effort is one of the major factors, which hamper the effective management of the fisheries. Under the current circumstances, it is very difficult to agree on the introduction of the regulatory measures in the tuna fisheries due to the conflict of the interests among the nations. It is clear that the subsidies that encourage increase of fishing efforts affect adversely on tuna resources, where there is a relatively weak management.

B. Flag of Convenience

The vessels of the non-contracting parties to an international convention can operate freely from any kinds of the regulations settled by the convention. It is observed that some of the fishing vessels of a contracting party are changing their flag to a non-contracting party and/or another contracting party which has not enough control power over the fishing vessels, and operate in the convention waters freely from the regulations of the convention. The number of the vessels of so-called flag of convenience (FOC) has been increasing as more regulatory measures have been introduced. The surplus of the fishing effort caused by the introduction of the regulation can survive through FOC. In recent years, this problem has been becoming more serious in all tuna fisheries over the world. The catch of FOC vessels hampers the effective management of tuna stocks heavily.

In the Atlantic Ocean, the catch of FOC vessels has increased substantially in the recent decade due to the introduction of regulatory measures. An ICCAT report shows the number of FOC vessels is more than 300 vessels over the world and more than 100 vessels have operated in the Atlantic Ocean (ICCAT, 2000a). Fig. 4 shows the catch of bigeye tuna by FOC vessels in the Atlantic Ocean, and the percentage of the FOC catch in the total bigeye tuna catch. In 1999, the catch of FOC vessels attained at least 30,000 metric tones and occupied about 25% of the total bigeye catch in the Atlantic (ICCAT 2000b).

The surplus of the fishing effort caused by the output control (catch limitation) brings negative impacts on the fishery management. The major negative impact of overcapacity is actualized as increase of FOC vessels. In addition to this, it is observed that the fishing effort of contracting parties, which are mainly developing countries in tuna fishery, is increasing rapidly. It is supposed that some portion of this development is helped by the investment of developed countries. This is another actualization of the overcapacity.

The fishing vessels, which intend to change their flag for conveniences, in any case change their flag regardless of the existence of subsidies, because these vessels intend to escape from the regulations by shifting to FOC and have no intention to observe the regulations. They get more benefit through FOC than subsidies. Under the condition, in which the contracting parties cannot inhibit FOC effectively, the control of subsidies is meaningless for the management of the fishery. It is recognized that the argument asserting, which excessive fishing capacity can be reduced if fisheries subsidies is curtailed, is tantamount to imputing the issue of imperfect control on the number of fishing vessels to the argument on subsidies. It is clear that the first effective step toward solution of the issue should be expeditious introduction of direct control of fishing effort, if depletion of fishery resources is caused by overcapacity of fishing efforts.

C. Problem on the allocation criteria of total allowable catch

The allocation of total allowable catch (TAC) has been carried out based on the actual catch by nations in the past. Recently there are big arguments on the criteria for allocation of the TAC. ICCAT has a special working group on allocation criteria, and it is very difficult to get consensus on the allocation criteria among the contracting parties at present. This issue is the most fundamental point in the international management of tuna resources, because the major management tool in the international organizations is catch control through the allocation of TAC among the contracting parties. If there is no consensus on this issue, the most important function of the international fishery organizations will be lost. This problem of the allocation criteria is not only related with TAC allocation, but also will be related with the allocation of the fishing effort in the future, which is closely related with the solution of overcapacity in the international waters.

The argument on the allocation criteria is posed by the developing states, which refer to UNCLOS and UNIA (Article 24 of UNIA), and argue that allocation criteria should take into account the distribution of stock biomass, state of development of countries, dependency on fishing areas, compliance with conservation and management measures in addition to the historical catch (ICCAT 1998). In this issue, there is a very clear conflict of interests between developed and developing states. There is a possibility that a state intends to use subsidies for increase of the fishing effort, linking with this argument. But it is less probable that the states pose this kind of argument due to the past increase of fishing efforts by the subsidies, which has already happened. The allocation criteria is one of the very fundamental concepts in international management of the fishery. Therefore, the issue of the fishery subsidies is not linked directly with this serious problem. Even if subsidies are curtailed, this problem will not be solved.

D. Problem related with skipjack fishery

The total catch of skipjack in the world was less than 200,000 metric tons in the 1950s, but it has continued to increase as shown in Fig. 5. The catch attained to 1,000,000 metric tons in the 1980s, and 1,800,000 metric tons in 1998. The major reason of this increase is the increase of fishing effort (number of vessels in the purse seine fishery). But in the 1990s, the catch has still increased, even though number of the fishing vessels became stable. The reason of the resent increase of the catch is the increase of gear efficiency of the purse seine vessels. The new fishing technology, artificial floating aggregation devises (FADs), was developed and the gear efficiency for the skipjack increased substantially. The gear efficiency of purse seiner with FADs is several times higher than it without FADs as shown in Fig. 6. The price of skipjack in the cannery market went down substantially from 1,000 US dollars per ton to 300 US dollars per ton in 1999 due to the oversupply of the fish. Consequently some vessels became not able to continue their operations under this bad economic situation. The status of the skipjack stocks over the world is still healthy

and there is still a potential for more sustainable catch than current level (ICCAT 2000b, IOTC 1998,and SCTB, 2000). This means that there is still no serious problem on the sustainability of the skipjack stocks. The current difficulties occurring in the skipjack fishery are solely the economic issue.

The markets of tuna, especially for the tuna as the material of canned food, are found over the world. Therefore, the collapse in the balance between demand and supply of skipjack tuna affect all skipjack fishery over the world. The oversupply of skipjack for the cannery affected the fresh sashimi market in Japan, which is usually not directly related with purse seine fishery. Most of the skipjack tuna in the fresh sashimi market is supplied by the Japanese small coastal pole and line fishery, but the price in this market also fell substantially in 2000, even though the catch by this fishery did not increase. Depreciation in the price of frozen skipjack for cannery market affected the very local market, which has no relation with cannery market. There is a possibility that the oversupply of the fish by the offshore fisheries may affect severely small fishing village communities, which engage in small coastal fisheries.

Skipjack is a species, which has a very high productivity and the present sustainable productivity of this species exceeds the demand in the world market. For this type of species, there is little necessity of fishery management for its conservation and the catch amount varies, depending on the price of fish. Therefore, it can be said that subsidies do not affect skipjack stocks adversely. The larger the demand for the species, the more necessary to manage the fishery. Concurrently, it is very important and necessary to minimize the unbalance between demand level and sustainable catch level of the fish stock.

E. Bycatch

Effects of the increase in fishing efficiency caused by FADs also affect stocks of bigeye tuna. It is pointed out that the catch of juvenile bigeye tuna by purse seiner has been increasing with FADs fishing. This catch is a bycatch as a result of targeting yellowfin and skipjack tunas, which have higher abundance and productivity than bigeye tuna. Accordingly, the bycatch has adverse impacts on the bigeye stocks.

Fishery subsidies could be used to install bycatch avoidance devices on board fishing vessels for the solution of the bycatch problems. Conversely, when fishing vessels of one country are required to install such device, while fishing vessels of others are not, it can be said that the latter vessels are enjoying benefits equivalent to subsidies.

F. General remarks and conclusion

In the past, the output control has been a major tool for fishery management rather than input control in the international fishery management organizations, because there are many difficulties to evaluate the efficiency for the various gears of the various countries. There are significant differences in the gear efficiency even for the same gear among the countries, and the gear efficiency changes year by year. Therefore, the input control has not been a practical major tool for international fishery management. But recently the necessity of the input control has been recognized, because the major cause of the several serious problems mentioned in the above sections is due to the overcapacity of the fishing effort. The input control for the international fisheries has been now discussed in the international organizations. In the future, the input control will be implemented in a global or ocean basin level and concurrently the output control will have to be also implemented on a stock-by-stock level. In addition to these controls, it is recognized that the trade control of tuna is also necessary for the management of the international fisheries. Now ICCAT introduced the trade control for Atlantic bluefin and swordfish, and got the noticeable results.

There are various problems in the international management of the tuna fisheries and there is no simple relation between subsidies and these issues. There are factors, which affect the fishery management much more seriously than the subsidies. Therefore, it is necessary to recognize the substantial characteristics of each issue, which is related to fishery management. The most important point is to find out the practical solution for each issue to realize the rational fishery management regardless of the subsidies.

References

ICCAT 1998: Report of the informal inter-sessional meeting of Panel 4 in Report of biennial period 1996-97 Part II (1998) – Vol. 1, 311pp.

ICCAT 2000a: Report of biennial period 1998-99 Part II (1999) – Vol. 1, 311pp.

ICCAT 2000b: Report of biennial period 1998-99 Part II (1999) – Vol. 2, 175pp.

IOTC 1998: Report of the 7th expert consultation on Indian Ocean tunas. 55pp.

Ito, R. and A.J. Coan 1999: U.S. Swordfish fisheries of the North Pacific. Proceedings of the second international swordfish symposium. NOAA Tech. Mem. NMFS No. 263. 19-38.

SPC 2000: Report of the thirteenth meeting of the standing committee on tuna and billfish. 123pp.

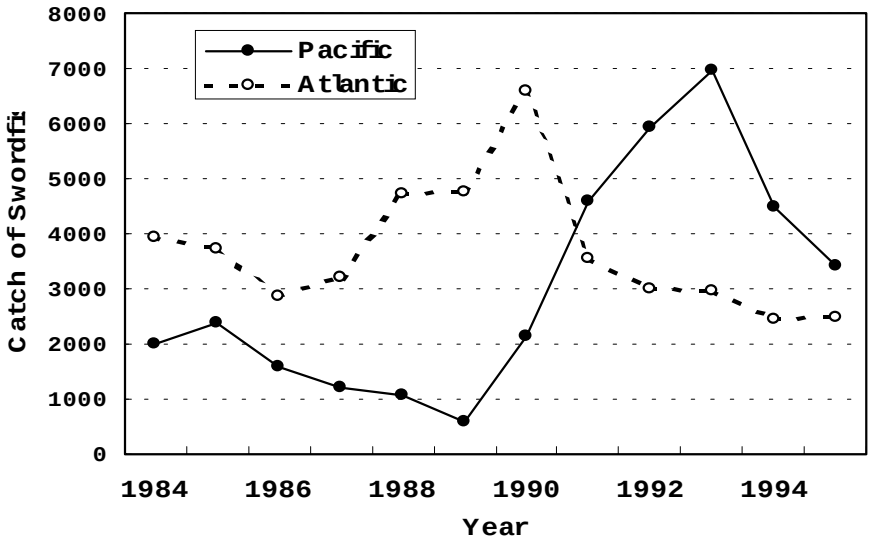

Fig. 1. Historical changes of swordfish catch by US fleet in Atlantic and Pacific Ocean (FAO Yearbook).

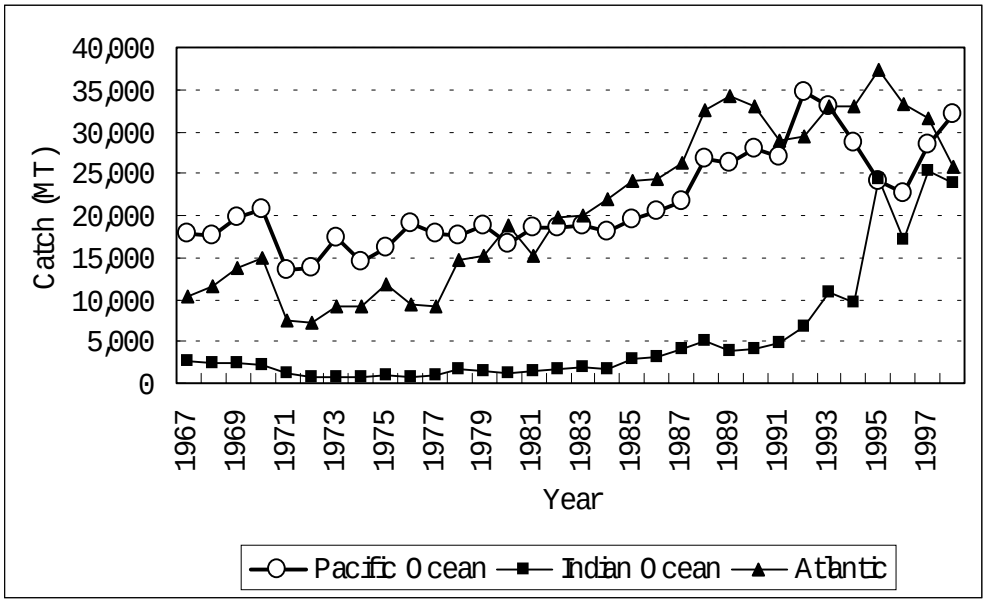

Fig. 2. Historical trend of swordfish catch by Oceans (FAO Yearbook).

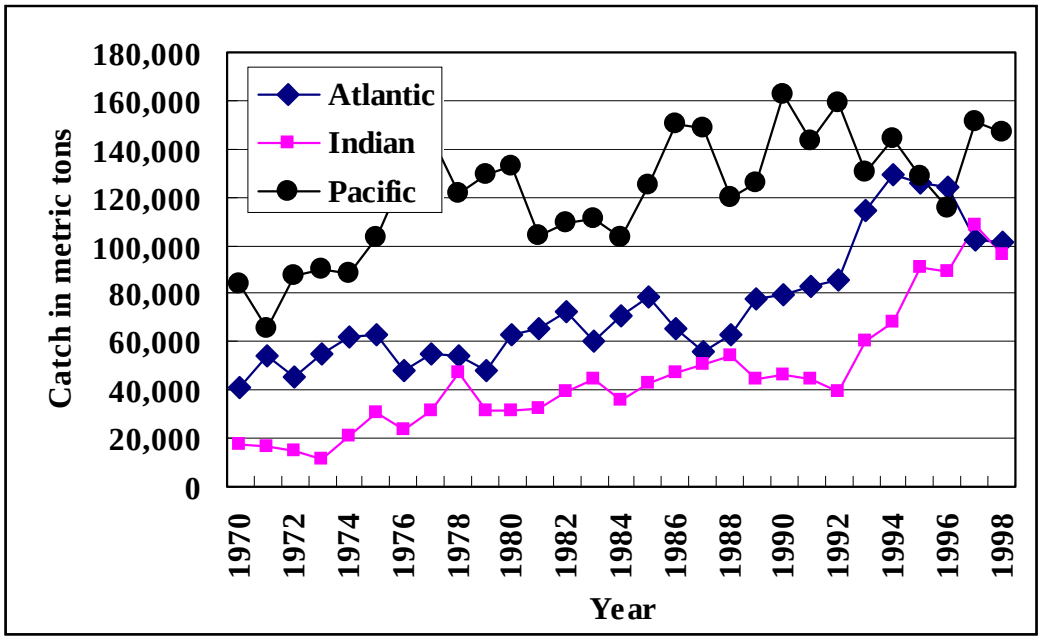

Fig. 3. Historical trend of bigeye catch by Oceans (FAO Yearbook).

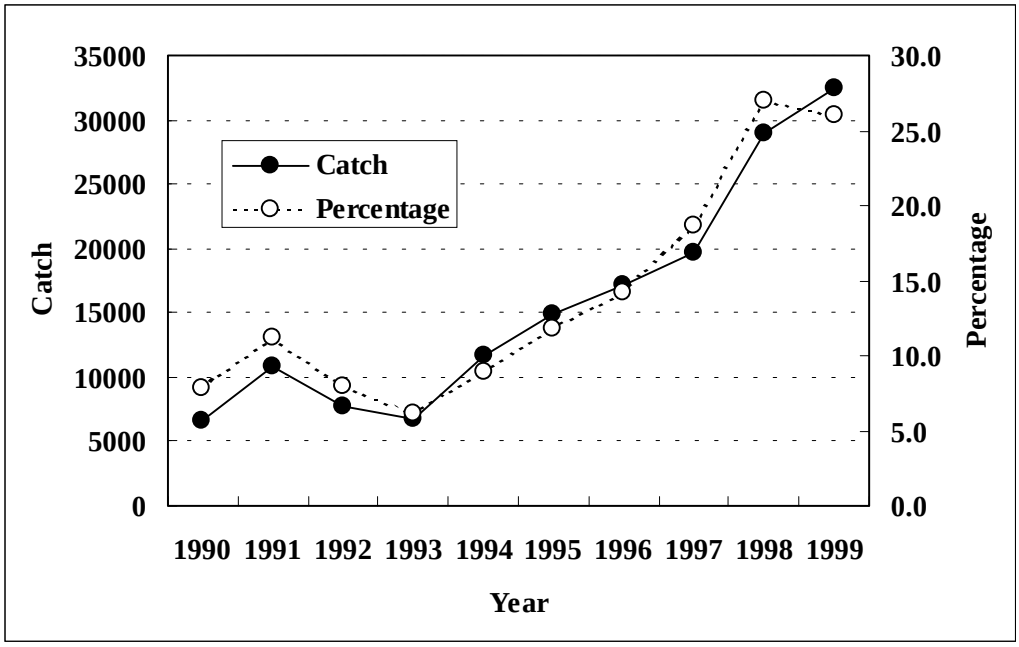

Fig. 4. Catch of bigeye tuna by FOC vessel and its percentage in the total catch in the Atlantic Ocean (ICCAT, 2000). The catch by FOC vessels is recognized as category "NEI" in the ICCAT database.

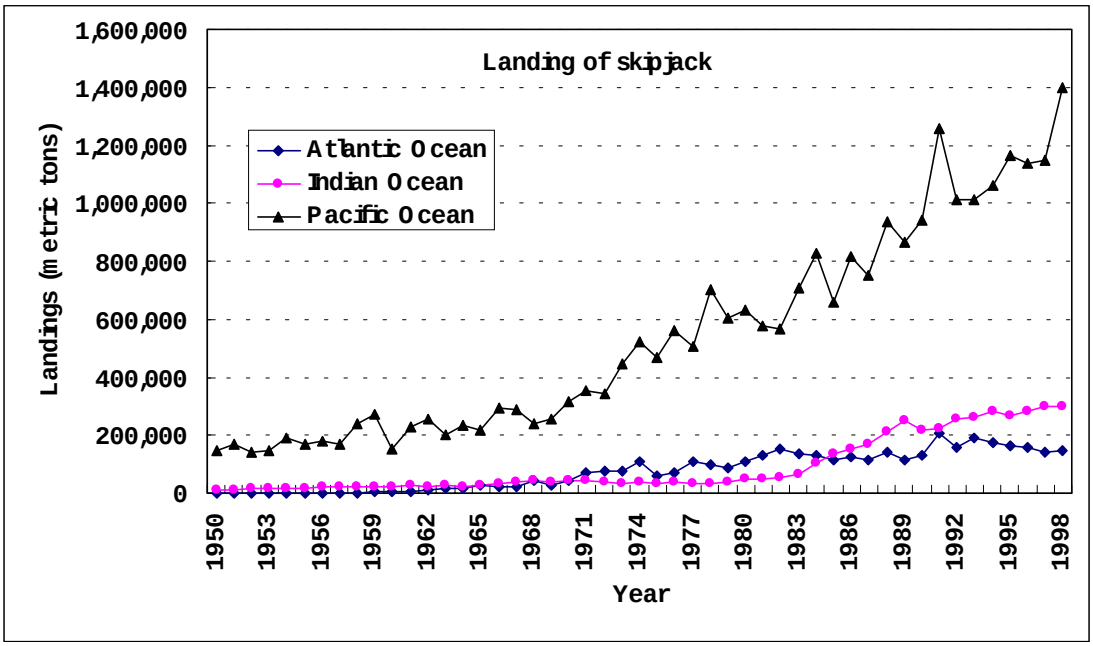

Fig. 5. Catch of skipjack by oceans (FAO Yearbook).

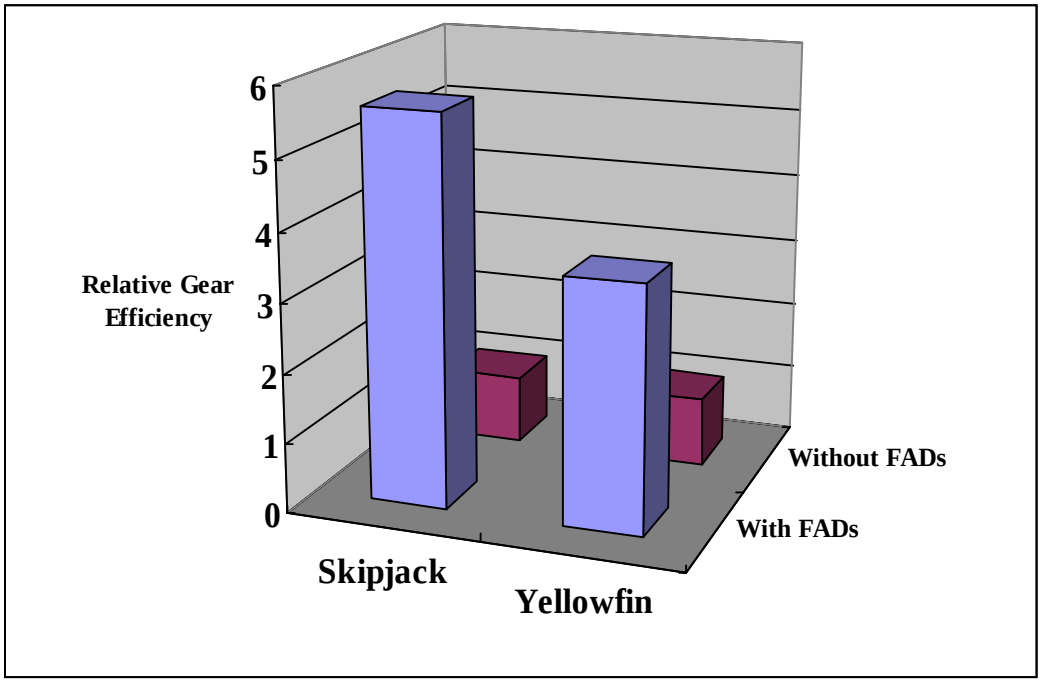

Fig. 6. Difference in relative gear efficiency of purse seine fishery for yellowfin and skipjack tunas between with and without Floating Aggregating Devises (FADs).