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FOR CONSERVATION AND SUSTAINABLE USE OF TUNAS

Crisis for Tuna Resources Triggered by Biased Scientific Paper

—An argument over Myers Paper —

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1. Much ado about Myers Paper

The title of what is known as Myers Paper, published in Nature Vol. 423, May 15, 2003, is "Rapid worldwide depletion of predatory fish communities". This came to be called Myers Paper as the authors of this paper were Dr. Ransom Myers and Dr. Boris Worm of Dalhousie University in Canada. Put simply, the paper asserts that we are facing a critical situation as the stocks of large-size fish, such as tunas, have decreased drastically to one tenth of their initial population.

This paper was introduced widely by the world's media when it appeared in Nature. Among broadcasting media were CNN and BBC, and printing media included Economist, Washington Post and Time Magazine. A wide-ranging campaign was launched, with related articles appearing on the websites of environmental organizations. The major thrust of this campaign was to fan the sense of crisis that the stocks of large-size fish declined to 10% of the initial population, destroying the marine ecosystem, and, if this situation is left unattended, many species could go extinct. In the midst of this fuss, the U.S. Congress was led to holding a hearing on this issue.

Needless to point out, the contents of the campaign entirely differed from the views of scientific committees of the international fisheries commissions responsible for management of tuna resources. However, there was no way for the general public to know the views of fisheries commissions. The information made public in general media strongly impressed the public with

misleading facts.

Naturally, scientists related to fisheries organizations sent counterarguments against Myers Paper to Nature, but, for some unknown reasons, the journal had refused to print the criticisms. It was two years after Myers Paper was published

that counterarguments were first introduced. Moreover, they were posted only on an online magazine. Myers Paper is cited at such international forums as the United Nations, and it cannot be denied that arguments would be proceeded based on extremely misleading information, as in the case of the adoption of the moratorium on the high-seas driftnet fisheries several years ago. In point of fact, Dr. Worm presented such information at the United Nations meeting, June 6-10, 2005.

2. Contents of Myers Paper

**- It focuses only on the changes in CPUE -
An argument that can be supported by no one**

Roughly summarizing the contents of the paper, it is contended that CPUE (number of fish caught per 100 hooks) of Japanese tuna longline fishery declined to 20% over the 15 years since the 1950s when this fishery started after the end of the World War II, falling further to 10% at present. The paper shows the declining trend of CPUE for each of many areas. One such example is shown in



Dr. Uozumi

the figure below.

Although Myers et al. present this figure as a new discovery, there is actually nothing new about it. The changes in CPUE, as shown in the figure, have been known from many years earlier in tuna-related international fisheries commissions, such as the International Commission for the Conservation of Atlantic Tuna (ICCAT) and the Indian Ocean Tuna Commission (IOTC). Nonetheless, Myers et al. contended that, in the 1970s, the tuna resources declined to 20% of the 1950s level, and have reached one tenth in recent years, thus pointing to the risk of extinction. The basis they have presented was only this decline in CPUE. The international fisheries commissions responsible for management of tuna and tuna-like species have engaged in studies based on various information other than this, and also have the results of researches. By some unknown reasons, Myers et al. have not at all used such information but stuck fast only to CPUE.

It is true that this figure shows declines in CPUE. But scientific committees of international fisheries commissions reached an entirely different conclusion from that drawn by Myers et al. because they determined that this CPUE does not truly reflect the changes in tuna resources. Further, no tuna researchers in the world consent with Myers' view.

Supposing the CPUE given in this figure accurately reflected the changes in the resources, CPUE for bigeye tuna, as shown in the figure, remained at almost "0" in the 1950s while it increase to around "2" in the 1980s. It means that the stock of bigeye should have increased at least tenfold during this period. On the other hand, the stock of albacore tunas should have gone extinct in

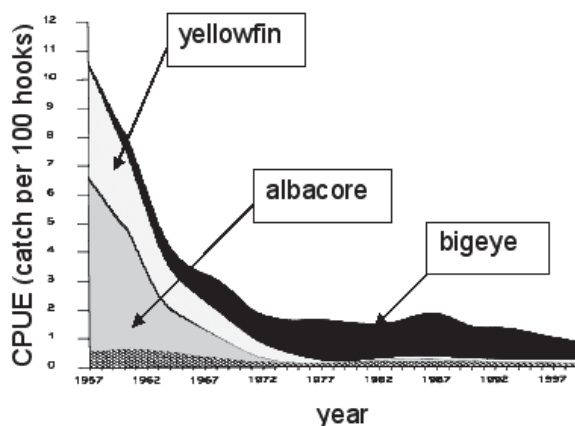


Fig.1 Annual changes in Japan's tuna longline fishing in Atlantic tropical zone (cited from Myers' website)

the 1970s. No one would accept such a proposition.

3. Irresponsible argument disregarding facts

This change in CPUE only reflects the fact that longline fishing by Japan had engaged in harvesting of albacore from the 1950s to the 1960s but subsequently shifted to the operation targeting bigeye. Albacore tunas in the Atlantic are exploited at an optimum level. The "dream-like" statement that bigeye tunas increased rapidly is nothing but "a dream." This is a story well-known to all tuna researchers in all countries. This fact alone shows how Myers Paper is erroneous.

CPUE analysis should be carried out with an utmost caution. This is the most important point in stock assessment. A symbolic example showing this may be the case of southern bluefin tuna. Japan and Australia confronted against each other over the interpretation of CPUE for southern bluefin tuna. Japan carried out "experimental fishing" in a bid to prove the legitimacy of its position, and Australia appealed the case to an international tribunal.

4. Critiques against Myers Paper

It was two years later that the critiques against Myers Paper were placed in the website of Nature. Immediately after the website for counterarguments was opened, a number of criticisms were posted. (See http://www.soest.hawaii.edu/PFRP/large_pelagics/large_pelagic_predators.html). However, such counterarguments remained far removed from the eyes of the general public. In what follows, major points of those critiques are presented.

- (1) CPUE in longline fisheries does not reflect the changes in the entire resources;
- (2) The scale of catch in the 1950s-60s was small. Although the catch multiplied since the 1970s, CPUE as shown by Myers drastically declined when the catch scale was small but CPUE remained highly stable when the catch increased subsequently. This cannot be explained scientifically (Fig. 2).
- (3) The state of the resources should not be assessed only with the decline rate of CPUE in the 1950s-60s, but should be assessed using all available data such as changes in size composition and catch volume.

Before publishing their paper, Myers et al.

sought comments from many scientists engaging in the resource studies. Myers had been aware of the above comments before making his paper public. His response to those comments was, in short, a persistent repetition of his view that the rapid decline in CPUE in initial years of fisheries was true, and any stock assessment model that could not explain it was wrong.

Last October, an Australian marine resource researcher, Dr. Tom Polacheck, published a very comprehensive counterargument against Myers Paper in a science journal "Marine Policy." In the article, very bitter criticisms were presented, also alleging Nature for abandoning its responsibility. The name of Polacheck is widely known among those who are related with southern bluefin tuna. He is a researcher with the past record of engaging in harsh polemics against the Japanese researchers. Although Dr. Polacheck and I were at odds in aspects of southern bluefin tuna stock assessment, we came to agreement on our views on Myers Paper.

In addition to his criticisms of Myers paper, Polacheck bitterly criticized the role and responsibility of science journals, such as Nature. In short, science journals have played the role of communicating the discovery of scientific facts to ordinary people. Although this is a very significant role, Myers Paper we are now talking about does not present scientific facts but simply a view of Myers. Polacheck's criticisms were directed to the publication of such a view as if it were a scientific fact.

5. The role to be fulfilled by science and the responsibility of science journals

One of the tasks of science is to send an alarm signal to the society. But that does not mean it is allowed to send warnings at random. The message should be based on facts because various judgments made in the society need to be based on accurate facts. For this reason, there is a case where it is necessary to ring an alarm bell with the aim to bring the scientific findings to the public knowledge. In this respect, however, Myers Paper presents a serious issue. In all cases, "scientific facts" should be communicated—not a simple personal view. To this end, any view should be presented as a conclusion after transparent debates among scientists.

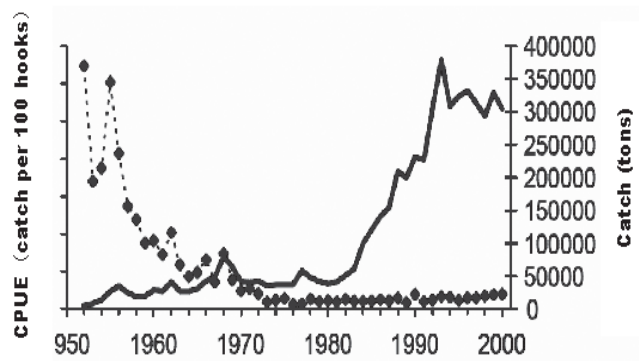


Fig.2 Annual changes in yellowfin catch in the Indian Ocean (solid line) and CPUE (dashed line) (cited from Polacheck's paper)

It is the responsibility of both scientists and science journals. Myers Paper only created confusion. Looking over the history of environmental protection movement, we know how important it is to manage such information appropriately. But, as long as such a system has not been established, we should have the awareness that the recipients of information seek the way to check the accuracy of information not simply depending on the authority of information media.

6. Conclusion: "Uncertainty" — the desirable state of fishery resource management

It is natural that fishery resource management should be implemented by the decision-making based on scientific facts. Further, as uncertainties are inseparable from scientific facts, decision-making fully taking into account the scale of uncertainties is necessary. It can be said that this represents "risk management." It is often forgotten that the final aim of resource management is the maintenance and development of fisheries, and attention should be directed only to reducing the possibility of failure in resource management. However, as the final goal of resource management cannot be attained in the absence of maintenance of fisheries, risk management should take the maintenance of fisheries into perspective. The argument based on Myers Paper is very short-sighted. It says that "fisheries should be abolished" because resources are depleting. But I believe that to take responsibility in resource management means to make utmost effort in pursuing the recovery of the resources while maintaining fisheries as much as possible even when, by any chance, resources declined to one tenth of their initial state.

Moves of Regional Tuna Fisheries Management Organizations

Tuna RMFOs To Introduce More Stringent Management Measures

ATLANTIC OCEAN

ICCAT To Impose Tighter Sanction on Chinese Taipei —Control on Farmed Tuna Will Also Be Strengthened—

The International Commission for the Conservation of Atlantic Tuna (ICCAT) made the following decisions at its annual meeting held in Sevilla, Spain, November 14-20, 2005.

1) The issue of Chinese Taipei fishing vessels

ICCAT urged Chinese Taipei to reduce its bigeye tuna fishing vessels to 15 in 2006 from 98 in 2005. ICCAT also decided to reduce the quota for Chinese Taipei's fishing vessels to 4,600 tons from the previous year's 16,500 tons, by deleting all the Chinese Taipei vessels from the Positive List, except the 15 vessels and 60 albacore fishing vessels catching bigeye as bycatch.

Further, the 15 vessels, for which operation is allowed, will be placed under rigorous inspection and enforcement, including obligations for observer boarding and landing inspection at designated ports as well as prohibition of at-sea transshipment.

In addition to those measures, ICCAT urged Chinese Taipei to eliminate illegal, unreported and unregulated (IUU) fishing activities, conduct investigation and disciplinary actions on the past illegal fishing activities, and reduce further the number of fishing vessels, including small-type tuna fishing vessels.

The Commission also decided that it would impose sanctions against Chinese Taipei at the next annual meeting if the above conditions were not satisfied.

2) Tightened control on transshipment

ICCAT decided to require member States to register their transport vessels at the ICCAT Secretariat. For the transshipment at ports, confirmation of flag States and notification to port States before and after

transshipment was required. Also, prior license of flag States for at-sea transshipment as well as boarding and inspection by ICCAT observers were required.

3) Control on tuna farming

ICCAT required member States to develop a list of fishing vessels catching the fish to be transferred to fish farms, and prohibit transfer of fish from the fishing vessels not on the list. Also the commission decided to prohibit import of tunas from fish farms other than those duly registered in ICCAT as well as those which are not carrying out sampling.

As regards the issue of probable excessive harvesting by Turkey, as pointed out by an environmental organization, Turkey committed itself to address the issue, in cooperation with Japan, by investigating the case.

PACIFIC OCEAN

WCPFC To Regulate Catch of Bigeye and Yellowfin

The Second Session of the Western and Central Pacific Fisheries Commission (WCPFC) was held in Pohnpei, Federated States of Micronesia, December 12-16, 2005.

The meeting was participated in by 30 countries, including Japan, Korea, China, Chinese Taipei, the United States, Australia, New Zealand, Canada, the Philippines and the European Commission (EC).

(1) Northern Committee

The WCPFC officially established its Northern Committee and elected Japan as its Chair. The Northern Committee, consisting of 7 countries (Japan, Chinese Taipei, Korea, China, Canada, the United States, and the Philippines) is a body designed to recommend by consensus to the commission regarding conservation and management measures for tunas, including bluefin, distributed in the area north of 20 degrees N. The recommendations are to become the commission's decisions. The second meeting of the Northern Committee is expected to be

held in Japan next September.

(2) Reduction of overcapacity

The WCPFC adopted a resolution calling for reduction of overcapacity caused by purse seine vessels who have continued to breach the resolutions, adopted previously, urging to reduce any overcapacity.

It was agreed that concerned parties shall work together to ensure that the beneficial vessel owners reduce by December 31, 2007 such overcapacity through reduction of equivalent fishing capacity of other fishing vessels operating in the Convention Area.

(3) Conservation and management measures for bigeye, yellowfin and albacore

The WCPFC decided on bigeye and yellowfin based on the recommendations from

the Scientific Committee to (a) limit the purse seine catch at the present level (only for the area between 20 degrees N and 20 degrees S), and (b) to limit the longline catch of bigeye at the present level (the average of 2001-2004).

Further, the WCPFC decided to restrain the catch efforts for North Pacific albacore to the present level. In connection with this, the Commission decided to limit the number of fishing vessels mainly targeting South Pacific albacore in order to prevent shift of catch efforts to the South Pacific.

(4) Incidental Catch

The WCPFC adopted resolutions regarding reduction of incidental catch of sea turtles and sea birds and provision of data on incidental catch.

Topics

Farmed Tuna

Rapid Expansion Causing Problems

There have been changes in Japan's sashimi tuna market. A major factor is that low-priced toro sashimi was made available by an increasing supply of farmed tunas from overseas where juveniles, caught in the wild, are raised in cages. Many issues have emerged surrounding tuna farming, such as the catch of bluefin disregarding international management measures.

Almost all farmed tunas are exported to Japan

Late last year, representatives of Turkey's tuna farming industry visited Japan's Fisheries Agency and an environmental organization and explained that they will cooperate with Japan in collection of data and research on tuna stocks, saying that they are complying with international fishery rules.

This visit was made in the wake of the report of an environmental organization that Turkey is likely catching bluefin tunas in excess of the quota for the Atlantic set by ICCAT. Following this report, a large supermarket chain in Japan immediately suspended sale of Turkish-origin tunas.

The Turkish tuna farming industry representative says that "almost all farmed tunas are being exported to Japan. Tuna farmers all over the world are competing to expand their market share in Japan."

In tuna farming, juveniles are caught in large quantities in the wild, and are exported after the tuna are fattened in the cages. Fishing vessels catch the whole herd of tunas with purse seine after they find the tuna schools. The fish in the nets are transferred to a huge cage of about 50 meters in diameter and are fattened to produce a large portion of toro by feeding sardines and other fishes. Tuna farming was started in Australia in early 1990s and rapidly expanded to European countries, like Spain and Malta, as well as to Mexico.

Exports of farmed tunas to Japan, which stood at around 3,000 tons a decade ago, are deemed to have increased to around 35,000 tons in 2005. Because of this increase, the price of high-grade bluefin tuna, which fetched 5,000 yen per kilo during Japan's bubble-economy period about 10 years ago, fell to the level of 1,000 yen now.

Although farmed tunas appear to benefit ordinary consumers, their rapid increase brought many problems to light.

A Fisheries Agency official says: "the drastic expansion of tuna farming has further complicated the already complex management of tuna resources. We are concerned that it will further deteriorate the stock status."

Data provided by tuna farms show only the end delivery amount and do not show how many tunas were actually caught before farming.

Farming data are not transparent

“Growth and mortality rates of tunas in cages are seldom made clear. Tuna farms indeed constitute a black hole,” says a source close to the tuna industry.

A Japanese official of the World Wildlife Fund points out that “concerns are growing that excessive catch for tuna farming might accelerate the pace of depletion of bluefin and southern bluefin tunas. Consumers should be aware of this fact.”

(This article is a summary of Kahoku Shimpo’s report, January 13, 2006.)

Seabirds

All-out efforts by Korean tuna fishers to reduce incidental catch of sea birds

Korean longliners are making their best efforts to reduce the incidental catches of seabirds using appropriate mitigation methods, Ms Shin Hyun-ai, a representative of the Korean Deep Sea Fisheries Association (KDSFA), told OPRT.

This remark was made in connection with the press release of the Royal Society for the Protection of Birds on December 2, 2005, which said that a new South African research showed that “for every fishing day, Korean-flagged tuna longline vessels fishing in South African waters kill around ten albatrosses.”

Ms Shin said that Korean long liners fishing in the South African waters tow “Tori Pole” while they are fishing, and begin/complete setting operations before sunrise in a manner to ensure the maximum reduction of potential interactions between longline and seabirds.

Those mitigation measures are required by the terms and conditions of fishing license of South Africa and recommended by environmental bodies like Birdlife International.

Other methods are used in combination with them to improve sinking rates of baited hook by melting baits before 12 hours of line setting and scare seabirds away by attaching shiny materials to the line.

Also, Korean vessels have observers on

board, with 100% coverage, while fishing in the area so that they can monitor and, where necessary, control the daily interactions with seabirds, in cooperation with crew. The observer report provided to the Authority of South Africa clearly shows how much we endeavor to avoid an incidental catch of seabirds and to what extent it happens daily.

In this context, Ms Shin said, the claim made in the Royal Society’s press release regarding Korean flag’s interactions with seabirds seems to be too exaggerated, not based on truth. It will undermine seriously all our efforts for reducing the potential entanglement of seabirds with long line gears and increasing their survivals.

DNA Analysis

False catch report on tuna detected by Japan’s DNA test

A DNA test conducted by the Fisheries Agency of Japan revealed that the report on 148 tons of tuna exported to Japan last November by a Chinese tuna longliner was falsified.

The bigeye tunas, actually caught in the Atlantic, were labelled as coming from the Pacific in an apparently bid to evade tighter regulations for bigeye tuna in the Atlantic than in the Pacific.

Japan urged China to investigate the case and take disciplinary action, and temporally banned the imports of tuna from the vessel.

New OPRT Pamphlet- Yokohama Declaration

OPRT published a pamphlet presenting the Yokohama Declaration, in which fishers concerned committed themselves to sustainable use of world’s tuna resources and conservation of marine ecosystem. (Visit the OPRT pamphlet section at <http://www.oprt.or.jp>)

