

A Review of the Southern Bluefin Tuna Fishery: Implications for Ecologically Sustainable Management

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The state of the Southern Bluefin Tuna (SBT) parental stock has declined to record low levels following considerable fishing pressure since the inception of the fishery in the 1950s. This situation has come about due to a variety of factors. The slow growth and long life span of the species makes it extremely vulnerable to overfishing and slow to recover from stock reductions. The species does not reach maturity until at least 8 years of age and has a life span which recent research indicates to be approximately 40 years. Overcapitalisation of the global fleet and the great economic value of the species has been driving continuation of the fishery in the face of scientific uncertainty. The status of the SBT stock has recently generated interest from conservation groups and prompted nominations of the species under Australian and international conservation legislation, including a listing on the critically endangered category of The World Conservation Union's (IUCN) Red List of Threatened Animals.

The global fishery for SBT began in the 1950s with Japan exploiting the stock on the high seas and Australia within its coastal waters. A rapid expansion phase followed culminating in a peak catch for Japan in 1961 of 77 000 mt followed by a rapid decline in catch rates in the face of increasing effort. The fishery in Australia developed more slowly, peaking in 1982 at 21 000 mt. Intense scientific effort began to be expended on SBT in the 1980s as it became evident that the catch was not sustainable and parental biomass had been depleted to a seriously low level.

Informal international management arrangements for SBT have been held since 1982 when Australia, Japan and New Zealand (the principal nations fishing for SBT) initiated trilateral scientific and management discussions aimed at developing conservation strategies for the depleted stock. A global quota was implemented early in the 1980s and throughout that decade, quotas were gradually decreased. These restrictions, however, proved ineffective at curtailing the declining population.

The informal trilateral management discussions culminated in the ratification in 1994 of the Convention for the Conservation of Southern Bluefin Tuna (CCSBT) between Japan, Australia and New Zealand. This agreement continued the setting of a total allowable catch (TAC) for the three member countries and aimed to ensure the conservation and optimum

utilisation of SBT. The Convention also states a long term objective of returning the parental biomass to the 1980 level by 2020. The Convention formalised establishment of a Scientific Committee to act as an advisory body to the Commission. However, the Scientific Committee has failed to come to an agreement on stock projections in the past with scientists from the three member countries and external scientists disagreeing on the probability of recovery of the parental stock.

Although management restrictions have been in place for more than 10 years and there exists a legally binding agreement, the parental biomass has generally continued to decrease. The stock is still severely depleted and the parental biomass is currently estimated at less than 10% of the 1960 level, well below what is considered a biologically safe level. In retrospect, previous stock projections have been overly optimistic which would seem to indicate that the precautionary principle should be exercised at this time.

In recent years increasing quantities of SBT have been taken by countries not party to the CCSBT. The greatest proportion of non party catch is taken by Taiwan, Indonesia and the Republic of Korea. Recent estimates of the annual catch of these countries are in the order of 2 500 to 2 600 mt, including around 700 mt taken by Indonesia on the spawning grounds south of Java. However, the real figure may be more like 3 200 mt or more due to some of the catch being reported in processed weight rather than whole weight. The increasing level of non-party catch has been flagged as a major issue affecting the objective of the Convention and threatens to undermine the conservation action taken by the CCSBT. Catches of SBT are also taken by countries other than those mentioned above and these amounted to 201 mt in 1996. China has expressed interest in expanding its distant water longlining fleet and already has over 400 small tuna longliners in the Western Pacific largely controlled by a few large companies.

In addition to effects on the target species, there are a number of other potentially serious environmental impacts of SBT fishing in the southern oceans. Longline fishing has some adverse impacts on incidentally taken species of fish and seabirds. Many species of seabirds are caught during the setting and hauling of longlines and some cetaceans, sharks, seals and other species are taken as a result of longlining and other SBT fishing methods. The ranching of wild-caught SBT in cages has potential deleterious effects on the marine ecosystem, and taking of large amounts of baitfish as a feed source for these farmed fish may prove deleterious for the stocks involved.

There is no doubt that the decline in the population of SBT has been severe and that the situation with the parental biomass is now critical. Estimates by all parties of the parental biomass are below 9% of that in 1960 and catch per unit of effort is estimated at 2% of that in 1960. It must be remembered that in 1960 the harvesting was well underway with 1961 being the year of peak catch of the Japanese sector. Therefore these estimates

are of a population which had already incurred severe depletion and not of the virgin biomass. Furthermore, Australia and New Zealand have stated that the use of the historical conversion factor for going from processed to whole weight has resulted in the total weight of the longline catch being underestimated.

The collapse of significant fisheries in the past several decades has indicated that it is possible to fish marine species to commercial extinction and that great economic suffering occurs as a result. If the warning signs are ignored, this possibility exists for SBT. The CCSBT also has a responsibility to recognise the effects of fishing on other components of the marine ecosystem and to mitigate these effects. The current catches of non-target species, in particular seabirds, cast doubt on the sustainability of the fishery.

Given the extremely low parental biomass, the uncertainty of predicting stock size in the future, the problems associated with bycatch and the environmental problems associated with tuna ranching, it is recommended the following strategies be implemented:

- A reduction in quota of 35% (to 7 635 mt) is recommended as this was the reduction considered necessary to promote a 75% probability of recovery to 1980 levels of parental biomass by the year 2020 by Australian scientists. A recovery plan must be implemented and include intermediate goals and decision rules related to these goals to effect the target recovery by 2020.
- A scientific peer review panel should be appointed to reach a consensus decision on the status of the stock.
- The CCSBT should mandate the landing of all fish caught to prevent any high-grading which would result in excessive mortalities.
- Every effort should be made to encourage accession or cooperation with CCSBT objectives by non-parties. It is a requirement under the UN Agreement that non-parties either join or cooperate with the CCSBT, and although Taiwan is ineligible to join the CCSBT, they could agree to cooperate with the Commission. Japan should be encouraged to comply with its responsibilities within the CCSBT by not trading with these countries until they agree to join or comply in principle with the CCSBT. All efforts also need to be made to ascertain true catches of non-party countries over the past 3 years for future allocations within the CCSBT.
- The CCSBT should make the use of seabird mitigation devices (ie tori poles) mandatory in the SBT fishery. The Ecologically Related Species Working Group of CCSBT should implement observer programs to monitor seabird catches on high seas and collect catch data on a geographical scale. Monitoring is also urgently needed for non-party fisheries and CCSBT should pursue this through relevant international agreements.
- The CCSBT should implement a mandatory shark bycatch code of conduct for SBT fishing both on the high seas and within national

waters, as applies to Japanese vessels fishing in Australian waters. Observer programs would also need to be implemented to ensure compliance.

- An ongoing monitoring program by an independent body should be put into operation to monitor the tuna ranchers. The precautionary principle should be enacted in deciding upon stocking densities until several years data have been assessed and a decision made as to the optimum safe stock densities.

There should be no further importation of pilchards into Australia until a risk assessment has been completed on the possibility of disease introduction.