

P r o g r e s s

Taking stock: Southern bluefin on the line

Southern bluefin tuna is classified as endangered and yet, is still heavily fished internationally. Management of the stock is the ultimate fisheries case study, a highly-strung balancing act involving science, long-term personal, diplomatic and political relationships, cultural sensitivities and, of course, money.
Karen McGhee reports.

IT WAS Dean Lukin's unprecedented Olympic weightlifting gold medal for Australia at the 1984 Los Angeles Games that first shone a public spotlight on the nation's tuna fishing industry. Memorable images of Lukin pole-fishing southern bluefin tuna (SBT) from the back of his dad's boat off southern Australia left little doubt as to how the unassuming sportsman developed his legendary capabilities for hoisting huge weights.

These days, the industry has more of a reputation for building bank balances than muscle. South Australia's Port Lincoln, where the industry is based, is thriving and has become one of Australia's wealthiest towns.

This prosperity, however, is a relatively recent development and the industry is not naïve about its potential for decline. It's had a history of fluctuating fortunes and, just over a decade ago, hit rock bottom due to stock declines. It was a crisis that saw many of the hard-working entrepreneurial Croatian immigrants and their families,



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who built the industry from nothing in the 1950s, facing bankruptcy.

While there's cautious optimism within the Australian industry that the future continues to be bright, some scientists and conservationists have been warning that the planet's SBT stock might not be able to continue supporting current catch quotas. In fact the Red List of Threatened Species, maintained by the International Union for the Conservation of Nature (IUCN), has since 1996 categorised the southern bluefin tuna (*Thunnus maccoyii*) as critically endangered. It's an assessment that, by definition, designates the species as 'facing an extremely high risk of extinction in the wild in the immediate future.'

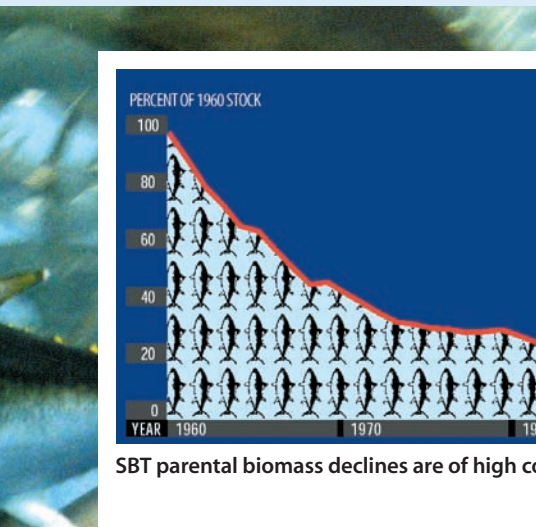
Bluefin tuna: net profits.

Right: Can sustainability science over-ride commodity pressure?

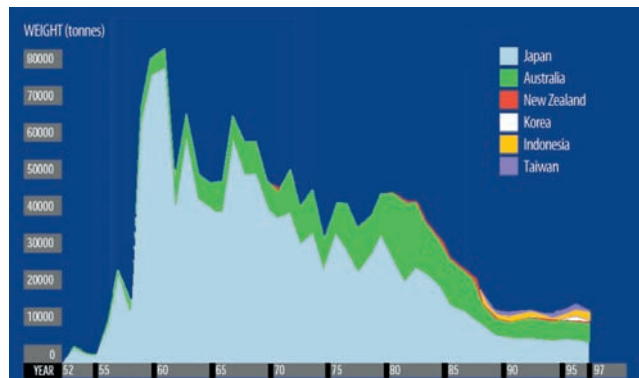


Anna Willock, Traffic Oceania's Senior Fisheries Advisor, agrees it strikes many people as 'surprising' that a species assigned such a conservation status by an internationally respected body continues to be commercially exploited by Australia.

'For other species [with a similar] conservation status, it would certainly be anathema to think you would continue taking a commercial harvest,' she says. 'Part of the defence against that is wrapped into this idea that unless there is change at the international level, any moves towards [reducing or closing] the fishery in Australia would be to little effect and that engagement in the fishery and the processes involved is a



SBT parental biomass declines are of high concern to fisheries scientists.



The global catch of bluefin has dropped markedly since the bumper harvests of the 1960s.



G. Santos/TRAFFIC

better step from a conservation perspective.

The industry itself, however, doesn't believe it has witnessed signs that the stock is facing any sort of collapse and neither does it agree with the IUCN's conservation status for SBT.

The listing appears to be based on the fact that the stock's parental biomass is now a mere fraction of what it once was. Few associated with the SBT industry, either domestically or internationally, dispute this. But there is hot debate about what this means exactly. Is the stock in imminent danger of collapse? Can it continue to sustain current catch quotas?

Brian Jeffriess, President of the Tuna

Boat Owners Association of Australia and Deputy Chair of the Australian Fisheries Management Authority, believes the critically endangered listing is unwarranted. He says the IUCN has failed to respond adequately to his association's repeated requests to secure documented evidence explaining the rationale behind SBT's Red List entry.

'I don't think any of us has any really definitive idea about the state of the stock at all,' he says.

Jeffriess argues that if there *were* clear signs of collapse, it would certainly be in the industry's long-term interests to respond accordingly.

'My job, even though I work for the industry association, is sometimes to tell [the fishers] news they don't want to hear,' Jeffriess explains. 'So I'd have no fear in saying if the stock was in extreme difficulties.'

Nevertheless, the Australia Government's Department of Agriculture, Fisheries and Forestry lists the stock generally as 'overfished' and the spawning stock as 'severely depleted'. The probability of the stock rebuilding, according to the department's website, is 'severely limited' by current catches.

The management of SBT is, however, about far more than the status and sturdiness of the stock. It's also about long-term personal, diplomatic and political relationships, cultural sensitivities and, of course, money. This is, after all, an international industry worth \$1 billion annually.

It also attracts its share of glamour because SBT these days is considered a high-end consumer product in Japan, where its flesh is prized in the lucrative sashimi market. Healthy fish generally sell

wholesale for between A\$20–\$30/kg but large, whole fish in perfect condition have been known to sell for tens of thousands of dollars. Ironically, much of the Australian catch was once canned. Now, almost all of it is sold for sashimi.

As for diplomatic relationships, the industry's two major players – Australia and Japan – share a chequered history.

These two nations began the industry in the 1950s with Japan taking adult fish on the high seas by longline and Australia exploiting juveniles, initially in a coastal pole-and-live-bait fishery off NSW and South Australia and later by purse-seine. The Japanese fishery peaked in the early 1960s with annual catches of about 80 000 tonnes. The Australian take peaked in the early 1980s at around 21 500 tonnes.

By the mid-1980s there were many signs that the SBT stock was not coping with the pressure, and Australia, Japan and New Zealand agreed between themselves to set quotas. These were lowered steadily throughout the 1980s and finally cut by 50% in 1988 to a level around which they've since remained. By then, however, profit margins for Australian fishers were being squeezed so tightly the domestic industry was floundering.

As the banks lined up to foreclose on mortgages, the industry was rescued from bankruptcy at the 11th hour and given a new direction – tuna 'farming' – with both financial and moral support coming from Japan. Tuna-farming trials began in 1991 and worked far better than anyone hoped. Today, almost the entire Australian annual quota is taken as juveniles by purse-seine nets in the Great Australian Bight and carefully dragged for up to 300 km to floating enclosures in the waters off Port Lincoln.

Progress



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Bluefin tuna are highly sought for their size and excellent return on effort.

There they are fed high protein diets for up to six months and often sold at twice the weight at which they were caught.

Japan, meanwhile, continues to take most of its quota in the form of adult fish captured on longlines in the wild, offshore waters of the southern oceans.

Quota and other management arrangements between Australia, Japan and New Zealand were formalised in 1994 with the establishment of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), which now oversees the international management of the fishery. Not long after its inception, the CCSBT set a fundamental management target to rebuild the stock to its 1980 level by 2020.

Despite the early goodwill between all parties involved, relations took a significant turn for the worse during the late 1990s.

At issue was Japan's taking, for 'experi-

mental' purposes, of 1400 tonnes over and above the 6000 tonne annual quota to which it had previously agreed. The dispute turned nasty, Japanese fishing boats were banned from Australian ports, except in emergencies, and the fracas was finally resolved in Australia's favour by the International Tribunal for the Law of the Sea.

These days there has been significant change among the delegates to the CCSBT and many of the key bureaucrats involved in the days of those ill-fated 'tuna wars' have gone. By all accounts, dialogue between commission delegates is now far more active, ongoing and friendly than it used to be. And, compared to similar commissions elsewhere in the world, it's said to function relatively smoothly.

A significant development for the commission in recent years has been the inclusion of Korea and Taiwan as members and Indonesia as a co-operating non-member. These three countries began exploiting SBT by longline from the mid-1990s and the long-term SBT fishing nations became concerned about their impact on the stock. Having them included in the commission makes it easier to monitor and control their catches.

The CCSBT's next major annual meeting, set down for Korea in October, will be significant for two main reasons. It will be the first at which all nations with a commercial interest in SBT will have been brought into the commission's fold. And the commission's long-term objective to rebuild the stock to its 1980 level and the progress made in achieving that goal will also be reviewed.

That assessment will be based on the



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Hightech fishing: longline boats in Tasmania.

presentation of scientific findings from the various nations conducting research into SBT.

Although CSIRO has developed a reputation for excellence in its scientific research of SBT over the past 40 years, analysis of such data has until recently been an ongoing point of contention for the industry. Scientists from all countries concerned acknowledge the overall size of the stock has declined significantly since the industry began, but there has been much dispute (particularly between Australian and Japanese scientists) about what this means in terms of the stock's capabilities for recovery. And so the commission has assembled an external panel of experts in the assessment of fish stocks to provide impartial analyses on the science.



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Japanese markets pay rising prices for Australian catch.



Australian Fisheries Management Authority

Australia's southern bluefin tuna fishery

Southern bluefin tuna biology and migration



Egg (1 hour)



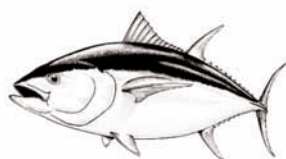
Egg (30 hours)



Larvae



Immature fish



Mature fish

Bluefin mature at 12 years and can live up to 40 years.

Southern bluefin tuna are fast-swimming and highly migratory, with a strictly Southern Hemisphere distribution. They are large fish, capable of attaining weights of 200 kg and lengths of 2 m, although individuals that large are now rarely seen.

Several features of southern bluefin tuna biology and natural history make the species vulnerable to overfishing. Firstly, it is long-lived (thought to have a potential lifespan of 40-plus years) and late to mature (not reaching reproduc-

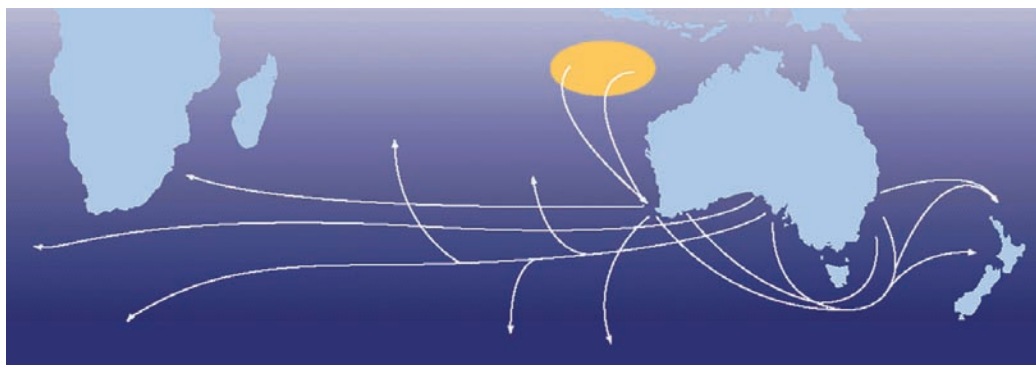
tive age until 10–12 years).

It's also significant that there is believed to be only one large stock of the species with one spawning ground, located in tropical waters south-east of the Indonesian island of Java. And so adult fish taken by Japanese, Korean and Taiwanese longliners are part of the same population as schooling juveniles captured in purse-seines by domestic fishers off the Great Australian Bight and adults taken by Indonesian boats on the spawning ground.

Larval fish hatch between

spring and summer in the spawning ground and drift south in warm surface currents down Australia's west coast. They move, as juveniles, across the coastal surface waters of southern Australia and up the east coast, before shifting offshore to deeper waters at around five years of age. The Australian fishery targets fish aged three to five years during summer months.

More on Southern bluefin tuna: <http://www.marine.csiro.au/LeafletsFolder/31sbt/31sbt.html>



Southern bluefin tuna migration routes showing Australia's northern fishery (in yellow).

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CCSBT AGREED QUOTAS FOR 2003–04

MEMBERS	TONNES
Japan	6065
Australia	5265
Republic of Korea	1140
Fishing Entity of Taiwan	1140
New Zealand	420
CO-OPERATING NON-MEMBERS	
Indonesia	800

An important part of CSIRO's input at October's meeting will be a full stock assessment, the first in three years. This will draw together the latest catch and effort data as well as the latest findings from research activities such as tagging and aerial surveys of surface schools.

Based on such contributions and guided by its international and independent panel of experts, the CCSBT Scientific

Committee will deliver a statement regarding the status of the stock. It's also expected to report on the likelihood of important management targets being met including the stock's capacity to rebuild.

'There's some lovely science going on to support the decisions of managers,' explains John Gunn, a biologist who leads CSIRO's scientific program on oceanic fisheries. Over the last decade CSIRO has made significant progress in understanding many aspects of the biology and population dynamics of southern bluefin tuna that have improved the stock assessments and the Commission's recently developed operating model.

It's not yet clear what findings the current CSIRO assessment will make. But previously the Australian science has suggested quotas would have to be cut to achieve the 2020 time frame. Alternatively, and this is the option many believe to be most likely, the Commission will choose diplomatically to shift the goal posts and alter the 2020 target.

'This year is a critical time for the CCSBT,' says Gunn. 'There will be a full assessment of the southern bluefin tuna stock for the first time in three years, which will provide an update on whether the spawning stock has been rebuilding under current catch levels. Managers have the challenge of adopting a Management Procedure for the CCSBT, based on agreed management objectives (presumably allowing or rebuilding of the stock) and transparent decision rules to govern the total allowable catch from 2004 onwards. The future of the southern bluefin tuna stock and the Australian industry rests on these decisions.'

More information

Australian Fisheries Management Authority: <http://www.afma.gov.au/default.php>

Commission for the Conservation of Southern Bluefin Tuna (CCSBT): <http://www.ccsbt.org/>