Working Paper 1

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Status Report:
Reef and Nearshore Fisheries and Aquaculture

Paper prepared by SPC's Coastal Fisheries Programme

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Purpose

1. The purpose of this paper is to:

   - provide an update to Heads of Fisheries on the status of coastal fisheries and aquaculture based on the best available data, while highlighting the lack of data available; and

   - invite discussion of the draft complete status report attached to this working paper and its findings, and request Heads of Fisheries to provide any additional data or corrections to any statements made in the report, so the report can be finalised.

Summary

2. The full status report (annex 1) addresses the status of reef fisheries for finfish and invertebrates, nearshore fisheries for pelagic fish including tuna, fisheries for demersal fish including deepwater snappers and aquaculture, while this working paper provides a summary of the complete report.

3. Strong fisheries management is needed to maximise the yields of demersal fish and invertebrates and reduce the size of the "food gap" between available seafood and that required to meet the needs of growing populations in Pacific islands. However, much of the additional seafood required will need to come from nearshore pelagic fish, tuna in particular, as well as aquaculture.

4. Climate change will have varying effects on countries and different fisheries. It is essential to develop the necessary monitoring tools and implement long-term national and regional monitoring programmes for climate change as soon as possible – the longer the time-series, the greater the power to detect change and provide information needed for adaptive management.

5. SPC data suggests that many reef fisheries based on finish and invertebrates are exposed to unsustainable fishing and sound management is urgently needed to maintain catches on a sustainable basis.

6. Giant clams have been fished to local extinction in several areas. Trochus exports have declined markedly and at least some of this decline has been due to uncontrolled fishing as well low international prices for the commodity. Green snails have been heavily exploited in almost all countries where they exist and many stock are at very low levels. One of the oldest of all commercial fisheries, that on sea cucumbers, has suffered from over-fishing.

7. The status of several other invertebrates, including lobsters, crabs, and octopuses, is generally not known. Even though these species are important in subsistence fisheries and local markets, there are very few catch statistics.

8. In the face of depleted stocks, SPC is assisting many countries with the development and imposition of management measures including size limits and short harvest seasons. In valuable and threatened invertebrate stocks, some countries have taken the bold move to close their fisheries to allow stocks to rebuild. But these 'moratoria' or resting periods must be long enough to ensure full recovery. Many invertebrate species with limited movement require a large number of individuals to be in close proximity to each other for reproduction to be successful.

9. The live reef food fish trade has declined as more authorities have become aware of the implications and consequences of the trade, especially in trying to meet the large minimum quantities required by buyers. Export of aquarium fish and invertebrates (including corals) from Pacific Island countries and territories started in the 1970s. It has since expanded to become an important source of income and employment for a number of communities in the region. And again management must ensure that best practices are followed to avoid damage to fragile reef ecosystems.

10. Live coral exports from the Pacific region peaked in 2006 and have been in decline since. This may be linked to the economic downturn and also the culturing of some corals within importing nations.

11. Nearshore fisheries include those for pelagic and demersal species. Commercial tuna fisheries are believed to have some potential for further growth in the Pacific Island share in the catching and processing sectors. At present over 30% of the total tuna catch is caught within the EEZs of Pacific Island countries and territories.

12. Domestic longline vessels and small-scale boats, which fish near fish aggregating devices (FADs) and troll close to the reefs, also target species such as wahoo, mahi mahi and rainbow runners. In some countries, the catch of non-tuna species is higher than that for tuna.

13. Many member countries have been benefiting from FADs over the last 25 years. Tuna catch rates (kg per hour) from trolling around FADs are often three times the catch rates of tunas taken when chasing tuna and trolling in open water and around reefs. Nearshore pelagics and the use of FADs are also important for the slowly expanding game-fishing operations in the Pacific. Many countries now have charter fishing operations taking paying passengers to fish for marlin, wahoo, mahi mahi and tunas.

14. There is a growing interest in fishing for squid in the region and SPC has been involved in exploratory fishing trials for "giant" squids. Catches of large squids, including diamond squids with a mean weight of 18 kg, have been encouraging and there is potential to develop fisheries in some countries.

15. Deepwater snapper fishing was the subject of an SPC international workshop in 2011. The gathering recognised a need for well designed biological studies of deepwater demersal fish species across the Pacific Islands region to gain a full understanding of the demography of harvested species. Most species have extended lifespans (> 20 years), are generally slow-growing and late to mature, making them vulnerable to overfishing.

16. Data obtained during SPC's surveys on the deepwater snapper project revealed sizeable stocks of bluenose and blue warehou on the seamounts of southern Tonga and in international waters between Tonga and New Zealand. Catches of bluenose as far north as 19°S have been reported in Fiji waters, suggesting this species has a wider distribution than previously thought. These finds suggest that there may be some potential for the development of these fisheries in this region and other locations at similar latitudes such as Fiji and New Caledonia.

17. Other surveys have been conducted for deepwater species including caridean shrimps, alfonsino and deepwater crabs. However the economics of fishing in deep water and the lack of knowledge of the stocks make commercial fishing unpromising.

18. Aquaculture systems introduced to the region in the early 1950s by SPC have only become established within the past few decades. However, since 2007, production from the region has dropped significantly as a result of the collapse in the value of pearl production from both French Polynesia and Cook Islands. This decline was related to a reduction in value of pearl from French Polynesia mainly from oversupply and poor market prices while Cook Island pearl production was affected by market value, water quality and other environmental problems. By 2010, the value of aquaculture in the region had reduced to about USD 100 million.

19. Excluding shrimp and pearl production from New Caledonia and French Polynesia respectively, Pacific oysters in New Caledonia have the highest value followed by tilapia production in several countries including Papua New Guinea, Fiji and Vanuatu. Seaweed production is increasing, mainly in Solomon Islands and Fiji.

20. Key commodities identified as most feasible and having the greatest potential are cultured pearl, seaweed, giant clams and coral farming for the ornamental trade, marine shrimp, tilapia, freshwater prawn, sea cucumber, and marine finfish. Species such as tilapia and milkfish, which have well established fish farming methods, are amongst the most suitable species to help meet the food security needs.

21. Pearl farming continues in countries such as Fiji and FSM where smaller and more specialist producers target local tourism and local industry. New research is underway in neighboring countries such as Tonga to produce round pearls from other pearl oyster species such as the winged pearl oyster.

22. There is much interest from Pacific countries in adopting aquaculture techniques to restore stocks of sea cucumbers. Although techniques to breed the valuable sandfish species have been developed, it is unclear to what extent aquaculture can contribute to the restocking of depleted wild stock or form the basis of profitable sea ranching or pond farming systems. One of the key challenges is to demonstrate the effectiveness of sea cucumber restocking and sea ranching through larger scale experimental releases and post release monitoring.

23. Knowledge of gender roles and their changes are an important input to effective fisheries management, as it allows interventions to be tailored to the needs and abilities of specific target groups of fishers. Although the general dominance of men still persists in fishers who exclusively target finfish, the opposite is true for fishers who exclusively target invertebrates, which remains a women's domain.

24. In 2011, studies on the participation of women in fisheries science and management indicated that women only represent 18% of the total number of staff working in the fisheries science and management sector in government fisheries, environmental institutions and environmental NGOs. In contrast, the number of women employed in administrative and clerical roles in government fisheries divisions exceeds 60%. SPC's FAME Division strongly believes that all fisheries careers are equally acceptable to women as to men and focuses on "breaking down the barriers" to help women moving into the fisheries area if they so choose.

25. The need for more reliable catch information and sensible management is now more important than ever if our fisheries are to be more resilient to the future effects of climate change and increasing fishing pressure.