

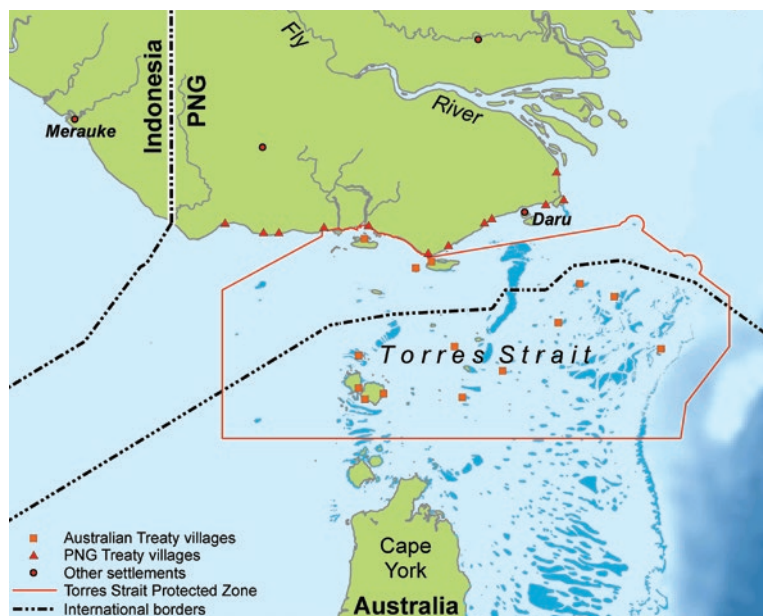
# Characterising fisheries of the Torres Strait Treaty Villages, Papua New Guinea

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Between 2011 and 2014 AFMA and the PNG NFA funded CSIRO to investigate the status of small-scale fisheries, livelihoods and food security in the Papua New Guinea villages bordering the Torres Strait of Australia. These 'Treaty villages' share marine resources with Australia in a Protected Zone managed under the Torres Strait Treaty. Trends were analysed by making comparisons with data collected by CSIRO in 1995.



Project team sampling catch in Daru market (J. Posu)



## 1. What are people catching, and where?

- ♦ A wide range of species are caught from coral reef, coastal, estuary and freshwater habitats
- ♦ The highest volume sold in Daru market is reef fish
- ♦ The highest value species are sea cucumber ('bêche-de-mer'), sharks (for shark fin), barramundi, jewfish and catfish (for their swim bladders)



Bêche-de-mer being processed (T. Greenwood)



Shark fin (S. Busilacchi)

## 2. Where are catches sold?

- ♦ Reef fish are sold in markets for local consumption
- ♦ Bêche-de-mer, shark fin, and bladders from barramundi, jewfish and catfish are sold across the Indonesian border to the Asian market
- ♦ Barramundi and mud crabs are traded informally with Australian Treaty villages



Bladders from jewfish are sold to Indonesia (J. Butler)



The highest volume sold in Daru market is reef fish (S. Busilacchi)



### 3. What are the changes since 1995?

- ♦ Fishing effort has doubled but the total catch has increased by only 20% (Fig. 1)
- ♦ This is due to population growth, immigration from Fly River villages due to the environmental impacts of Ok Tedi mine, and the growing informal trade with Indonesia
- ♦ Catch per unit effort of reef fish has declined, suggesting over-exploitation of stocks
- ♦ Freshwater catch per unit effort has increased, targeting new exotic freshwater fish (tilapia, climbing perch and snakehead)
- ♦ Coastal catch per unit effort has increased because the barramundi fishery has recovered since it collapsed in the 1990s
- ♦ Bêche-de-mer poaching is increasing in the Australian area of the Protected Zone

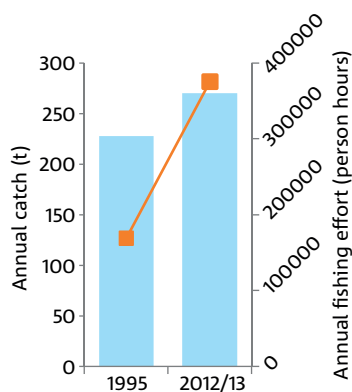


Figure 1: Estimated total annual catch (bars) and fishing effort (symbols) in 1995 and 2012/2013

### 4. What is the importance of fisheries to livelihoods and food security?

- ♦ For western villages, fisheries are the only source of income, and communities rely heavily on the informal Indonesian trade
- ♦ For villages near Daru, fishing is one of most important sources of income
- ♦ Fish is a staple food source for all villages, and provides income to buy other food (e.g. rice)



Exotic tilapia are increasingly important food (S. Busilacchi)

### 5. What about turtle and dugong?

- ♦ Turtle and dugong are not important as a food source, but have a high market value
- ♦ PNG Government banned dugong sale in 2011, and now less is traded in Daru
- ♦ Turtles and dugong are not as common around Daru as in 1995
- ♦ Some dugong are caught as by-catch in shark nets, and their tusks are traded with Indonesia
- ♦ Turtles are mainly caught opportunistically when fishing for other fish



Swim bladders (S. Busilacchi)

### 6. Conclusions

- ♦ Fishing effort is increasing due to population growth and immigration
- ♦ Informal trade with Indonesia is growing due to the Asian market demand for bêche-de-mer, shark fin and fish bladders, and communities are heavily dependent on this market
- ♦ Current catch trends are unsustainable, and if reef fish and other stocks collapse there will be a major impact on food security, livelihoods and poverty
- ♦ Food insecurity is evident in Daru, which has an estimated population density of 1,420 people/km<sup>2</sup>, 10-fold the carrying capacity for remote PNG islands
- ♦ Poaching pressure in Australian waters will increase as local resources are depleted



Dugong from a shark net (S. Busilacchi)

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