



Monitoring the multi-sector Eastern Torres Strait Coral Reef Finfish Fishery

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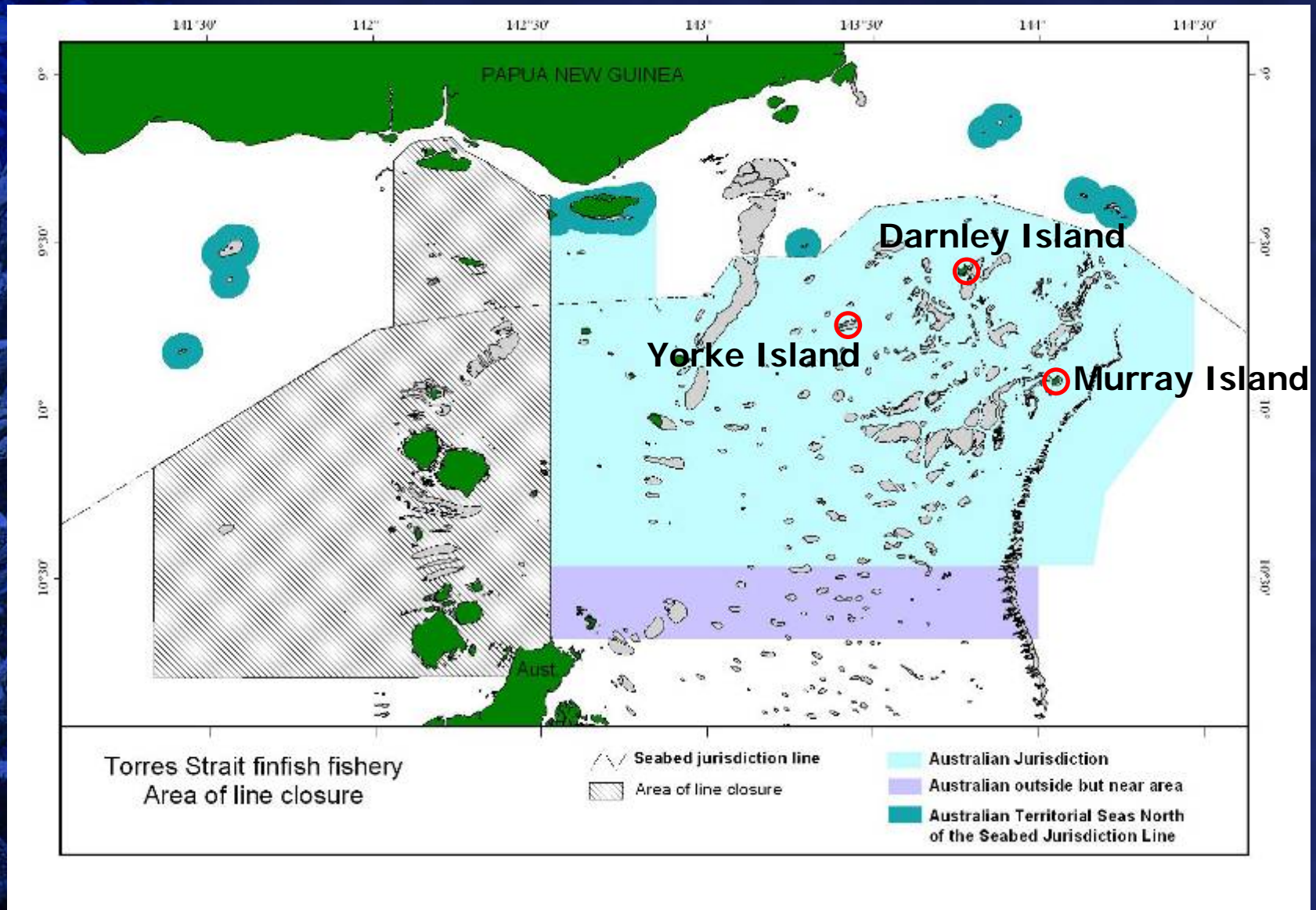
Eastern Torres Strait Coral Reef Finfish Fishery

- **Multi-sector fishery**
 - Non-Islander commercial
 - Islander commercial
 - Islander subsistence

Wyer Islet

- **Concerns from all sectors about sustainability of fishery**
- **Resource allocation issues – priority access**
- **Conflict between sectors**
- **Limited information about the fishery**

Fishery Area





Catch and effort

Non-Islander Commercial

Islander Commercial

Islander Subsistence

- Annual Harvest

- 120 t reef fish

- Annual Effort

- 3000 fishing days

- 9 licences (2004)

Murray Is

- Annual Harvest

- 30 t reef fish

- Annual Effort

- 1000 fishing days

- > 100 fishers

Murray Is

- Annual harvest

- ???

- Annual Effort

- ???



Characteristics

Non-Islander Commercial

- Dories (~5m)
- Main vessel (12-20m)
- Hook and line
- Sold to mainland

Islander Commercial

- Dinghies (~5m)
- Island-based
- Hook and line
- Sold to community freezer

Islander Subsistence

- Beach/dinghies
- Island-based
- Hook and line, spear, net, rock wall trap (sai)
- Consumption

Murray Is

Murray Is



Management Arrangements

Non-Islander Commercial

- Gear restrictions (No. hooks, boat length)
- Limited entry
- Size limits
- Area closure

Islander Commercial

- Gear restrictions (No. hooks, boat length)
- **Unlimited entry**
- Size limits
- Area closure

Islander Subsistence

- **No gear restrictions**
- **Unlimited entry**
- **No size limits**
- **No area closure**

Murray Is

Murray Is



Multi-Species

Over 50 species in Non-Islander commercial catch

**Main
commercial
species**

Common coral trout
(*Plectropomus leopardus*)

Leopard trout
(*Plectropomus areolatus*)

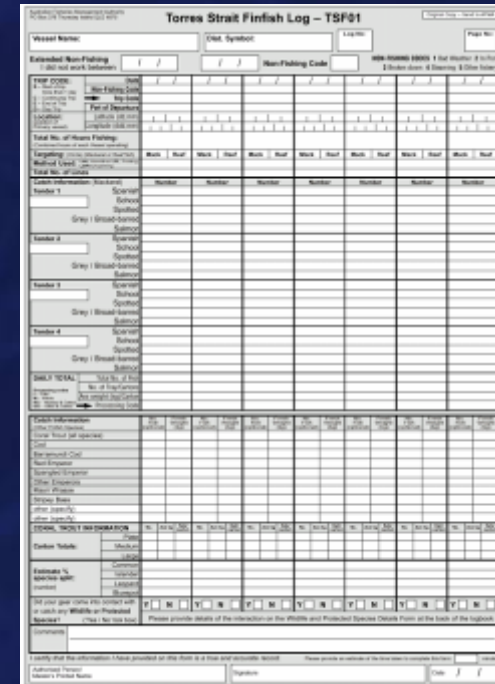
Islander trout
(*Plectropomus maculatus*)

Blue-spot trout
(*Plectropomus laevis*)

Non-Islander Commercial

Available data

- Compulsory logbooks since 1989 (QDPI&F and AFMA)
- Summary analysis by Mapstone *et al.* (2003)



Limitations

- Catch reported as species groups (e.g. coral trout, cod)
- No record of bycatch
- Effort recorded at 30' grid scale
- Effort recorded as dory days

Islander Commercial

Available data

- Records kept at Island community freezers since 1988
- Collated and analysed by Begg and Murchie (2004)
- AFMA docket books since 2004



Limitations

- Catch reported as species groups (e.g. coral trout, cod)
- No spatial effort data (except island of origin)
- No record of number of fishers or time spent fishing



Islander Subsistence

Available data

- Data collected by
 - Poiner and Harris (1991)
 - Harris *et al.* (1994)
- Current research by CRC
Torres Strait (Sara Busilacchi)

Darnley Is

Limitations

- No long time series of data
- No current information

Murray Is



Monitoring

- No previous monitoring program for fishery
- Limited information for all sectors
- Development of CRC Torres Strait research projects
 1. Commercial sectors (Islander & Non-Islander)
 - Observer surveys
 - Fleet sampling
 - Voluntary logbooks
 2. Subsistence sector
 - Bus route surveys
 - Community involvement



Non-Islander Commercial

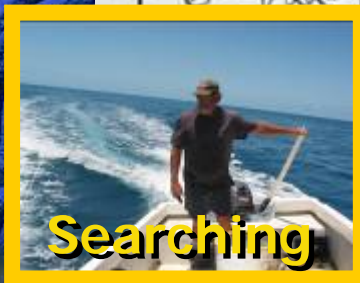
Observer surveys

- Single observer per trip
- 2 week trips
- Record fishing activity in dories
- Collect biological samples

Observer data sheet

F&F - ETS Reef Line Project ¹⁰⁻⁰¹ 10-10										Effort data		Cook Uni, Townsville 4811, ph: 07 4781 4158		
Day	13/12/04		Reef	MOLE		Observer	SM		Session	AM		Entered by	Sheet	1 of 1
Hg no.	Searching time (24:00)			Position		Depth (m)	Fishing		Hang notes					
	Start	End	Ent	Lat	Long		Start	End						
1	1015	1018	1019	10 05 673	143 43 669	15	1020	1043						
2	1044	1047	1048	10 05 163	143 43 847	18	1048	1102						
3	1113	1113	1113	10 03 876	143 44 251	13	1114	1124						
4	1125	1127	1127	10 03 766	143 44 351	14	1128	1203						
5	1151	1153	1153	10 03 534	143 42 949	12	1154	1204						
6	1225	1227	1230	10 03 601	143 42 742	10	1228	1240						

Hg	Retrieve	Spp	Tag	FL	Fate	Hg	Retrieve	Spp	Tag	FL	Fate
1	1021	BRC	-	-	B(R)Bt VF	1143	CCT	221953	445	445	B R Bt V F
	1022	CCT	221938	370	B R Bt V F	1144	CCT	221954	440	440	B R Bt V F
		CCT	-	45	B(R)Bt VF	1146	CCT	221955	396	396	B R Bt V F
		CCT	221939	427	B R Bt V F	1148	CCT	221956	425	425	B R Bt V F
		CCT	221940	472	B R Bt V F	1152	PFT	221957	470	470	B R Bt V F
		MRC	-	-	B R Bt V F	1153	TRV	-	-	-	B(R)Bt V F
		STB	-	-	B R Bt V F						B(R)Bt V F
		CCT	221941	3	B R Bt V F						B(R)Bt V F
		CCT	-	-	B R Bt V F						B(R)Bt V F



Catch data



Non-Islander Commercial

Fleet samples

- Samples of key species
- Collected monthly over 2 years
- Seasonality in biology



Islander Subsistence

Bus route surveys

- Various survey points on each island
- Catch and effort data
- Species composition
- Size information

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Community involvement

- Volunteers
- Community Development & Employment Program
- School students



Summary

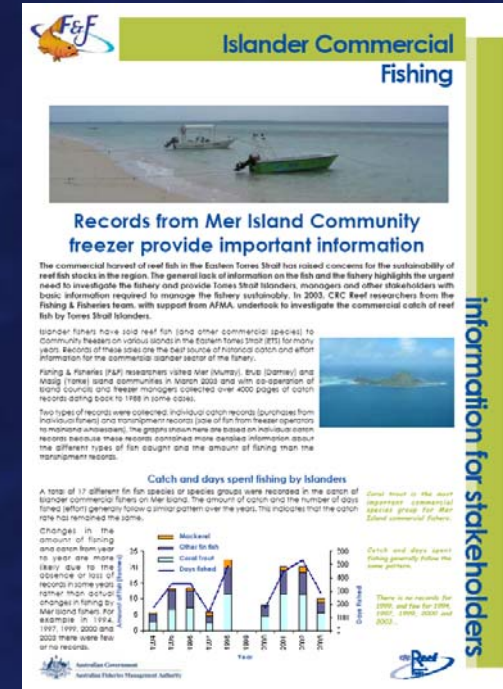
	Observer Surveys	Fleet Sampling	Voluntary Logbooks	Bus Route Surveys	Community Involvement
Non-Islander Commercial					
Islander Commercial					
Islander Subsistence					
Catch & Effort data	✓✓✓	✗	✓	✓✓✓	✓
Size information	✓	✓	✓	✓	✓
Other biological data (age, sex)	✓	✓	✗	✗	✗
Bycatch (discards)	✓	✗	✗	✗	✗
Relative expense	\$\$\$	\$	\$	\$\$\$	\$

Important Considerations

- **Consider combination of approaches**
 - Differences between sectors
 - Cost-effectiveness relative to fishery value
 - Objectives of monitoring
- **Observer surveys**
 - Provide information required for assessment
 - Need cooperation of fishers
 - Changed behaviour of fishers
- **Ownership of data**
 - Traditional knowledge

Stakeholder engagement

- Engage fishers in monitoring
- Provide timely feedback
- Use appropriate means of communication
 - Newsletters/flyers
 - Radio interviews
 - Community talks



Islander Commercial Fishing

Records from Mer Island Community freezer provide important information

The commercial harvest of reef fish in the Eastern Torres Strait has raised concerns for the sustainability of reef fish stocks in the region. The general lack of information on the fish and the fishery highlights the urgent need to investigate the fishery and provide Torres Strait Islanders, managers and other stakeholders with basic information required to manage the fishery sustainably. In 2003, CRC Reef researchers from the Fishing & Fisheries team, with support from AFMA, undertook to investigate the commercial catch of reef fish by Torres Strait Islanders.

Islander fishers have sold reef fish (and other commercial species) to Community Research various shops in the Eastern Torres Strait (ETS) for many years. Records of these sales are the best source of historical catch and effort information for the commercial islander sector of the fishery.

Fishing & Fisheries (F&F) researchers visited Mer (Kumaly), Ebu (Damey) and Waig (Tame) island communities in March 2003 and with co-operation of island sources and freezer managers collected over 4000 pages of catch records dating back to 1988 in some cases.

Two types of records were collected: individual catch records (purchases from individual islanders) and management records (logs of fish from freezer operators to momentary assessments). The graphs shown here are based on individual catch records because these records contained more detailed information about the different types of fish caught and the amount of fishing than the management records.

Catch and days spent fishing by islanders

A total of 17 different fish species or species groups were recorded in the catch of islander commercial fishers on Mer Island. The amount of catch and the number of days fished (effort) generally follow a similar pattern over the years. This indicates that the catch rate has remained the same.

Changes in the amount of fishing and days spent fishing year to year are more likely due to the absence or loss of records in some years rather than actual changes in fishing by Mer Island fishers. For example in 1994, 1997, 1999, 2000 and 2002 there were few or no records.

Catch and days spent fishing generally follow the same pattern.

There is no record for 1995, and few for 1996, 1997, 1998, 2000 and 2002.

Information for stakeholders



Acknowledgements

- CRC Reef Research Centre
- CRC Torres Strait
- James Cook University
- Australian Fisheries Management Authority
- QLD Department of Primary Industries and Fisheries
- Islander and non-Islander fishers
- Island community councils
- Traditional owners
- Island freezer staff
- F&F staff and students