

CSIRO

MARINE LABORATORIES

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F.V. "RACHEL"

Cruise Summary R12/85

NORTHERN PELAGIC FISH STOCK RESEARCH PROGRAM

CSIRO
MARINE LABORATORIES

12 AUG 1985

LIBRARY, HOBART

Itinerary

Depart Cairns	1715h	Tuesday	7th May 1985
Arrive Thursday Is	1030h	Thursday	16th May 1985
Depart Thursday Is	1030h	Friday	17th May 1985
Arrive Gove	2245h	Sunday	19th May 1985
Depart Gove	1520h	Monday	20th May 1985
Arrive Gove	1430h	Monday	27th May 1985
Depart Gove	2110h	Monday	27th May 1985
Arrive Gove	1700h	Tuesday	28th May 1985
Depart Gove	1750h	Tuesday	28th May 1985
Arrive Gove	2300h	Tuesday	28th May 1985
Depart Gove	1015h	Wednesday	29th May 1985
Arrive Gove	1730h	Thursday	30th May 1985

AREA OF OPERATION

The north-east coast of Queensland between Cairns and Torres Strait, the area adjacent to the Wessel Islands and in Melville Bay.

OBJECTIVES

1. To tag all live sharks captured by gillnetting, longlining and handling.
2. To tag Scomberomorus commerson and Thunnus tonggol as opportunities arise.
3. To double tag approximately 350 Carcharhinus limbatus and C.sorrah in the vicinity of Nhulunbuy and to inject these fish with tetracycline.
4. To collect vertebrae from C.limbatus and C.sorrah for ageing from the north-east Queensland coast between Cairns and Torres Strait.
5. To collect electrophoretic samples from C.sorrah from the north-east Queensland coast and from C.sorrah and C.limbatus from the offshore area adjacent to the Taiwanese commercial fishery.

6. To collect biological information on mature specimens of all shark species except C.limbatus and C.sorrah, together with S.commerson and T.tonggol.
7. To retain all dark pelvic forms of C.limbatus encountered.
8. To collect girth measurements from C.limbatus and C.sorrah.
9. To collect Northern Territory Museum specimens as requested.
10. To obtain surface temperature, salinity and turbidity data from fishery sites.
11. To carry out freezer shrinkage experiments on C.limbatus and C.sorrah.
12. To record cetacean sightings and to collect biological information from any dead cetacea taken incidentally in the gillnet.
13. To obtain a complete photographic record of all fishing activities on the 'Rachel'.

RESULTS

1. Four hundred and seventy five (475) sharks were tagged from a total shark catch of 679. The longline was fished 9 times (a total of 2,682 hooks); the 15cm monofilament commercial gillnet was shot 32 times, 10 times using the full 1000m, the remainder with 500 metres of net. Fourteen handline stations produced catches of shark. Trolling was carried out while travelling between fishing areas and resulted in a total catch of 3 S.queenslandicus and 1 T.tonggol. Table 1 gives a breakdown of the shark catch by area and fishing method. Table 2 outlines the catch details. Table 3 gives details of total catch by area.
2. Double tagging (two plastic tags in the first dorsal fin) and tetracycline injection (for age validation studies) were carried out in the Melville Bay area, and also in the vicinity of the Wessel Islands. Seventy nine C.limbatus and 52 C.sorrah were double tagged. Tetracycline was administered peritoneally to 80 C.limbatus and 56 C.sorrah.
3. The longline was fished 4 times off the north east Queensland coast when strong winds precluded fishing with the nets. It was set once shortly after leaving Thursday Island, just west of Torres Strait. Very rough seas and strong winds prevented any further fishing in the northern Gulf during the crossing from Thursday Island to Gove. The longline was set once in Melville Bay and three times in the vicinity of the Wessel Islands. The overall catch rate was 18.3 sharks per shot

(approximately 300 hooks per set). The best shot just north of Shelborne Bay, N.E. Queensland, produced 37 sharks, 4 S.commerson and 1 T.tonggol.

4. The best shot with the 500m net produced 23 shark. A nil catch was recorded for four of the twenty two shots with this net. With the full 1000m net, the best shot gave 90 sharks. One of ten shots with this net produced a nil catch.
5. The best handlining station resulted in a catch of 35 shark for almost 3 hours fishing. Handlining was generally disappointing and many hours were spent fishing different locations for no catch. With the rough conditions encountered during most of the cruise, handlining was often the only fishing method possible.
6. Tissue samples for electrophoretic studies were collected from NE Queensland waters for 19 C.sorrah, 16 C.limbatus, 2 R.acutus, 7 S.commerson, 3 S.queenslandicus and 2 T.tonggol.
7. Vertebral samples for ageing studies were taken from 7 C.sorrah and 6 C.limbatus from NE Queensland waters.
8. Gonad samples were retained and reproductive condition and stomach contents noted for all mature sharks (apart from C.limbatus and C.sorrah) which were not fit for tagging.
9. Girth measurements for use in mesh selectivity calculations (taken around the third gill slit) were obtained from 104 C.limbatus, 38 C.sorrah and 8 C.macloti.
10. A number of tissue samples containing parasites were obtained from sharks for the Parasitology section of the South Australian Department of Agriculture.
11. Freezer shrinkage experiments were undertaken on 13 C.limbatus and 15 C.sorrah to determine the change in fork length measurement following a 24 hour period of freezing. For C.limbatus the average shrinkage was 1.0cm but varied between 0.7 and 1.8cm. For C.sorrah, these figures were: average shrinkage 1.0cm, varying between 0.4 and 1.8cm.
12. No cetaceans were captured during the cruise. Conditions for sightings were not good, with seas being rough for most of the time. Two pilot whales were sighted in the vicinity of Bremer Island and three Tursiops truncata fished close to 'Rachel' in Gove Harbour. Three T.truncata also were sighted just out from Cairns at the commencement of the cruise.
13. Surface water temperature, secchi disc, turbidity meter readings and salinity samples were taken at approximately 1800 hours C.S.T. on 17 occasions.
14. A photographic record was made of longlining, handling, gill-netting operations and associated activities such as tagging. For the period 27th-30th May two members from the CSIRO film unit, Roger Seccombe and Robert Kerton, joined 'Rachel' and took movie footage of the various fishing activities aboard.

COMMENTS

Strong wind warnings were issued for the areas to be fished for about two thirds of the duration of the cruise and rough sea conditions were experienced for these periods. This restricted use of the net and longline generally and precluded fishing in the offshore area adjacent to the Taiwanese commercial fishing.

Many thanks to Ian Lew, Pam Canney, Rosie Lew and Dave McKenna of the 'Rachel' and John Beckman, Glen Cuthbert and Shayne Lavery for their cooperation and perseverance in difficult conditions.

PERSONNEL

F.R.V. 'RACHEL'

Ian Lew (Skipper)

Pam Canney

Rosie Lew

David McKenna

CSIRO

Stephanie Davenport CSIRO (Cruise leader)

John Beckman CSIRO

Glen Cuthbert CSIRO

Shayne Lavery CSIRO (Cairns to Thursday Is).

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Scientist in Charge

Stephanie Davenport

TABLE 1

SHARK CAPTURES BY AREA AND FISHING METHOD

A. NORTH EAST QUEENSLAND

Method	Total Catch (number)	Percentage Tagged	Number of sets
Longline	92	76.1	4
500m net	71	80.3	9
1000m net	18	88.9	1
Handline	63	96.8	10

B. NORTHERN GULF OF CARPENTARIA

Method	Total Catch (number)	Percentage Tagged	Number of sets
Longline	3	100	1

C. MELVILLE BAY

Method	Total Catch (number)	Percentage Tagged	Number of sets
Longline	24	70.8	1
500m net	45	71.1	9
1000m net	45	57.8	2
Handline	36	91.7	4

D. WESSEL ISLAND REGION

Method	Total Catch (number)	Percentage Tagged	Number of sets
Longline	46	73.9	3
500m net	15	93.3	4
1000m net	221	54.3	7

TABLE 3

DETAILS OF TOTAL CATCH BY AREA

A. NORTH EAST QUEENSLAND

83	<u>C.sorrah</u>	8	<u>S.commerson</u>
79	<u>C.limbatus</u>	3	<u>S.queenslandicus</u>
19	<u>C.macloti</u>	2	<u>T.tonggol</u>
9	<u>R.acutus</u>	1	<u>A.niger</u>
3	<u>R.taylori</u>		
3	<u>N.concolor</u>		
2	<u>S.mokorran</u>		
1	<u>C.fitzroyensis</u>		
1	<u>C.amboinensis</u>		

B. NORTHERN GULF OF CARPENTARIA

1	<u>C.sorrah</u>	2	<u>S.commerson</u>
1	<u>G.cuvieri</u>		
1	<u>N.concolor</u>		

C. MELVILLE BAY

62	<u>C.limbatus</u>	2	<u>S.semifasciatus</u>
61	<u>C.sorrah</u>	1	<u>Sphyraena sp.</u>
7	<u>R.acutus</u>		
7	<u>C.dussumieri</u>		
5	<u>C.brevipinna</u>		
4	<u>C.macloti</u>		
3	<u>S.mokorran</u>		
2	<u>R.taylori</u>		
1	<u>S.lewini</u>		
1	<u>C.amblyrhynchoides</u>		
1	<u>H.elongatus</u>		

D. WESSEL ISLAND REGION

121	<u>C.limbatus</u>	23	<u>A.niger</u>
68	<u>C.macloti</u>	4	<u>S.semifasciatus</u>
24	<u>C.sorrah</u>	3	<u>A.thalassinus</u>
17	<u>R.acutus</u>	2	<u>S.commerson</u>
16	<u>C.fitzroyensis</u>	1	<u>R.kanagurta</u>
9	<u>S.blochii</u>		
6	<u>C.amboinensis</u>		
4	<u>S.lewini</u>		
3	<u>C.dussumieri</u>		
3	<u>S.mokorran</u>		
2	<u>G.cuvieri</u>		
2	<u>C.amblyrhynchoides</u>		
1	<u>C.brevipinna</u>		
1	<u>H.elongatus</u>		
1	<u>P.cuspidatus</u>		

1880-1881

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