Observations of inshore trawl fishing operations in Pegasus Bay and the Canterbury Bight, 2002

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ABSTRACT

During the early 2002 fishing season in Pegasus Bay and the Canterbury Bight, New Zealand, the Conservation Services Levy Programme (CSL) briefed two Ministry of Fisheries Observers to record the interactions of Hector's Dolphin (*Cephalorhynchus hectori*) and protected species of seabirds with the inshore trawl fishery. Only 6 observer sea-days (12%) of the 50 observer days contracted for with the Ministry of Fisheries were achieved. As in previous years, coverage of the inshore fisheries was minimal due to the difficulty of placing observers in fishing vessels. No incidental captures of protected species occurred during any of the observed fishing trips.

Keywords: inshore trawl fishery, observer programme, Conservation Services Levy, Hector's Dolphin, protected species, Pegasus Bay, Canterbury Bight, New Zealand

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1. Introduction

The concept of assessing the interaction of protected species (especially Hector's Dolphin) by placing observers in vessels of the inshore fishing fleet followed the standard pattern for investigating deepsea fishing and was approved by CSL in 1997. It was first tried in the 1997/1998 fishing year, covering the months of October to July (Starr & Langley 2000). The scheme was in abeyance during the 1998/1999 year, but resumed in 1999/2000 from November through to March (Reid & Reid 2002). It was repeated in the summer of 2001 (January to March) (Blezard 2002) and, as reported here, in early 2002 (January/February).

The Conservation Services Levy Programme (CSL) of the Department of Conservation briefed two Ministry of Fisheries Observers to report on the interactions of Hector's Dolphin (*Cephalorhynchus hectori*) and protected seabirds with the inshore trawl fishery during the 2002 fishing season in Fisheries Statistical Areas (FSA) 20 and 22, which encompass Pegasus Bay and the Canterbury Bight, South Island of New Zealand. Conservation Services Plan 2001/2002 provided for 50 observer days in the inshore trawl fishery in these FSAs. This summary report was compiled from CSL debriefing records without revealing trip code-numbers, the names of vessels or the identity of Ministry of Fisheries Observers.

2. Briefings

Written briefings for the inshore trawling fishery were supplied to the observers per the Ministry of Fisheries Observer Programme on 11 January 2002 and telephone briefings were conducted on 15 January. There was contact with the observers later to arrange the transport of any captured dolphin carcasses. The observers then arranged their sea-days by liaising directly with the fishers concerned. Observer time at sea depended on a number of factors, including the availability of a berth in a fishing vessel; the observer being informed in a timely manner of sailing times; and difficult weather conditions, which caused the postponement of planned fishing trips.

Catch effort and environmental data were recorded as well as general estimates of seabird abundance and the behaviour of seabirds during fishing operations. The activities of any marine mammals sighted were also noted.

3. Results

Only six observer days were completed in the course of three fishing trips (in two different vessels) between 31 January and 27 February 2002. During this period nine inshore trawls were monitored. No by-catch of any protected species occurred.

The difficulties of organising effective observer coverage of these inshore fisheries have been described by Starr & Langley (2000), Reid & Reid (2002), and Blezard (2002). As indicated by the comments (below) of Andrew France, Manager, Observer Programme, Ministry of Fisheries, this situation remains a serious impediment to any realistic assessment of the potential risk posed by commercial fishing operations to protected species, especially Hector's Dolphin.

> 'Ministry of Fisheries Observer Programme shore staff contacted Pete Dawson [Southern Finfish Company] in November 2001 for assistance in arranging Observer coverage for this fishery. Pete provided a number of contacts for fishers and efforts were made by the Programme shore staff to contact fishers to arrange Observer placement. There was limited success in contacting fishers in November and December 2001, and more concentrated efforts were made in January 2002. The Programme had ten to twelve potential vessel manager contacts that were liased with on at least a weekly basis. Most of the vessel managers or skippers gave a reason why they could not take an Observer with them into the area. The various responses received were:
>
> - Vessel set netting as opposed to trawling
> - There was no available room on vessel due to Salmon Observers onboard
> - The vessel would be fishing outside required statutory area 20/22
> - Not fishing required area, due to being worried about catching Elephant Fish
> - Bad weather stirred up inshore fishery and as a result difficult to fish with debris
> - Fishing other species, e.g. Arrow squid
> - November/December in area, and no longer fishing there
>
> Shore staff liased with Pete Dawson on a number of occasions. Pete was aware of the difficulty we were having in organising any coverage and was eager to help in anyway that he could.'

4. Marine mammals

4.1 HECTOR'S DOLPHIN

On the first and second trips, as the vessel proceeded to the fishing area, outside Lyttelton and southeast near Banks Peninsula dolphins were seen bow-riding on two occasions; the numbers present varied from a single dolphin to a fluctuating pod of 4 to 10.

On the second trip, on 2 February at 1458 NZST, in the only haul of the day, no dolphins were sighted.

On 3 February, about 10 animals, in varying groups of 2, 3, or 4 appeared during hauling at 1015 hrs, swimming alongside the vessel and the rising net, but maintaining a distance of approximately 2 metres from these and appearing to 'check out' the hauling operation. After 10 minutes only three dolphins remained, and then one only as the net came onboard.

At 1200 hrs on 3 February, a solitary dolphin appeared 30 minutes after the setting of trawl number 5. It is likely that fish (from tow number 4) were being gutted by this time, but this dolphin is not recorded as feeding on offal.

As trawl number 5 was being hauled at 1634 hrs on 3 February, three animals came towards the vessel from the north and were joined by a fourth. The group swam around for a short period, keeping at a distance from the net.

At 1658 hrs on 3 February, three dolphins followed the vessel for about ten minutes as it returned to Lyttelton, and one dolphin was seen bow-riding at 1714 hrs.

At 1215 hrs on 24 February, the first day of the third trip, three dolphins were sighted 2.5 nautical miles off Hickory Bay, Banks Peninsula, travelling east to west. The vessel was towing, heading north, but the animals did not approach.

At 1052 hrs on 25 February, 6 nautical miles east of Banks Peninsula, two dolphins were seen moving southwest. During the hauling of the first tow at 1102 hrs , a pod of about 20 dolphins swam around the vessel, keeping at least 2 metres from the net. No dolphins were sighted on 26 February, the last day.

On all sightings where Hector's Dolphins could be clearly observed, they were of medium to large size. It was noted that when the dolphins were present, they arrived during hauling, suggesting that the noise of the winch attracted them. None were seen to feed around the vessels, possibly as it was not the practice of either vessel to discharge offal during the setting or hauling of a trawl.

4.2 OTHER MAMMALS

No other marine mammals were seen.

5. Seabird abundance and behaviour

Seabirds appeared to assemble in numbers only during processing, attracted by the availability of offal. After c. 30 seabirds in the first trip the maximum number reported was c. 500 in the second trip and subsequently 120, 200, 30, and 40. Most of the birds present were the smaller albatrosses (*Thalassarche* spp.)(Table 1). Seabirds were identified using Robertson & Heather (1999), a standard reference manual. See footnote to Table 1 for a discussion on seabird numbers and counting.

TABLE 1. SEABIRDS RECORDED.

NAME	GENUS/SPECIES	NUMBER*	%
Wandering Albatross	*Diomedea exulans*	**1**	0.1
Grey-headed Albatross	*Thalassarche chrysostoma*	50	5
Salvin's Albatross	*Thalassarche salvini*	416	46
NZ Black-browed Albatross	*Thalassarche impavida*	36	4
NZ White-capped Albatross	*Thalassarche steadi*	50	5
Southern Buller's Albatross	*Thalassarche bulleri*	61	7
Small Albatrosses	unidentified	30	3
Northern Giant Petrel	*Macronectes halli*	**4**	0.4
Cape Petrel	*Daption* spp.	27	3
Petrels	unidentified	**2**	0.2
Sooty Shearwater	*Puffinus griseus*	83	9
Seagulls (probably Black-backed Gull	*Larus dominicanus*	145	16

* As a general practice at sea, the numbers of seabirds observed are estimated, except for those species present in such small numbers that individuals can be accurately counted. Thus the totals in this table are the sums of estimates, or the sums of estimates plus exact counts. The species abundance proportions given here are similarly derived from an estimated grand total (rounded to the nearest 10) of 910 birds. **Bold** numerals signify an accurate count.

Salvin's Albatross (*Thalassarche salvini*)

With a cumulative count of c. 416, this was the predominant species of seabird, being 46% (Fig. 1) of the total number of birds recorded for the three observed trips (910).

Seagulls (Laridae)

Gulls, probably almost entirely Black-backed Gulls (*Larus dominicanus*) were at c. 145 the second most numerous species observed (16%). Estimated at 30 plus in number, they were the only birds seen on the first trip. They comprised 20% of the seabirds in the second trip but were not recorded at all on the third trip.

Sooty Shearwater (*Puffinus griseus*)

A total of c. 83 were recorded making this species the third most numerous (9%).

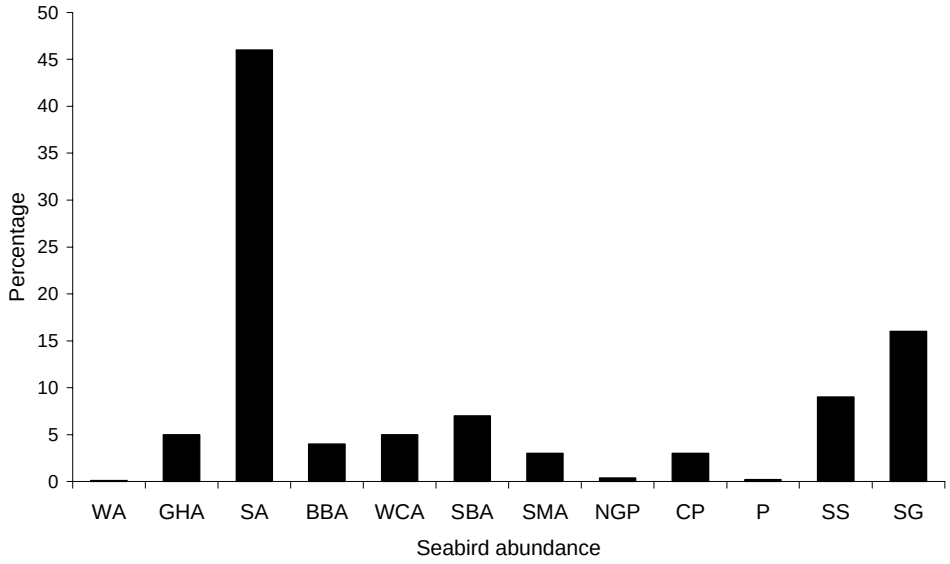

Figure 1. Species abundance proportions calculated from the numbers of seabirds observed. The estimated grand total (rounded to the nearest 10) was 910 birds.
WA = Wandering Albatross GHA = Grey-headed Albatross SA = Salvin's Albatross
BBA = NZ Black-browed Albatross WCA = NZ White-capped Albatross
SBA = Southern Buller's Albatross SMA = Small Albatrosses NGP = Northern Giant Petrel
CP = Cape Petrel P = Petrels SS = Sooty Shearwater SG = Seagulls (probably Black-backed gull)

Southern Buller's Albatross (*Thalassarche bulleri*)

With 61 birds, this species was the fourth most numerous at 7%.
New Zealand White-capped Albatross (*Thalassarche steadi*) and Grey-headed Albatross (*Thalassarche chrysostoma*)
Each of these species had c. 50 individuals (5% each).

NZ Black-browed Albatross (*Thalassarche impavida*)

These numbered c. 36, 4% of the total.

Albatrosses (Diomedeidae)

One Wandering Albatross (*Diomedea exulans*) was recorded and some 30 birds (3% of the total) were recorded as small albatrosses (*Thalassarche* spp).

Cape Petrel (*Daption* spp.)

These comprised 3% of total bird numbers. Two of the approximately 27 seen were identified as the Southern Cape Petrel (*D. capense*). The Snares Cape Petrel (*D. australe*) was probably also present.

Northern Giant Petrel (*Macronectes halli*)

With 4 birds recorded, this was 0.4% of the total.

Petrels (Procellariidae)

As well as the Cape Petrel (above), 2 unidentified petrels were noted (0.2%).

6. Mitigation techniques

It was standard practice on the trawlers to empty the hauled catch into bins on the deck and shoot the trawl again before dealing with the catch. Unwanted non-quota species such as Spiny Dogfish and rat-tails were discarded overboard together with the heads and guts of commercial species. This simple separation of the setting and hauling operations from the processing activity appears to be an effective measure in preventing potentially injurious marine mammal and seabird interaction with fishing gear in this inshore trawl fishery. One skipper attempted to throw offal 'as far from the boat as possible' to keep diving birds from striking the warps. It is noteworthy that given the comparatively shallow depths at which these trawling operations are conducted, hauling times are short: about 1–2 minutes from a depth of from 15 to 20 metres and 5–10 minutes from 35 to 30 metres. Consequently the time-frame for mammal and seabird interactions is comparatively narrow. However, if the net is streamed at the surface for any reason, such as the time-consuming removal of vegetation debris (reported once) the positive effect of a speedy net ascent is negated.

One trawler was recorded as using a bottom trawl of 22 metre spread and 3 metre headline height. It is assumed that the gear of the other trawler was similar. There were no occasions noted where delays in the setting or hauling of trawls could have contributed to the capture of protected species of mammals or seabirds.

7. Summary

The observer coverage of inshore trawling resulted in only 6 sea-days out of the desired 50 contracted for. The difficulties relating to accommodation for observers, short-notice cancellation of fishing trips, etc., which have bedevilled previous attempts to obtain optimal observer coverage of these Canterbury inshore fisheries persisted, and this seriously hampered a reliable assessment of interactions with protected species.

In the trawling trips observed (only12% of the anticipated 50 days), no captures of protected species took place. With regard to Hector's Dolphin, single animals and small pods were seen to bow-ride with vessels steaming from Lyttelton. Small numbers (but on one occasion a pod of c. 20 animals) were seen around vessels during haulings. None appeared to be feeding.

The most abundant seabirds observed were albatrosses, principally Salvin's (46%), but also Southern Buller's, New Zealand Black-browed and the Grey-headed. Sixteen percent of all birds were seagulls, probably predominantly Black-backed Gulls. Cape Petrels accounted for 3% of all birds and 4 Northern Giant Petrels were seen. One Wandering Albatross was recorded. Most birds were seen at hauling, with few present at setting of the trawl. Offal from processing was the main attractant for seabirds, but it was never discharged during setting or hauling. There were no gear events that would have been likely to have contributed to the capture of protected species.

8. Conclusions

From the second season of placing observers in vessels of the inshore fishing fleet (1999/2000) onwards, the number of observer sea-days actually achieved has steadily declined: 1997/1998 saw a total of 313 days—300 were contracted for (100%); in 1999/2000, 220 of 300 (73%); in 2001, 28 of 150 (19%); and in 2002, 6 of 50(12%).

It is widely recognised that persisting with methods of investigation of threatened species which fail to meet minimum coverage levels is unsound, not least because the meagre data obtained is statistically meaningless and is thus useless as a management tool. (McElderry 1999: 58). It is apparent that urgent consideration will have to be given to other methods of observing the inshore set-net and trawl fisheries, so that a scheme guaranteeing at least the minimal data necessary for meaningful scientific appraisal can be approved before the 2003/2004 fishing year.

9. Acknowledgements

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10. References

Anon. 2002. South East Finfish Management Company Ltd: 2001/2002: Commercial Set Net Fishers: Voluntary Code of Practice. SE Finfish Mgt Co., Lyttelton.

Blezard, R.H. 2002. Observations of set-net and inshore trawl fishing operations in the South Canterbury Bight, 2001. *DOC Science Internal Series 85*.

McElderry, H.; Karp, W.A.; Twomey, J.; Merklein, M.; Cornish, V.; Saunders, M. (Eds) 1999. Proceedings of the First Biennnial Canada/U.S. Observer Program Workshop (NOAA Technical Memorandum NMFS-AFSC-101).US Department of Commerce, [Washington].

Reid, P.; Reid, J. 2002. Report on an Inshore Fishery Observer Programme in Pegasus Bay and Canterbury Bight, 1999/2000. Unpublished report. Fisheries Audit Services (NZ), Nelson.

Robertson, H.A.; Heather, B.D. 1999. The hand guide to the birds of New Zealand. Penguin, Auckland.

Starr, P.; Langley, A. 2000. Inshore Fishery Observer Programme for Hector's Dolphin in Pegasus Bay [&] Canterbury Bight, 1997/98. (Client Report on Contract 3020). Published in: Compendium of published CSL reports, 1995/96 to 1999/2000: funded by Conservation Services Levy. Department of Conservation, Wellington.