

2001

Preliminary aerial survey for
Hector's dolphin
(*Cephalorhynchus hectori*),
north-west North Island

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The New Zealand fur seal was observed in the water close to rocks at Ngarapupu Point. The bottlenose dolphins were located in the plume from Mokau River, 1.5 km south-west of the river mouth. The pod contained six adults and four juveniles. When sighted they were moving in a northerly direction. At one point an adult swam rapidly ahead of the pod and appeared to take a fish swimming close to the surface. Both sightings of common dolphins were made in the plume from Awakino River (about 3.5 km north of Mokau River, Fig. 1). The common dolphins sighted on T2 were in groups of eight and five animals, and one isolated individual. Each of the groups included a calf. Two unidentified sharks were also observed in the plume. The common dolphins sighted on T3 were in two groups of three and two individuals. No calves were seen with these animals. The charted depth in the area of the sightings of both dolphin species is 7-10 m.

One school of kahawai was sighted south of Tongaporutu River, and one school of unidentified fish and another kahawai school were sighted between Urenui and Pariokariwa Point. All other pelagic fish sightings were made north of Awakino River. The mako shark was estimated to be greater than 3 m total length (TL), the hammerhead sharks between 1.5 and 2 m TL and the blue sharks about 2 m TL.

Gannets and white-fronted terns were observed throughout the survey area. Only two little blue penguins were observed south of Awakino River. Sightings of all other seabird species were restricted to the area between Awakino River and Tirua Point. At least 30 red-billed gulls were observed feeding above two kahawai schools located about 500 m south of the reef at Tirua Point. A similar number of red-billed gulls were observed roosting on the reef.

5. Discussion

Although no Hector's dolphin were observed, it would have been possible to correctly identify them from the air. Birds as small as little blue penguins and objects such as plastic shopping bags were clearly visible up to 500 m from the path of the aircraft. Potential reasons for the nil result include incorrect choice of survey area, incorrect timing of the survey, or failure to detect animals that were present in the survey area.



North Island Hector's dolphin occur from Hawke Bay to Palliser Bay, and from Wanganui River north to the southern end of Ninety Mile Beach, but are most abundant between New Plymouth and Kaipara Harbour (Morzer Bruyns & Baker 1973; Baker 1983; Cawthorn 1988; Slooten & Dawson 1988; B. Dix pers. comm.; C. Duffy pers. obs.). Urenui was chosen as the southern limit of the survey area because Hector's dolphin are most frequently recorded north of Urenui Bay, particularly near the mouth of Mokau River (Appendix 1). Tirua Point was chosen as the northern limit of the survey area because it is a prominent landmark, and its distance from New Plymouth airport allowed two transects to be flown before refuelling was required. The outer limit of the survey area was based on Dawson & Slooten's (1988) finding that 45.5% of

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Regulations who react opportunistically when dolphins are sighted. Independent viewing of Hector's dolphins is simply regulated by the prescribed conditions governing the behaviour of all persons around marine mammals as outlined in sections 18, 19 and 20 of the Marine Mammals Protection Regulations 1992. The potential detrimental impacts from such tourism are concerning as compliance monitoring is limited.

6.4.1.3. *Vessel traffic*

Vessel traffic (for example, recreational boating or commercial vessel traffic) can potentially result in boat strike or disturbance of Hector's dolphins.

Boat strike is a known cause of Hector's dolphin mortality. There has been one confirmed Hector's dolphin mortality resulting from boat strike in the Canterbury region in 1999. There have been nine additional incidents in the South Island where the cause of death has been identified as trauma, but from an unknown cause. Live dolphins have also been photographed with scars from boat propellers and one Maui's dolphin beachcast at Bethell's Beach had old scars from a propeller strike.

It is possible that audible disturbance may lead to exclusion from important areas such as calving or nursery areas. Interference with Hector's dolphins' sonar and communication systems could also affect their ability to locate prey and to socially interact and breed. However, underwater noise levels in areas where Hector's dolphins are common (e.g. Akaroa and Lyttelton Harbours) have not been studied, and the impacts are unknown.

6.4.1.4. *Pollution*

The near-shore habitat of Hector's dolphins exposes them to a variety of pollutants and contaminants such as organochlorines, heavy metals, oil spills and plastic debris.

Organochlorines



Organochlorines are known to have detrimental effects on the reproductive success of some marine mammal species, in some cases resulting in sterility, and they may suppress the immune system in some species.

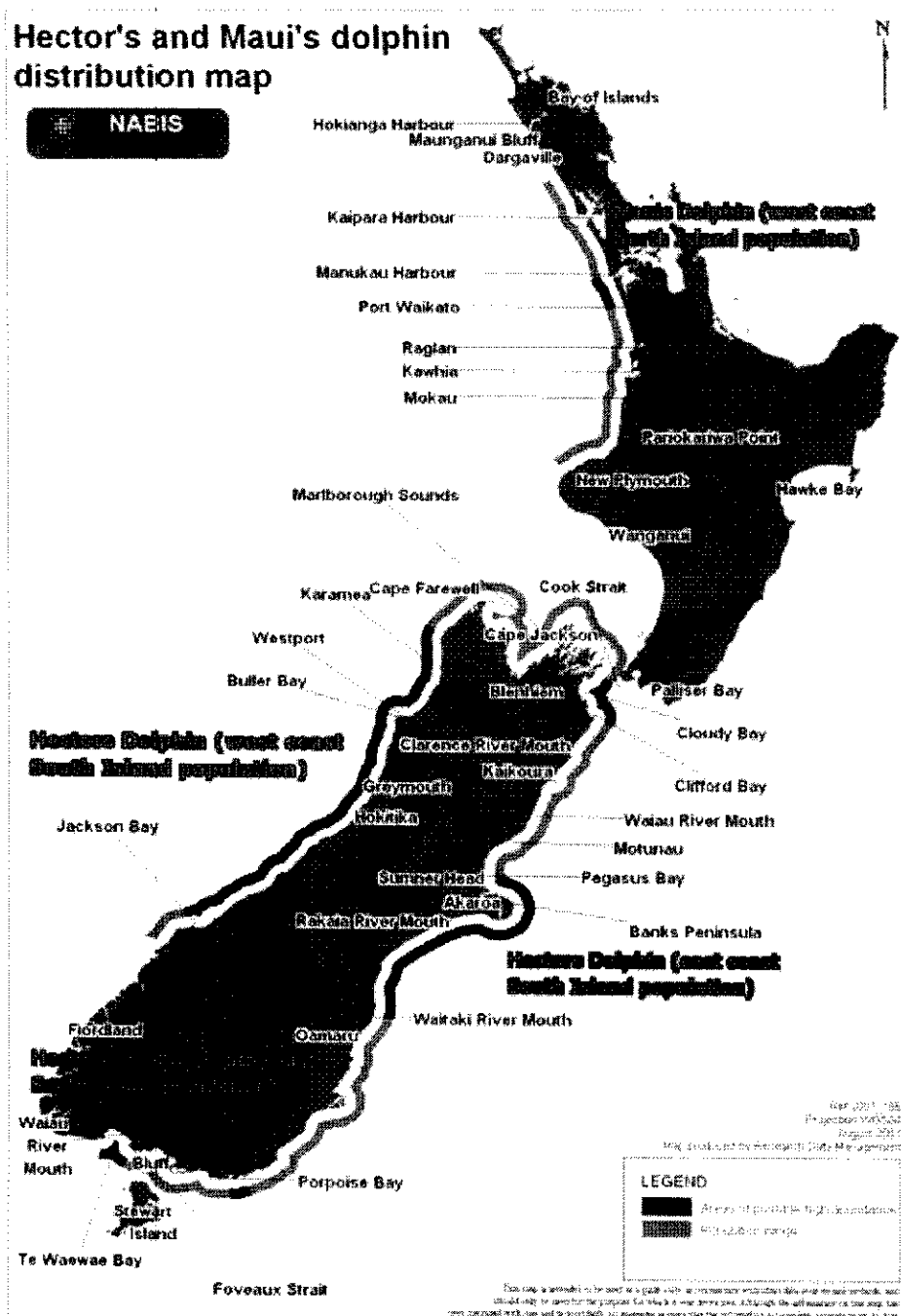
Organochlorines may be bioaccumulated and biomagnified along the food chain. Therefore, species such as Hector's dolphins that are near the top of the food chain and live in a coastal habitat are susceptible to high levels of organochlorines. Hector's dolphin tissue has been found to contain high levels of organochlorines such as DDT, PCBs and dioxins.

Hector's dolphins show the highest toxic equivalent levels (the toxicity of a combination of different organochlorine compounds) of all southern ocean cetaceans. On the global scale, however, Hector's dolphin organochlorine levels are generally within the lower range recorded for marine mammals in the highly industrialised Northern Hemisphere, except for DDTs. DDT levels detected in Hector's dolphins are very high and second only to the highly contaminated Canadian beluga whales (*Delphinapterus leucas*).

Metals

Non-essential metals (e.g. mercury, lead and cadmium), which have little or no recorded biological function, can accumulate and are often toxic even at low concentrations.

Data on the effects of metal toxicity in cetacean species is sparse, and the risk from metal toxicity is unquantified for Hector's dolphins. For certain species, there is some evidence that high levels of non-essential metals may have resulted in or contributed to chronic illness and mortality of cetaceans.



Map 1: Distribution of Hector's and Maui's Dolphins (indicative only) ⁵

⁵ Information on Hector's dolphin distribution for the current map has been obtained from: Hector's Dolphin annual distribution metadata - lineage document November 2006; from Ministry of Fisheries, Web Mapping application (author, Suze Baird, NIWA): www.nabis.govt.nz
<https://www.nabis.govt.nz/resources/documents/MD/Annual%20distribution%20of%20Hector's%20dolphin.pdf>
 Maui's Dolphin annual distribution metadata - lineage document November 2006; from Ministry of Fisheries, Web Mapping application (author, Suze Baird, NIWA): www.nabis.govt.nz
<https://www.nabis.govt.nz/resources/documents/MD/Annual%20distribution%20of%20Maui%20dolphin.pdf>