

## **Boat-based alongshore distribution survey for Maui's dolphins, Kaipara to Mokau, March to April 2013**

**Aim:** To gather abundance data on the alongshore distribution of Maui's<sup>1</sup>, dolphins (*Cephalorhynchus hectori maui*) within their main population zone.

**Methods:** Three separate dedicated boat-based alongshore surveys were conducted along the west coast of the North Island of New Zealand between Kaipara Head and Mokau during the months of March and April 2013:

- Raglan to South Manukau Heads, and return (outward at 0.5nm from shore, return at 1nm from shore). Survey undertaken 13 March 2013.
- Raglan to Mokau (0.5nm from shore), and return to Mussel Rock, north of Raglan (approximately 1nm from shore). Survey undertaken 23 March 2013.
- Manukau to South Kaipara Head, and return (outward at 0.5nm from shore, return at approximately 1nm from shore). Survey undertaken 9 April 2013.

Surveys were conducted aboard the DOC vessel "Tuatini"; a 5.95m alloy boat powered by twin 90hp motors. The survey speed was approximately 18-20 knots, with observers positioned to provide 360° of survey coverage using naked eye scans. To increase the reliability of data collection, surveys were undertaken in good sighting conditions, and within a Beaufort sea state range of 0-3.

When any marine mammal was sighted, the sighting position and time was recorded as a waypoint on a handheld GPS. Corresponding details including behavioural state, associated species, environmental data and interaction time were recorded on a datasheet. When a Maui's dolphin was sighted, the survey leader recorded the individuals within the following age classes:

- Adults – 1.2 to 1.4m
- Juveniles – 0.8 to 1.2m (approximately 2/3 the size of an adult)
- Calves – 0.5 to 0.8m (approximately 1/2 the size of an adult)

**Results:** A total of 657.4km was surveyed with a total of 27 hours 50 minutes on-effort observation conducted. There was a total of 119 minutes of contact time with Maui's dolphins recorded (average encounter = 9.1 minutes) (see Table 1).

**Table 1. Maui's sightings & boat survey effort.**

Survey	Location	Time Start	Time End	Duration	Distance	Maui's	Groups	Group Size	Water Depth	
1	Raglan to Manukau	06:47	18:07	11:40	111.8	32	9	1-8	7.6 – 11.4	
2	Raglan to Mokau	06:17	15:37	9:30	135.6	0	0	n/a	n/a	
3	Manukau to Kaipara	11:22	18:14	6:52	107.6	10	4	1-4	5.5 – 12.2	
				<b>Total</b>	<b>28:02</b>	<b>355</b>	<b>42</b>	<b>13</b>	<b>1-8</b>	<b>5.5 – 12.2</b>

Distance in nautical miles (nm); Duration in hours : minutes, Depth in meters (m)

Thirteen Maui's dolphin groups comprising a cumulative total of 42 Maui's dolphins were recorded. (In addition, six common dolphin groups were also sighted with an estimated 113 individuals observed). (See Figure 1).

The southern most Maui's dolphins observed were located off Kopukanui Gap approximately 9nm south of the Manukau Harbour mouth, with the northern most Maui's dolphin observed approximately 3.7nm south of Kaipara Harbour mouth.

<sup>1</sup> Where this document refers to Maui's dolphin, it is recognised that without genetic sampling it is not possible to determine if the dolphin is Hector's or Maui's dolphin. Given the evidence of Hector's dolphins sampled off the west coast of the North Island there remains a small possibility that the dolphins sighted could include Hector's dolphins, however, based on the proportion of Hector's dolphins sampled, this remains a low proportion <5%.

Maui's dolphins were observed in the depth range of 5.5 – 12.2 metres of water and were found in two concentrated areas:

- 10 Maui's dolphins (7 adults, 3 juveniles) south of Kaipara Harbour off Rangatira beach.
- 32 Maui's dolphins (21 adults, 9 juveniles, 2 calves) south of the Manukau Harbour entrance, extending down from Hamiltons Gap to Kopukanui Gap.

Discussion:

While a maximum of 42 Maui's dolphins were recorded during these alongshore surveys, this number will include double counting since some individuals and/or groups would have been sighted on both the outgoing and return legs of the survey. This was confirmed for at least one individual through analysis of dorsal fin photos.

It is also important to acknowledge the limitations of boat-based surveys. Due to the amount of area surveyed, the small body size of the dolphins, and the small population size of Maui's dolphins, detections even in the core of their range are not guaranteed. Surveys are only a snapshot in time and as sighting distance is limited by the low platform of the vessel, even if dolphins were present in the area they could be passed by unnoticed. However, despite sighting limitations, boat-based surveys would provide the opportunity to obtain biopsy samples should dolphins be encountered.

Genetic research is extremely important to inform decisions regarding the management of the subspecies including determining the subspecies of the individual sampled. Although two live and two beach-cast Hector's dolphins (*Cephalorhynchus hectori hectori*) have been recorded from between Maunganui Bluff and Hawera, around 95% of tissue samples taken from live or beach-cast Maui's or Hector's dolphins north of Hawera have been Maui's dolphins. Genetic research could also help answer questions regarding the connectivity between South Island Hector's dolphin and the Maui's dolphin populations.

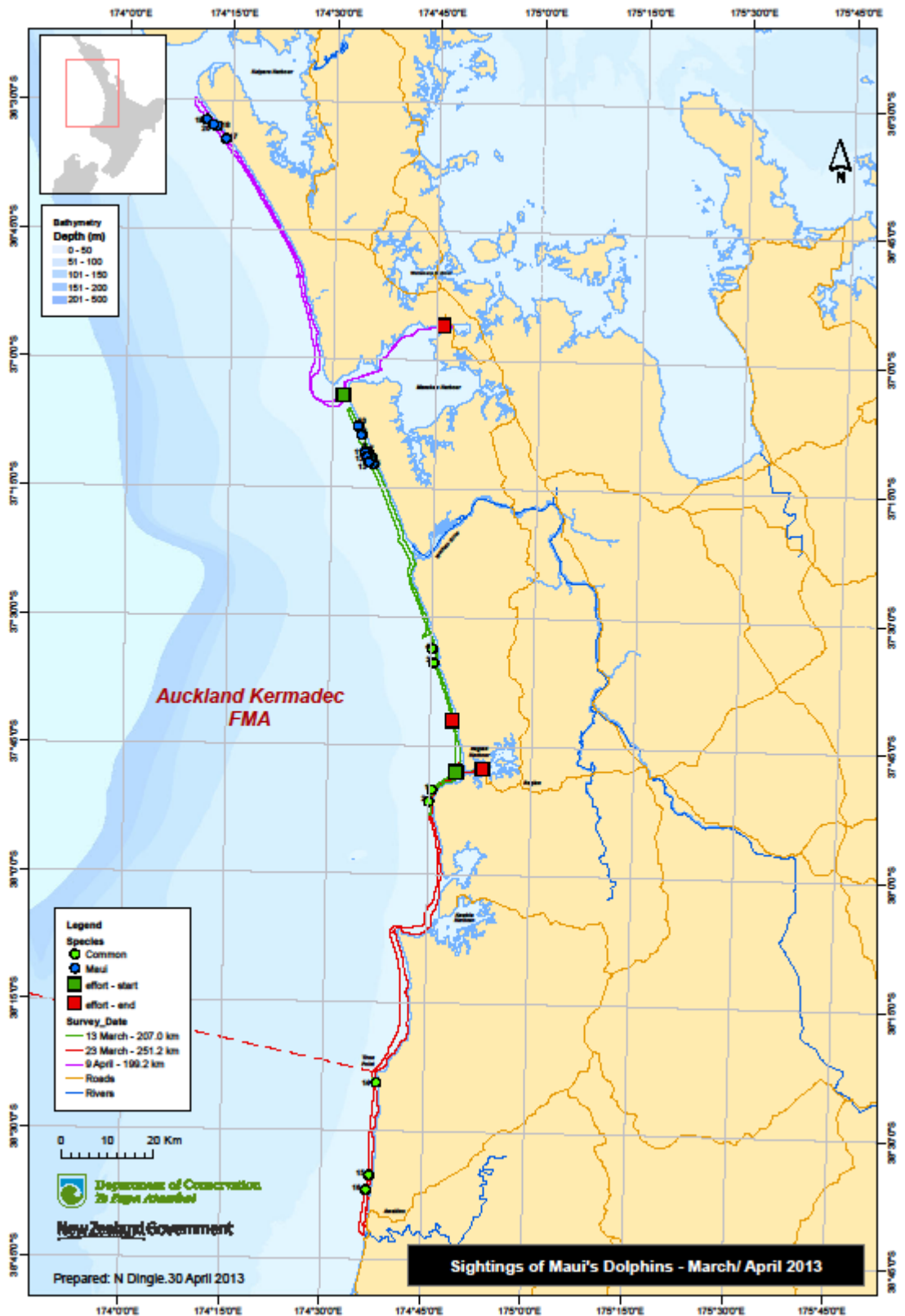


Figure 1. Alongshore survey sightings of Maui's dolphins and common dolphins, March/April 2013.