

2 April 2025

DOC Te Papa Atawhai
National Office
Conservation House
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doc.govt.nz
Ref: OIAD-4994

Tēnā koe

Thank you for your request to the Department of Conservation, received on 10 March 2025, in which you asked for:

- 1. Justification of the use of invasive biopsy sampling when Bennington et al (2025) have recently demonstrated that the questions most relevant to management (principally stock discreteness) can be addressed using non-invasive eDNA sampling.*
- 2. Copies of (a) the application for ethics approval from DOC's ethics committee, and (b) that committee's response*
- 3. Details of the experience of the intended team with biopsy sampling*
- 4. Details of the consultation that has taken place with researchers and iwi in the area concerned*
- 5. Details of the protocol for documenting behavioural effects of sampling.*

We have considered your request under the Official Information Act 1982.

Your questions and our responses are listed below:

- 1. Justification of the use of this invasive technique when Bennington et al (2025) have recently demonstrated that the questions most relevant to management (principally stock discreteness) can be addressed using non-invasive eDNA sampling.**

The recent use of eDNA as outlined in Bennington et al. (2025) has been valuable for initial screenings to gain insight into the distinctiveness of mitochondrial DNA in Otago region dolphins. This work signalled that the haplotypes in the region show affinity with the south coast South Island population. It does not however account for immigration/emigration and the potential movement between adjacent populations. As mitochondrial DNA is only maternally inherited it cannot provide information on potential interbreeding between populations. This information is crucial for understanding how distinct populations are, and what their susceptibility is to local threats.

We have discussed the differences between biopsy and eDNA samples with experts in genetic analysis and it is our understanding that despite its usefulness, eDNA typically lacks sufficient quality and quantity to allow us to understand relatedness of individuals, and reliably assign them to populations. We also understand that eDNA faces analytical issues, especially for nuclear DNA markers, including challenges with phased genotypes. Therefore, it is currently unreliable and unfeasible to collect individual-level genomic information through eDNA sampling to understand the degree of gene flow and the isolation of animals in this region to a level that is suitable for management.

In contrast, biopsy is a reliable method that minimises the amount of boat time interaction with the dolphins and allows us to obtain high-quality DNA from live populations, comparable to that from sampling stranded dead animals. These high-quality biopsy samples can be used to understand stock discreteness and allow for genetic mark recapture abundance estimates. They also enable a wide range of further studies, including Double Digest Restriction-site Associated DNA approaches to understand population relationships, age structure, and diet through isotope analysis. Work is also underway to use archived samples to reliably understand reproductive status of individuals. Such detailed studies are not currently achievable through eDNA use. An additional benefit is that the samples are archived in the New Zealand Cetacean Tissue Archive and can be reused over time.

2. Copies of (a) the application for ethics approval from DOC's ethics committee, and (b) that committee's response

All work involving the remote biopsy sampling of cetaceans is undertaken under a Standard Operating Procedure (SOP), written in 2019. It was reviewed by external scientists, including international experts, and approved through the Animal Ethics Committee (AEC), under the Animal Welfare Act, 1999.

Remote biopsy of cetaceans done following the processes in the SOP does not require further approval by the DOC Animal Ethics Committee as explained in the SOP as follows:

(pg 2) DOC staff performing research or management of cetaceans using remote biopsy best practice as described in this Standard Operating Procedure are exempt under the Animal Welfare Act Section 5(3) and do not require DOC Animal Ethics Committee (AEC) approval if the manipulation of animals:

1. *Constitutes routine management; or*
2. *Forms part of a routine procedure as part of a conservation management research project.*

(pg 4) Under section 5(3)(b)(i) and section 5(3)(c)(i) of the Animal Welfare Act 1999, DOC staff (or external staff working under DOC) following this SOP do not require AEC approval for the work being carried out, as it is a manipulation that is performed routinely as a part of a research project.

As the biopsy sampling was done under the SOP there is no requirement for additional animal ethics approval for this project.

We provided you with a copy of the SOP for Remote Biopsy of Cetaceans via email on 18 March 2025.

3. Details of the experience of the intended team with biopsy sampling:

The team of DOC staff involved in this project and their relevant experience include:

Mike Ogle: Mike has collected over 300 remote biopsy samples. Over half of these were from Hector's and Māui dolphins and blue whales, with the remainder from humpback, orca and southern right whales. Mike's roles in biopsy sampling is as biopsy operator and survey lead.

Mike's training include *Paxarms* firearms training with Al Hutt 2005, day course on biopsy sampling and use of *Paxarms* rifle with Trevor Austin (the inventor of the system) from *Paxarms*, Wellington 2012. Mike was qualified as an assessor for DOC training under the SOP for Remote Biopsy of Cetaceans in 2020.

Cara Hansen: Cara holds current DOC competency for remote biopsy and has collected 10 Māui and Hector's biopsies. Over the last 10 years, Cara has skippered and undertaken photo ID on multiple Māui dolphin surveys. Cara holds DOC competency for Industry Specific Certificate 2 (ISC2) for inshore skippering of vessels.

Thomas McTavish: Thomas holds an Inshore Launch Masters (ILM) ticket and has spent 9 years working for DOC Akaroa and skippering *Kahukura* (the vessel used for the Otago Hector's dolphin biopsy sampling programme). Thomas has experience of the Otago coastline as a deckhand on commercial fishing boats and knows the study area well.

Kristina Hillock: Kristina has been involved in Māui dolphin surveys for 8 years, monitoring and recording response behaviours to biopsy, and taking images for photo ID.

4. Details of the consultation that has taken place with researchers and iwi in the area concerned

Details of consultation with iwi partners and stakeholders in the Otago area are as follows:

Engagement with iwi:	
Engagement led by local DOC operations teams with input from the Marine Species Team	
Kāti Huirapa Rūnaka ki Puketeraki	Initial engagement started in February 2024, with information going to Kōmiti Kaupapa Taio (KKT) and Taiapure Committee.
	DOC filled in the genomics template used by the Rūnaka to be considered at the December 2024 meeting.
Ōtākou Rūnaka	DOC met with the Kōmiti in March 2024 to present the proposed work
	DOC attended the External Issues Kōmiti in January 2025 to give an update on planning.
Moeraki	DOC attended the Moeraki Executive meeting in January 2025 to present the proposed work.
Arowhenua	DOC has been engaging over time to present the work.
Waihao	DOC has been engaging over time to present the work.
All Rūnaka have indicated support and a desire to be involved in the field work.	
Engagement with other stakeholders (including researchers):	
Research Strategy Review workshop 28 September 2023 for the Hector's and Māui Dolphin Threat Management Plan. The strategy review included discussions of local population research, the genetics work for the Otago area, and the proposed methodology for the biopsy sampling.	

Participants included representatives from:
DOC, Fisheries New Zealand, University of Otago, Oregon State University, University of Auckland, Inshore Fisheries New Zealand, Cawthron Institute, University of Auckland, University of Otago, Aarhus University Denmark, Proteus Consulting, Anemone Consulting, Massey University, Oregon State University, JASCO Applied Sciences, NIWA.
Presentation to South Island Hector's Dolphin Forum 28 November 2024. The presentation included methodology, timing, location, and reason for work.
Participants included representatives from:
DOC, Fisheries New Zealand, Ngaati Te Wehi, Māui & Hector's dolphin Defenders, Royak Forest & Bird of New Zealand, University of Otago, Oregon State University, Cawthron Institute, Proteus consulting, Seafood New Zealand Inshore, Canterbury Aoraki Conservation Board, University of Auckland, Environment Canterbury, Nelson City Council, Otago Conservation Board, Otago FRML group, Ngati Tama, Environment Southland, Te Rūnanga O Ngai Tahu, Dolphin Encounters, Black Cat Tours, Blue Planet Marine, and other independent researchers.

5. Details of the protocol for documenting behavioural effects of sampling

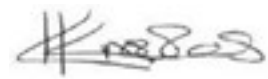
Following the SOP, when biopsies are attempted, the data recorder onboard the vessel monitors and records the response to the biopsy or biopsy attempt using the scale below (from Appendix 1 in the SOP).

Definitions of cetacean behavioural response categories*	
Response:	Definition:
<i>Whales:</i>	
1 - None	Animal continues pre-biopsy behaviour
2 - Low	Brief and mild response (<i>e.g.</i> Startle, immediate dive, horizontal move, increase speed, small tail flick, defecate)
3 - Moderate	More forceful but not prolonged response (<i>e.g.</i> Porpoising, hard tail slap, breaching, trumpet blow)
4 - Strong	Succession of forceful activities (<i>e.g.</i> Flight, breaches, multiple tail slaps, numerous trumpet blows)
<i>Dolphins:</i>	
0 - Mild	No visible reaction, dolphin continues with pre-biopsy behaviour
1 - Mild	Startle reaction, dolphin moves with/without a speed burst, flinches or dives but stay in the vicinity of the boat
2 - Mild	Splashing during moving away, tail slap or flick, with or without returning to the boat
3 - Moderate	Single leap or porpoising by the individual dolphin struck by the biopsy dart
4 - Strenuous	Multiple leaps and/or high-speed porpoising by the individual dolphin struck by the biopsy dart
5 - Strenuous	Multiple leaps in quick succession by more than one individual and group reacts by prolonged diving and/or travelling at high speed (> 12 knots) in apparent avoidance of the boat
*Definition of categories were based on behavioural responses described by Noren et al. (2012) and G. Tezanos-Pinto & C.S. Baker (2012) for whales and dolphins respectively.	

Please note that this letter (with your personal details removed) may be published on the Department's website.

If you would like to discuss this response with us, please contact Malene Felsing, Marine Species Manager by email to mfelsing@doc.govt.nz.

Nāku noa, nā

A handwritten signature in black ink, appearing to read 'Kirstie Knowles'.

Kirstie Knowles
Director Biodiversity System and Aquatic
Department of Conservation
Te Papa Atawhai