



enviser

Marine Mammal Management Plan

Sail GP - Lyttelton 2023 event

F50 League New Zealand Ltd

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He Mihi Whakatuakī

Haea te awa
Putaitua
Putaiaho
I te pakiata o te rakau
O Maere Nuku
O Maere Raki
O maere o te marawhenua
I ruka aTane
I raro aTane
Te Rakiihia aTane
Pakupaku o Tane
Nohoaka o Te Ariki
Hoaatu eTane ki uta

Heoi ano

Ko Te Poho o Tamatea Pokai Whenua te mauka,
ko Whakaraupō te moana,
Te Raki Whakaputa te takata,
Ko Te Wheke te Taniwha
ko Kāti Wheke te hapū,
ko Wheke te whare tipuna,
ko Rāpaki te marae.

Ti-hei mauri ora.

This further karakia provides an affirmation of Ahi-kā and the interaction with Tamatea and Ngātoro-i-rangi which involved 'fire' of volcanic embers and reflects the esoteric narrative of Whakaraupō being partly created by volcanic activity:

E muramura ahi ka ki uta.

E muramura ahi ka ki tai

Kia korakoragia muramura o ahi ka.

May our fires burn brightly inland
May they be seen to burn along our coasts
May the sparks of our bright fires be seen by all.

Kia tau to rangimarie
Kia hohou ai to rongo
Kia tu kotahi ai tātou
Ae, ae ake nei ai
Heoi ano.

Let there be peace
May peace forever be renewed.
Let us all stand together as one.
Yes, yes forever here complete.
So be it!

Foreword

This plan has been collated by Enviser Limited, with information on event logistics provided by SailGP, cultural content provided by Te Hapū ō Ngāti Wheke, Rapaki, and technical expertise provided by:

- Dr Deanna Clement, Marine Mammal Expert, Cawthron Institute
- Dr Matt Pine, Underwater Acoustics and Marine Mammal Monitoring Expert, Styles Group Underwater Acoustics

We would also like to thank the Te Roopu Tiaki Whakaraupō (including those involved as Observers to the group) for their valued input and review of this MMMP:

Liability

Enviser Ltd, Cawthron Institute and Styles Group Ltd have authored this Marine Mammal Management Plan (MMMP) to reduce the risks to marine mammals during the SailGP Lyttelton event. It is important to note that this plan uses a range of methods to reduce risks but does not entirely eliminate all risks. The authors of this report will in no way be liable for any incident occurring with a Upokohue/Hector's dolphin or marine mammal resulting from the SailGP event activity.

SailGP will undertake the event strictly in compliance with the MMMP. In the event of non-compliance by SailGP, SailGP and ChristchurchNZ shall immediately discuss in good faith the consequences of any non-compliance with a view to SailGP taking steps to deal with such breach (if possible) as soon as practicable.

This MMMP is a live document. It will be reviewed and revised, as required, in the lead up to the SailGP Grand Prix event on 18 and 19 March 2023.

Mātauraka (Knowledge) Statement Intellectual Property

The cultural content provided by Te Hapū ō Ngāti Wheke, Rapaki including interpretations within this document may not be used for any other purpose than for the content of this publication, without the express permission of the Te Hapū ō Ngāti Wheke, Executive Komiti.

The Mātauraka herein has been provided on this basis.

Abbreviations

DOC: Department of Conservation

EZ: Exclusion Zone

HDO: Hector's Dolphin Observer

MMMP: Marine Mammal Management Plan (this plan)

TTS: Temporary Threshold Shift

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1. Introduction

Whakaraupō/Lyttelton Harbour is the rohe moana of Te Hapū ō Ngāti Wheke, Rapaki and they hold mana whenua and mana moana over Whakaraupō.

Te Hapū ō Ngāti Wheke, Rapaki have two roles to fulfil simultaneously:

- Kaitiaki (active guardians) of the Pūtaiao (versus Taiao). ('Pū'Taiao places Te Hapū ō Ngāti Wheke, Rapaki *within* the environment rather than externally).
- Manaaki ngā Manuhiri (to host and look after guests).

Te Hapū o Ngāti Wheke, Rapaki has provided additional content setting out the cultural significance, roles and responsibilities, and our environmental setting to give a brief insight as to the importance of Whakaraupō.

The content provided by Te Hapū o Ngāti Wheke, Rapaki is identified with blue shading.

Ōtautahi/Christchurch has been confirmed as a host city for SailGP's second season with the New Zealand Grand Prix scheduled to take place on Whakaraupō/Lyttelton Harbour on March 18-19, 2023.

The race event will take place over two days on Saturday 18 and Sunday 19 March 2023 with on-water activities running for 4-6 hours per day, including approximately 90 minutes of racing, scheduled for between 3:00 and 4:30pm. Four races of approximately 15 minutes duration will occur within the 90-minute period. Prior to the race events, there will be a free practice day on Thursday 16 March and a full race and broadcast rehearsal on Friday 17 March. If required, an additional broadcast rehearsal day may be added to the schedule closer to the event, extending the period of practice, rehearsal and racing by all F50 catamarans to five days in total (March 15-19).

Whakaraupō/Lyttelton Harbour is part of the Banks Peninsula Marine Mammal Sanctuary and home to the Upokohue/Hector's dolphin, a nationally vulnerable New Zealand dolphin species and a range of other wildlife. SailGP recognises the unique position of running an event in a sanctuary environment where marine mammals exist and are protected, and wish to put in place the best practicable mitigation and protection measures.

Passive acoustic monitoring (PAM) devices deployed within Whakaraupō/Lyttelton Harbour by the Lyttelton Port Company during the period from January 2017 to April 2021 (for the purposes of gathering data during construction works at Lyttelton Port) detected the presence of Upokohue/Hector's dolphins within the Harbour at all times of day and during all months of the year, particularly within the outer-harbour waters. Further detail on the presence of Upokohue/Hector's dolphins within the harbour waters is contained in Appendix A.

The protection measures outlined in Sections 6 and 7 of this plan are based on the premise that Upokohue/Hector's dolphins are present year-round in Whakaraupō/Lyttelton Harbour. Therefore, it is highly likely that Upokohue/Hector's dolphins will be present in the Harbour during March 2023 when the SailGP New Zealand Grand Prix is scheduled.

The SailGP league is anticipated to return to Whakaraupō/Lyttelton Harbour in 2025. This MMMP has been prepared to outline protection measures to apply to all future races, subject to a pre-event review and any necessary amendments to the scope and purpose.

Due to the location of this event within Whakaraupō/Lyttelton Harbour, the speed of the F50 catamarans used for racing (reaching up to 50 knots in windy conditions), and the presence of support and spectator boats, event hosts ChristchurchNZ and SailGP are working together to ensure the safety of the marine life exposed to the event.

The purpose of this MMMP is to set out protection measures to safeguard Upokohue/Hector's dolphins (shown in Figure 1) from the risks identified in Section 6. The measures in this plan will not eliminate the risks entirely but seek to minimise the risks as far as practicable. While several marine mammal species are found in the waters of the wider Banks Peninsula area, [REDACTED]

[REDACTED]. Further information on the marine species found in Whakaraupō/Lyttelton Harbour waters is contained within Appendix B.

The New Zealand fur seal (shown in Figure 2), while not as prevalent within Whakaraupō/Lyttelton Harbour, is also within the scope of this MMMP and will benefit from the protection measures outlined in Sections 7 and 8.



Figure 1: Upokohue/Hector's dolphin (Image credit: Dina Engel and Andreas Maecker ©)

Whakaraupō/Lyttelton Harbour is also home to a range of other species such as the kororā/little blue penguin, various manu/birds, various fish species like pātiki/flounder and pioke/rig. Whilst this plan does not specifically seek to protect these species, if sighted, every effort should be made to avoid these animals.



Figure 2: New Zealand fur seal (Image credit: Katherine Clements ©)

2. Cultural importance of Upokohue/Hector's dolphin

As part of our Pūtaiao (total environment including all environs of land, springs, freshwater, water, and air; within the water environ are the associated flora and fauna), Upokohue/Hector's dolphin have a whakapapa (genealogy), hierarchy, and kaupapa (purpose). Upokohue/Hector's dolphin also have an interrelationship with past, present, and future in a connected world and the navigation through time and space (wā and atea) therein, of the exoteric (common knowledge) and esoteric (uncommon knowledge) realms. We seek mauri (life force) to thrive and note that the Pūtaiao has a self-regulating mechanism.

3. Roles and responsibilities

Table 1 summarises key event staff who will be involved in implementing the MMMP, their contact details, and the roles they are serving under the MMMP. The New Zealand Grand Prix Head of Operations has overall responsible for implementing this MMMP. It is the responsibility of SailGP to ensure that all employees and subcontractors understand and implement the requirements of this MMMP.

3.1 Te Hapū o Ngāti Wheke, Rapaki roles

As kaitiaki of Whakaraupō/Lyttleton Harbour, Te Hapū o Ngāti Wheke, Rapaki has responsibility for the environs including the marine environment through the exercising of Manawhenua, (authority of place).

As mana whenua and through extension of mana as authority, Te Hapū o Ngāti Wheke, Rapaki require a point of contact in which anything is reported to that point of contact with authority will assess, decide, and direct on all matters.

Te Hapū o Ngāti Wheke, Rapaki will have an internal process for the directive mechanism that will consider and direct in a timely manner. Externally that direction needs to be given by someone in a Kaihautū role and the direction made needs to be adhered to. In practice, the Kaihautū directs a team in which the Ruawahine/Taua (senior woman) will be a key role. Whilst exercising of mana, in practice it will be congruent with the extensive SOPs in the MMMP document.

Te Hapū o Ngāti Wheke, Rapaki have made the following appointments:

- Tutehounuku Korako – Kaihautū
- Yvette Couch-Lewis – Ruawahine/Taua

Other roles to be selected by Kaihautū and Ruawahine, as required.

3.2 Non-operational event roles

In addition to the staff set out in Table 1, the following SailGP staff are responsible for delivering the event, but do not have operational roles in the MMMP:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Table 1: Summary of key contacts, roles, and responsibilities

Company/Organisation	Name	Role	Contact details
SailGP	[REDACTED]	Head of Operations	
SailGP	[REDACTED]	Event Control Room Manager	
TBA	(To be appointed)	Hector's Dolphin Observer Manager (HDO Manager)	
Department of Conservation	(To be appointed)	DOC contact person	
Te Hapū o Ngāti Wheke	[REDACTED]	Kaihautū	
Te Hapū o Ngāti Wheke	[REDACTED]	Ruawahine/Taua	
Marine Mammal Vet	(To be appointed)	TBA	
Lyttelton Port Company	Phil De Joux	LPC contact	
Environment Canterbury	TBA	ECan contact person	
ChristchurchNZ	TBA		
Live Ocean	[REDACTED]	Programme Director	
Cawthron	[REDACTED]	Marine Mammal Ecologist	
Enviser	[REDACTED]	Environmental Consultant	
Styles Group	[REDACTED]	Underwater Bioacoustician	

3.3 Hector's Dolphin Observer (HDO) Manager role

The HDO Manager role is instrumental to implementing the protection measures outlined in section 7. The HDO Manager forms a critical link in the communication chain between the land and boat observers and the Event Control Room. During on-water activities, the HDO Manager will be either based on-shore, or on a designated support boat known as the Animal Response Boat.

Key responsibilities include:

- Have an appreciation of mana whenua values and the tikanga involved with implementing this MMMP.
- Leading pre-event training and orientation sessions for trained and volunteer observers.
- Supporting pre-event briefings for SailGP sailing and support crews.
- Maintaining direct contact with all pre-event surveillance teams and land-based observation stations using a designated VHF/marine radio channel.
- Coordinating all land-based and on-water observations and any public/spectator sightings.
- Liaising with the Event Control Room Manager prior to and throughout all on-water activities.
- Instructing the Event Control Room Manager to stop or delay racing due if a marine mammal is detected in Alert Zone 4.
- Work with the MMMP authors to update the plan if modifications are needed.

3.4 Resource requirements

Implementing the Plan requires the following:

- One suitably experienced marine mammal expert to act as the HDO Manager.
- 13 to 15 suitably experienced Upokohue/Hector's Dolphin Observers (HDOs) (nine land-based, four boat-based). (Note: two additional HDOs may be needed for training days.)
- Nine trained volunteer observers.
- Binoculars, tripods, and VHF radios for each observation station.
- A means of transportation to the observer locations, which may be by vehicle or boat.
- Two dedicated vessels to undertake pre-race on-water surveys (one of which will remain on-water as the Animal Response Boat).
- AI-powered drone (if feasible).
- Four SoundTrap hydrophones for passive acoustic monitoring (available from Lyttelton Port Company).
- Two UHF (up to 250 kHz frequency response) hydrophones with real-time capability for acoustic surveillance.
- An Acoustic Deterrent Device (ADD) (e.g., FaunaGuard sourced from Ace Aquatec).

4. Implementation of this plan

Whilst all parties involved have responsibility to protect the environmental values of Whakaraupō, SailGP are responsible for the operation implementation of this plan. The Hector's Dolphin Observer (HDO) Manager, based on information from the Hector's Dolphin Observers (HDOs), is responsible for initiating the marine mammal protection measures set out Sections 7 and 8 of this plan.

On practice, rehearsal, and race days, the HDO Manager will be in direct contact with all pre-event surveillance teams and land-based observation stations using a designated VHF/marine radio channel.

The HDO Manager will coordinate all land-based and on-water observations and any public/spectator sightings. The HDO Manager will liaise with the Event Control Room Manager prior to and throughout rehearsals and racing.

The Event Control Room Manager must act upon the instructions of the HDO Manager and implement the mitigation response to stop or delay racing due to the presence of a marine mammal in Alert Zone 4.

For Te Hapū o Ngāti Wheke, Rapaki the implementation of this plan should integrate the roles and responsibilities set out above and be congruent and calibrated to the extensive SOPs in this document.

Once this document is confirmed, an important prerequisite is for all persons involved with Te Roopu Tiaki Whakaraupō, are to be welcomed under the protocol of pōwhiri onto at Te Wheke Marae, Rapaki.

5. Environment and event description

The following sections describe the environment of the race course and the New Zealand Grand Prix race event.

5.1 Tipuna Whare, Wheke

The Tipuna Whare, Wheke, located at Rapaki o Te Rakiwhakaputa is the visual representation of the esoteric and exoteric expression of the Te Hapū o Ngāti Wheke, Rapaki, Mātauraka, and the context of Pūtaiao.

It recognises the southern creation and creating stories, with the union of Raki to Papatuanuku and Pokoharuatepō, and the union of Papatuanuku and Takaroa. The elemental deities of Kahukura and Tu-Te-Raki-Whanoa, important in our southern stories, are also represented within the Rapaki Tipuna Whare, Wheke.

It transverses the realms of Te Waka o Aoraki, Waka-a-Maui and Uruao te Waka o Rakaihautu/Ra-Te-Kaihautū. Tuhiraki (Mount Bossu), where tradition says Rakaihautu/Ra-Te-Kaihautū's koa (digging stick) is placed, represents a symbol and example of exploration and the placing of names.

Tamatea-Pokaiwhenua/Pokaimoana and the waka Tākitimu is an important tradition of Te Hapū o Ngāti Wheke, Rapaki from recent but pre-European times. Many of the place names in the Whakaraupō area are reflective of the Tamatea traditions, and hononga (connection) to his contemporary Ngātoro-i-rangi of Tūwharetoa in the central North Island Te Arawa Waka. Mauka Te Poho Tamatea ("the Breast of Tamatea") is an example of a local name honouring Tamatea and refers to the conical shaped peak above the Rāpaki Kaika and Ahi-a-Tamatea (The Giant's Causeway).

Our muna-matauraka (restricted knowledge) extends these traditions into Te Moana-nui-a-Kiwa (the wider Pacific Ocean) and the inter-relationship of Whakaraupō within that. It encapsulates the traditions of Paikea (the Whale rider) and the interrelationships with Ngāti Porou in the Tai Rāwhiti (East Coast) region of Aotearoa/NZ.

The incursions of Ngāi Tuhaitara and Kāti Kuri saw recent but pre-European occupation into Te Waipounamu and saw the allocation of rohe/regions. Ngāti Wheke sits under the mana of Te Rakiwhataputa who is Kati Kuri tūturu (completely), he has extensive Kuri and Tuahaitara interconnectedness through his two wives', his first being Hine-Te-Awheka whose children were Te Ropuake, Te Raki-tau-Neke-a-tane, Hinekakai, Manuhiri and his second wife Kuku and their son Wheke.

This weaves together the rich tapestry of Waitaha and Kati Mamoe, Tuhaitara (including Ngāi Tuahuriri, Ngāti Rakiamoa) and Kāti Kuri (including Ngāi Te Ruahikihiki).

Finally, the whare tipuna is a celebration of mana wahine not only in the carved ancestresses which includes Hemo-Te-Raki, Hui-a-Rei, Tuahaitara, Hine-Kataia, Hine-Te-Awheka and Kuku, but within the female aspect of the whare tipuna including the tukutuku works.

The natural and total environment is presented as set out above, and also includes paintings and tukutuku panels relating to the local environment.

Our statement of mana and Pūtaiao is:

"Whakaraupō is us and we are Whakaraupō".

5.2 Surrounding environment

Lyttelton Harbour/Whakaraupō is the eroded caldera remnant of an extinct volcano. The harbour has high marine cliffs at its entrance and along its sides. In the centre of the caldera sits Lyttelton Port of Christchurch, the largest port servicing New Zealand's South Island. As a result of this semi-enclosed geography, this protected harbour environment is one of continual activity and noise, with recreational boating, ferries, ships, trains, cargo, and general port activity.

Lyttelton Harbour, and the SailGP course, is located within the boundaries of the Banks Peninsula Marine Mammal Sanctuary (BPMMS). The Sanctuary encompasses the entire Banks Peninsula, its main harbours and bays, extending from the southern boundary of the Te Rohe o Te Whānau puha Kaikōura Whale Sanctuary, south to the Waitaki River and 20 nautical miles out to sea from the coast. It was created in the late 1980s to protect the endangered Upokohue/Hector's dolphin and places restrictions on activities within its boundaries for the protection of all marine mammals.

5.3 Event description

The SailGP course will be positioned directly in front of the Lyttelton Port of Christchurch, with the exact course and total race area determined by the daily conditions. The New Zealand Grand Prix will be the eighth event of season two. Up to nine international teams compete in the league, racing identical F50 wing-sailed catamarans.

Race operations will broadly follow the timeline in Table 2, with some adjustments possible in the months leading up to the event.

Table 2: Event timeline

Date	Phase	Racing duration	Number of F50 on the water
1-16 March 2023	Event set up	(Off-water)	0
16 March 2023	Free practice day	All vessel practice (approx. 10am-6pm)	Up to 9
17 March 2023	Rehearsal racing	4-6 hours (including 90 minutes racing)	9
18 March 2023	Racing	4-6 hours (including 90 minutes racing)	9
19 March 2023	Racing	4-6 hours (including 90 minutes racing)	9
20-31 March 2023	Event pack down	(Off-water)	0

On rehearsal and racing days, a maximum of nine F50 catamarans are expected on the water. An additional 40-50 support boats will also be present, and on race days a large spectator fleet (of 150+ boats) is expected. Timing of training each day will be dependent on the presence of dolphins within the harbour, conditions, tides, and boat readiness.

5.3.1 Event logistics

The Event Village at Te Nukutai o Tapoa/Naval Point, located between Lyttelton Port of Christchurch and Naval Point Club Lyttelton, will host the SailGP team bases and technical support facilities. It is

also the location where all nine F50 catamarans will be craned in and out of the water each day. Te Ana Marina within the inner harbour will be used to moor and launch the support fleet.

All infrastructure will be either brought in by event organisers or hired locally and will be temporary in nature.

5.3.2 Training & racing area location

The race area was selected to meeting the following requirements:

- Prevailing wind direction
- Water depth
- Proximity to shore for technical and broadcast requirements
- Proximity of finish line to the race village for enhanced spectator entertainment

The proposed race has been set in the area directly in front of Lyttelton Port of Christchurch/ Te Nukutai o Tapoa/Naval Point but may be oriented differently to accommodate wind direction on the day.

Practice and rehearsal (on 16 and 17 March 2023) will take place within the area identified in Figure 3.

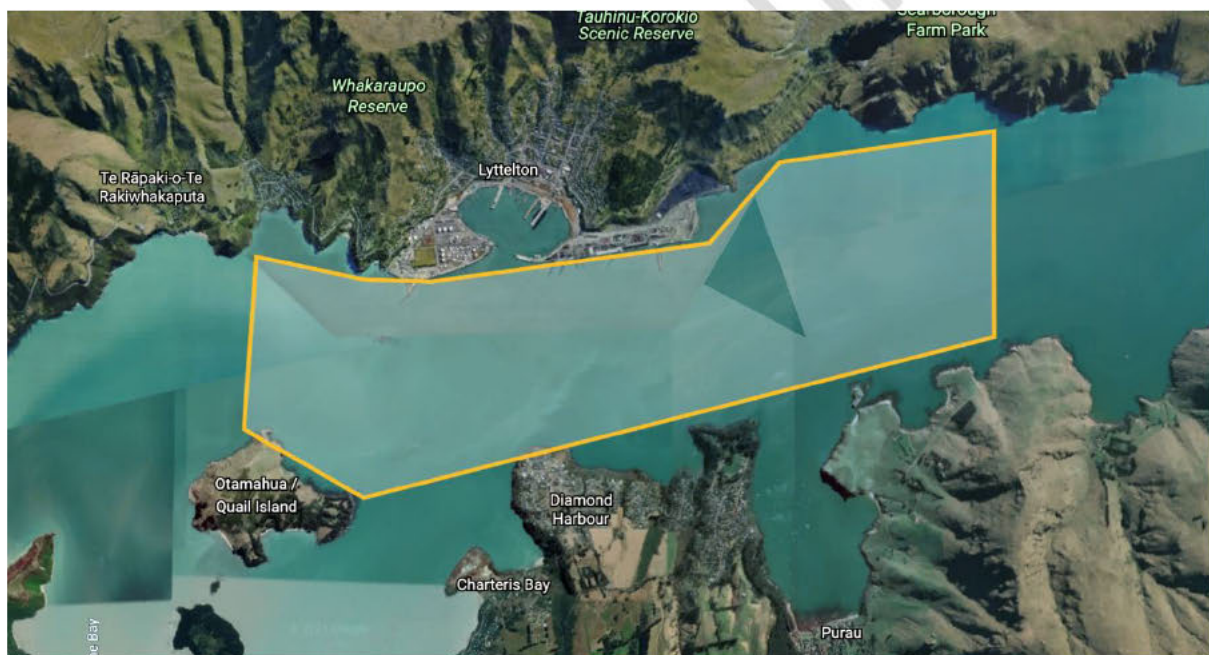


Figure 3: Indicative free practice area



Figure 4: Indicative race area (orientation may change depending on wind direction).

5.3.3 Exclusion Zone

To deliver high quality races in a fair, safe, timely and professional manner, the race area will be set up in an Exclusion Zone (EZ), exclusive to the F50 catamarans and a limited number of flagged vessels. The event will be declared a Major Maritime Event and the EZ (and overall management of vessels in the area) will be put in place via the relevant provisions of the Maritime Transport Act.

The EZ will be demarcated by at least 12 orange inflatable stake marks and protected by 15 course marshal boats. Any vessel that does not have an official flag will not be allowed inside the EZ.

The EZ will be set up for the rehearsal race on 17 March and racing on 18 and 19 March. It may not be set up for the full practice day on 16 March, but all F50 catamarans and support vessels will be responsible for following all maritime navigation laws while sailing during both training and racing.

6. Risk identification

The MMMP identifies the following risks for marine mammals presented by SailGP's New Zealand Grand Prix:

- Vessel strike
- Avoidance behaviours

Marine mammals already face both risks year-round within Whakaraupō/Lyttelton Harbour, [REDACTED]. The risk of both vessel strike and avoidance behaviours are discussed in further detail below, with particular emphasis on the risk of vessel strike, which is considered the primary risk.

The SailGP racing environment creates a unique scenario in that the main risk factors that may result in avoidance behaviours by Upokohue/Hector's dolphins, particularly the underwater noise generated by a large fleet of spectator and support boats, may also help mitigate the risk of vessel strike by deterring dolphins from the race area.

6.1 Vessel strike

The SailGP Grand Prix will lead to increased boat traffic in the area on the practice, rehearsal and racing days, [REDACTED]

[REDACTED] The risks to marine mammals from the F50 catamarans and the associated on-water operations (including race support safety, broadcasting, and spectators) are presented below.

The following risk factors have been identified as directly or indirectly altering the risk of vessel strike (injury or mortality):

- The race event takes place during the late summer months when Upokohue/Hector's dolphins spread into the bays and harbours of Banks Peninsula. Upokohue/Hector's dolphins are regularly found throughout middle and outer harbour waters over the warmer summer months in areas that overlap with the proposed race and practice areas (See Appendices A and B). Te Hapū o Ngāti Wheke, Rāpaki report that Upokohue māmā and pēpē are also seen at the head of the harbour early mornings. Kororā are also sighted morning and late afternoons. The presence of marine mammals at the head of the harbour will depend on the abundance of various fish species.
- Most Upokohue/Hector's dolphin calves are born between October and March and while no distinct calving areas and/or nursery areas have been identified, calves are regularly sighted within Lyttelton Harbour/Whakaraupō each summer. Newborn calves and young animals are vulnerable to boat strike as they are less aware of risk, spend more time on the surface and dive more slowly than mature dolphins. Upokohue/Hector's dolphins are naturally inquisitive mammals and will approach and interact with vessels.
- Individual New Zealand fur seals are expected to visit the harbour throughout the year with more juveniles expected over late winter and spring when they leave nearby breeding colonies.
- Whilst not mammals, kororā/little blue penguins are also present in the harbour, leaving their land-based nests to forage at sea during the day.
- The design of the F50 catamarans includes hulls and appendages that travel through the water at depths of up to 2.5 metres deep.
- The F50 catamarans move at speed up to 50 knots, *without* generating considerable noise to provide adequate warning to marine mammals (see Figure 5).
- The support boats for training and racing of the F50 catamarans, will include powerboats with outboard engines and propellers travelling through the water up to 1m deep, operating at high speeds, with limited ability to change course quickly or stop.
- A large spectator fleet is expected on race days (March 18 and 19), increasing the volume of marine traffic within Whakaraupō/Lyttelton Harbour.

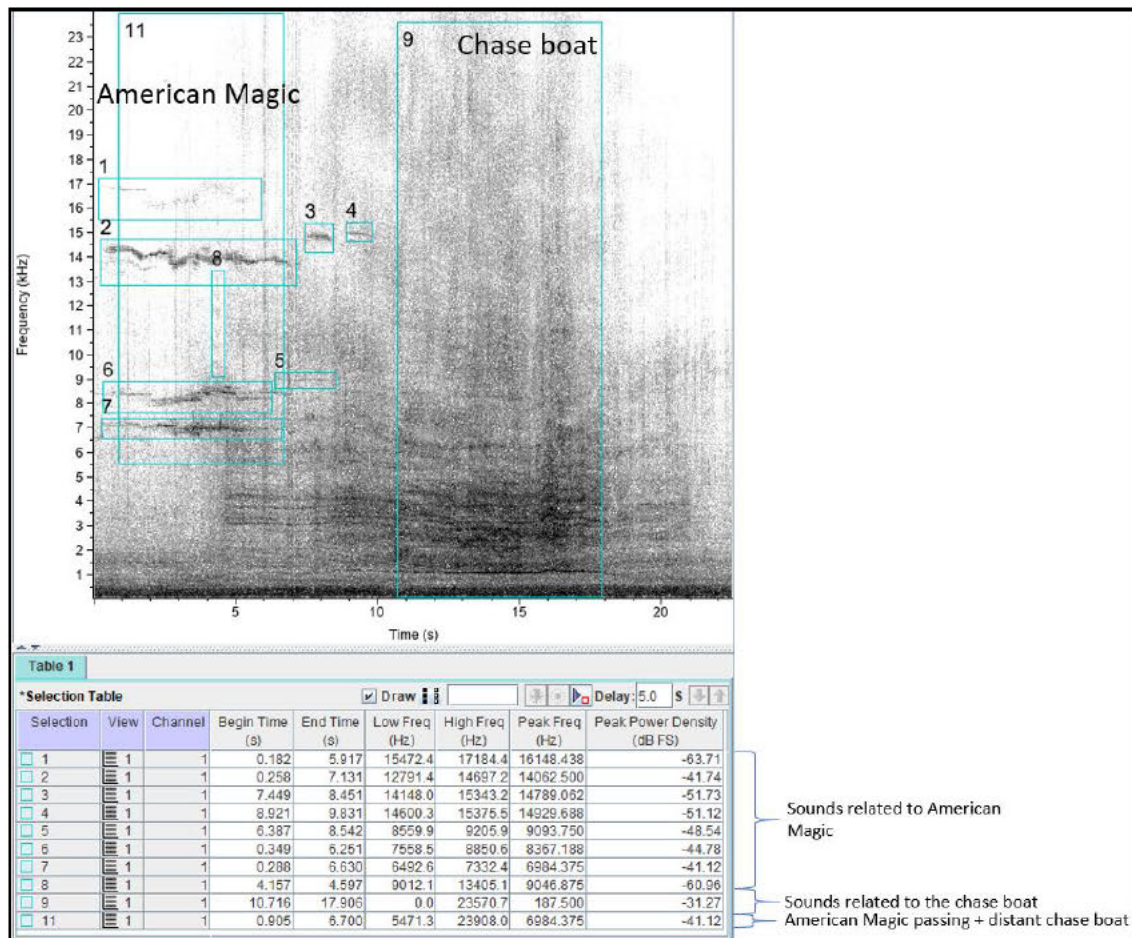


Figure 5: Recording of American Magic passing a bottom-mounted hydrophone during the Prada Cup, as recorded during Race 2 on 17 January 2021 (between 1700 and 1730 hrs). Numbers 1-8 are related to the foil, showing a complete detection time of approximately 10 seconds. Number 9 shows the chase boat (Pine MK 2021a).

6.2 Avoidance behaviours

Marine mammals use sounds for communication, orientation, foraging and predator avoidance. An increase in underwater noise can impact marine mammals, resulting in avoidance of noisy areas, behavioural changes, auditory masking, or physical injury.

The following risk factors have been identified as directly or indirectly altering the risk of avoidance behaviours:

- The SailGP race event will result in a temporary increase in vessel traffic in Whakaraupō/Lyttelton Harbour that will alter the amount and character of underwater sound within the race area. The noise from vessel traffic will vary with the type, size, and speed of vessels. Vessel noise, as perceived by dolphins, is determined by the background sound conditions.
- Mainly lower-frequency noise (below 2 kHz) is expected to be generated by larger vessels and higher frequency noise (50 – 100 kHz) by smaller, faster recreational vessels. Depth sounders are also commonly associated with recreational vessels, most commonly emitting

rapid pulses at 50 kHz but also 90 kHz or well above 120 kHz (within the same range as dolphins' echolocation clicks).

- A range of potential behavioural and masking effects are possible, with risk generally increasing with proximity to vessels.
- The range over which vessel noise levels propagate is not expected to exceed any hearing injury threshold criteria (i.e., temporary threshold shift (TTS) or permanent threshold shift (PTS)).
- The associated increase in vessel traffic will be temporary over a fortnight period only, with a peak in traffic expected before, during and after the race events on 18 and 19 March.
- Different sources of underwater noises are not necessarily additive or cumulative. The 'loudest' noise will often cover up other noises generated nearby by other activities.
- The inner- to mid-harbour location of event-related traffic may help discourage individual animals from moving into the harbour and instead limiting their presence to mainly outer and entrance waters while the events are underway.

7. Protection measures to minimise risks

Mitigation action using protection measures is required to manage the risks of vessel strike on marine mammals, particularly the Upokohue/Hector's dolphin. It is also a requirement under Policy 11(a) (i) of the New Zealand Coastal Policy Statement to avoid adverse effects of activities on indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System lists, such as Upokohue/Hector's dolphins.

This MMMP does not seek to mitigate the risk of avoidance behaviours as the increase in noise and vessel traffic from support and spectator boats may help deter marine mammals from the race area, reducing the risk of vessel strike.

During all phases of the race event, the principle guiding vessel movements within Whakaraupō/Lyttelton Harbour will be to avoid, as far as practicable, any interaction with marine mammals. Broadly, the control measures are founded on the use of trained observers to identify the presence of mammals and to delay or halt racing to minimise risk. A range of other methods are built upon this foundation to provide a robust package of measures to manage the risks. These measures are described in more detail in the following sections.

7.1 Primary protection measures to minimise vessel strike

The following sections set out the primary protection measures to be implemented across the practice, rehearsal, and race days.

7.1.1 Pre-event briefings

All teams, staff, and contractors involved in the events' on-water operations will attend briefings prior to the commencement of on-water activities. Briefings will focus on ensuring attendees are aware of the risks and understand and can implement the protection measures in this plan, including strike incident management.

Briefings will be given by SailGP, supported by the HDO Manager, and will be accompanied by documentation, photo and video content as required.

A schedule of briefings, tailored to each group, will be confirmed prior to the commencement of any on-water activities and will be based on the following:

- A briefing for all sailors and crew on or before their first day on the water.
- A briefing for all staff and contractors involved in the on-water operations on or before their first day on the water.
- During rehearsal and racing days, a daily briefing for all official boats including support boats and official spectator boats.
- Pre-event newsletters to registered on-water spectators.

7.1.2 Alert zones

To allow adequate warning of marine mammals' presence within Whakaraupō/Lyttelton Harbour and to trigger protection measures, the harbour has been divided into four alert zones with each zone corresponding to an increased risk of collision between marine mammals and SailGP-generated marine traffic. The zones will be monitored by land-based observers positioned at each end of the zone boundary. This is detailed in Section 7.1.4.

Alert Zones:

- ZONE 1 (observe, report and track)
- ZONE 2 (observe, report and track)
- ZONE 3, 3a and 3b (delay start of racing)
- ZONE 4 (race shut down zone)

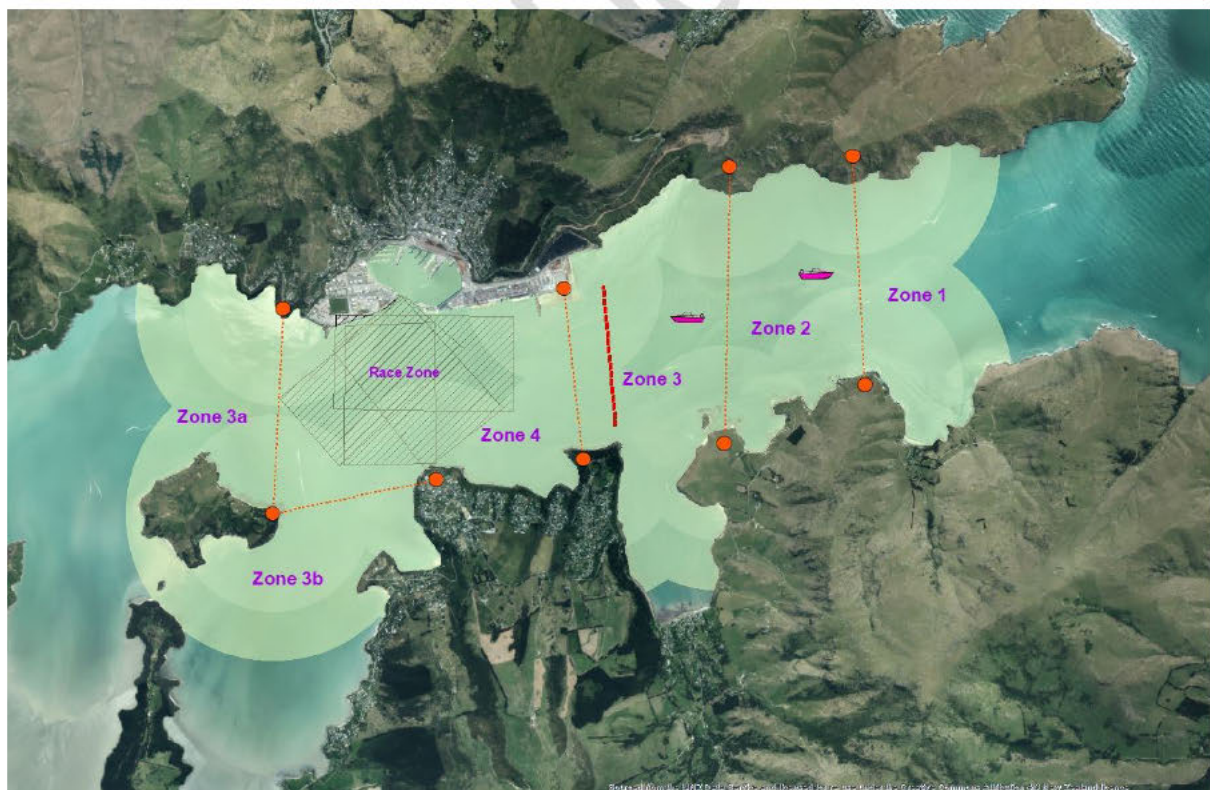


Figure 6: Alert zone boundaries for race and rehearsal days. Green shaded areas show the 1.5km and 1km observation ranges, red dots indicate observation station locations and dark red line indicates approximate location of acoustic devices.

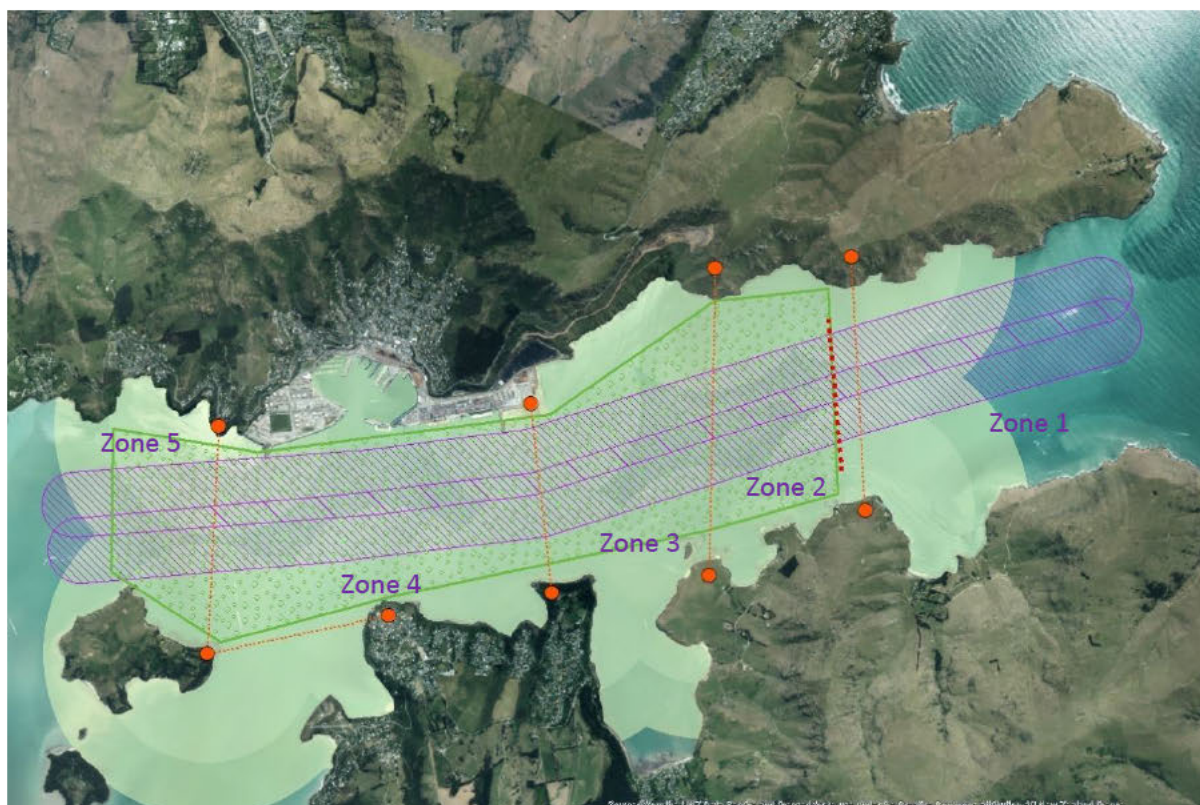


Figure 7: Alert level zone boundaries for practice day. Green shaded areas show the 1.5km and 1km observation ranges. Green hatched is the training area, purple hatched is track of on water survey and dark red line indicates approximate location of acoustic devices.

These zones will be further sub-divided into referenced grids to aid in quickly and efficiently locating any marine mammals.

7.1.3 Pre-event on-water surveys

On-water transect surveys will be undertaken by two boats and a drone (if feasible), commencing no earlier than two hours before training and racing. The surveys will determine if (and where) any marine mammals are in the harbour and will help inform visual tracking prior to and during training and/ or racing. At least two suitably experienced observers will search the transect area from the bow or an elevated position on each boat using binoculars when necessary.

GPS positions, group sizes and direction of movement of any marine mammals sighted will be recorded and directly communicated to all land-based observation stations and the HDO Manager to facilitate continuous tracking of sightings. The HDO Manager will provide updates (at half hour intervals or as needed) on located marine mammals to the Event Control Room Manager.

7.1.4 Land-based observation stations

Suitably trained Hector's Dolphin Observers (HDO)s on continuous watch at elevated land-based observation stations positioned along the harbour form a key component of the practice, rehearsal and race day protection measures. Land-based observers will commence observing by midday each day and will undertake observations from that time until 30 minutes after on-water activity finishes.

HDOs will be involved during the practice, rehearsal and race days (March 16, 17, 18 and 19) tasked with finding and tracking the presence of any marine mammals in the area. Additional volunteer helpers will be used to help and assist HDOs at each station.

HDOs will be positioned at 9 observation stations on both sides of the Harbour, at each zone boundary, visually covering the area from Ōtamahua/Quail Island through to the harbour entrance. Each station will consist of two observers – one suitably experienced HDO, supported by a trained volunteer observer. The HDOs will be equipped with binoculars, tripods, and VHF radios.

The HDOs will commence observing the race area four hours before the scheduled start of on-water activities on practice, rehearsal and race days (March 16, 17, 18 and 19) and the reserve day (15 March) if used. The observations will continue throughout the race and for a period of 30 minutes after cessation of on-water activities.

The HDOs and volunteer helpers will be trained by a suitably qualified Marine Mammal expert. Training will include:

- introduction to mana whenua values and tikanga
- types of marine mammals likely to be present in the area and how to identify them
- search and scanning protocol and methods to be used
- marine mammal behaviours
- measures to be taken if marine mammals sighted
- communication protocols and procedures
- incident and strike protocols
- reporting requirements
- health and safety requirements specific to undertaking the observations.

To enable quick and accurate tracking of marine mammals, the zones will be divided into an annotated grid with on-water buoys marking grid intersections. This will allow all HDOs to identify the location of sighted mammals, and to quickly track the mammals as they move through the harbour and into different zones.

Marine mammal sightings by the observers will be immediately reported to the **HDO Manager** via a dedicated VHF channel. All observers shall keep their VHF radios on at all times and tuned to the dedicated VHF channel, so they are aware of all sightings.

Clear and concise communication between stations and the HDO manager is vital to continuously track any sighted groups of marine mammals prior to and during race events. A communication plan will be developed prior to the event and discussed in detail as part of the HDOs and volunteer helpers training programme.

Marine mammal sightings must also be recorded using the Marine Mammal Observation Recording Forms in Appendix C, and provided to the HDO Manager at the end of each observation shift.

The HDO Manager will coordinate all the observation activities from the Animal Response Boat, or an onshore location. The HDO Manager will directly communicate with the Event Control Room. The Animal Response Boat, in addition to the other survey boat, will operate for the entire duration of on-water activities.

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7.2 Supporting protection measures to minimise vessel strike

The supporting protection measures outlined below may be employed to further minimise risk and will complement the primary observation and alert zone protection measures.

7.2.1 Drone surveillance

Transect surveys will be undertaken before training and during the morning of race days, with the default method being visual observation from a boat.

Subject to successfully trialling of the available technology, these observations may be undertaken using a specialised, artificial intelligence (AI) powered drone developed to detect and map the habitats of Māui and Upokohue/Hector's dolphins. If successful, the drone may provide an efficient and cost-effective method for surveying the Whakaraupō/Lyttelton Harbour for the presence of marine mammals on training days and in the morning of the race days. It can be used to scan the surface of harbour waters quickly and efficiently along set transects looking for marine mammals, and circling to confirm when and where they are detected. The drone is not anticipated to be suitable for use during race events due to the events' broadcast requirements and the associated need for airspace.

A pre-event trial will be required to test the capabilities of this technology within Whakaraupō/Lyttelton Harbour.

7.2.2 Real-time Underwater Acoustic Surveillance

Active hydrophones deployed off support boats or from buoys could be used to listen acoustically for the nearby presence of any marine mammals undetected by visual observers. Automated detection using AI capabilities from remotely deployed acoustic moorings is currently being developed with this event in mind, but it may not be fully functional for the March 2023 event and at present, is suggested as a supplementary protection measure only.

7.2.3 Passive acoustic monitoring data

Lyttelton Port Company has four SoundTrap hydrophones available for passive acoustic monitoring of the race area. Due to the general noise and activity expected to be generated by support and spectator vessels, passive acoustic monitoring is not considered useful for detecting the presence of marine mammals during race events. However, data gathered in the weeks leading up to and following the race events will provide baseline data to inform the running of similar, future events.

7.2.4 Marine mammal sighting apps

All spectators, support crew and other staff will be encouraged to report any sightings of marine mammal (especially Upokohue/Hector's dolphin) via the Hector's Dolphin Sightings App, developed

by Whale and Dolphin Conservation and SaferMe in collaboration with DOC, can be used by support crew and spectators to report marine mammal sightings. The data collected by the app is shared directly with DOC. While sightings are not shared in real-time, the data provides useful information on the presence of marine mammals within the harbour.

Pre-event briefings and registration information for official spectator boats will encourage the use of available apps to report marine mammal sightings.

7.2.5 Informal observers

As an alternative to reporting sightings via an app, support vessels and official spectators will be encouraged to report sightings to the Event Control Room via VHF radio.

Pre-event briefings and official spectator registration will provide guidance on how to report sightings.

7.3 General protection measures for vessel interaction with Marine Mammals

7.3.1 Support and spectator vessel interactions with mammals

The Marine Mammals Protection Regulations 1992 list the conditions governing behaviour around marine mammals. All seals, sea lions, dolphins and whales are protected under the Marine Mammals Protection Act 1978.

It is an offence to harass, disturb, injure, or kill marine mammals. Vessels in the vicinity of a marine mammal or marine mammals must (except for emergency situations) adhere to the following rules, adapted from the Department of Conservation (DOC) general guidelines:

- Approach whales and dolphins from behind and to the side as shown in Figure 8.
- Do not circle them, obstruct their path, or cut through any group.
- Keep at least 100 metres from whales (or 200 metres from any large whale mother and calf or calves) and 50 metres from dolphins and pinnipeds.
- Do not encourage bow riding by marine mammals. Should any marine mammal(s) commence bow riding in front of a vessel, the vessel master will not change course or speed suddenly.
- Ensure that you travel no faster than idle or 'no wake' speed within 300 metres of any marine mammal.
- Idle slowly away. Speed may be gradually increased to out-distance dolphins and should not exceed 5 knots within 300 metres of any dolphin.

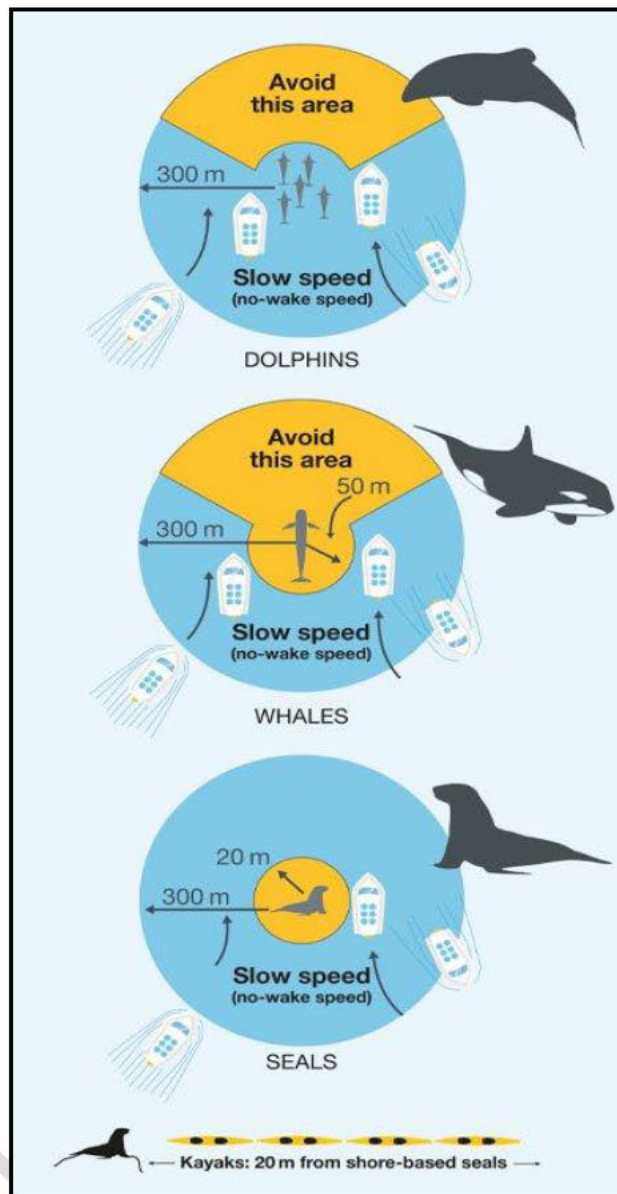


Figure 8: DOC guidelines for vessel interactions when approaching, manoeuvring, and passing by marine mammals.

SailGP is investigating ways to push this information out to registered spectator vessels to raise awareness of how to safely interact with marine mammals. This will likely be achieved via the SailGP website or a specific event app.

8. Practice, rehearsal, and race event procedures

8.1 Practice day (16 March 2023)

1. Pre-event procedures

- On-water survey along pre-planned transects by drone or observer boats no earlier than 2 hours before training starts to determine number and location of marine mammals.

- Drone/boat sighting locations reported to HDO Manager, land-based observation stations and Event Control Room via VHF radio and then tracked for as long as possible up to training start time.
- HDOs and volunteers begin land-based observations overseeing all zones (see Figure 7), 4 hours before training commences and continue for duration of on-water activity.
- In the event marine mammals are sighted in Zone 2 within 30 minutes of the start of on-water activities, sailing activities may commence but must stay out of Zone 3. If the marine mammal continues into Zone 3, then sailing activities must be delayed until the mammal leaves Zone 3 in an east-wards direction and allows for at least one clear zone between the mammal and the sailing activity.

2. Procedures for duration of on-water activity

As a general note, during practice days, a clear zone must be maintained between the sailing activities and a sighted marine mammal. If a mammal is sighted sailing must cease in the adjacent zone.

To assist in implementation, the following have been defined:

- **Open Zone** – Zones where practise sailing can occur. Defined by having no active sighting of a marine mammal in the zone or adjacent zone
- **Closed Zone** – Zones where practice sailing **MUST NOT** occur and all SailGP vessels must maintain speeds <5 knots. Defined by having an active sighting in the zone, or an adjacent zone.


All Zones

- HDOs locate and continue tracking any previous sightings from pre-training survey.
 - Two survey boats, with two HDOs per boat, continuously run a prescribed track through the zones to assist the land-based HDOs in finding undetected upokohue/dolphins.
 - HDOs locate any new sightings, report location and direction of movement to HDO manager and all HDOs via VHF radio.
 - HDO Manager notifies Event Control Room Manager.
 - HDOs continue tracking location and direction of movement until mammal is out of viewing range.
- Animal Response Boat maintains close and constant watch of mammals to monitor direction of movement.
 - If a marine mammal is sighted crossing a Zone boundary, the HDO Manager is immediately notified.
 - HDO Manager notifies the Event Control Room Manager of the sighting and any new closed zones.
 - The Event Director shall:
 - immediately instruct all F50s in the zone of the sighting and the adjacent zone(s) {closed zones} to drop off (and stay off) the foils and all support boats to slow down to less than 5 knots.
 - Notify all F50s that they may move (at <5 knots) to an open zone and continue practising.

- d) the Animal Response Boat will maintain close and constant watch of mammal/mammals to monitor direction of movement.
- b) Practise sailing may resume in a formerly closed zone, when the sighted marine mammal has moved such that the adjacent zone is confirmed (by the HDO Manager) to be clear of marine mammals for at least 10 minutes.

8.2 Rehearsal and race day procedures (17 to 19 March 2023)

1. Pre-event procedures

- Harbour survey along pre-planned zig zag transects by drone or survey boats no earlier than 2 hours before on-water activities commence to determine number and location of marine mammals.
- Following completion of on-water surveys, one survey boat remains in Zone 1 and 2 to carry out on-water observations for the duration of on-water activities while the other boat may carry out similar activities in Zone 3.
- Drone/boat sighting locations reported to all land-based observation stations and tracked for as long as possible up to race start.
- HDOs and volunteers begin land-based observations at least 4 hours before event start and continue for duration of racing.
- 
- In the event marine mammals are sighted in Zone 4 within 30 minutes of the start of on-water activities, the start of the activities will be temporarily postponed, with the 10-minute restart countdown period only starting again from when the marine mammal leaves Zone 4 and is moving in the direction of the harbour entrance.

2. Procedures for duration of on-water activity

Zone 1 and 2

- a) HDOs locate and continue tracking any previous sightings from pre-event survey.
- b) HDOs locate any new sightings, report location and direction of movement to HDO manager and all HDOs via VHF radio.
- c) HDO Manager notifies Event Control Room Manager.
- d) HDOs continues tracking location and direction of movement until mammal is out of viewing range.

Zone 3

- a) HDOs locate and continue tracking any previous sightings from pre-event survey.
- b) HDOs locate any new sightings, report location and direction of movement to HDO manager and all HDOs via VHF radio.
- c) HDO Manager notifies Event Control Room.
- d) HDOs continues tracking location and direction of movement until mammal is out of viewing range.
- e) Animal Response Boat maintains close and constant watch of mammals to monitor direction of movement.

- i) If mammals turn and move back towards Zone 1, land-based HDOs continue to track and report their progress.
- ii) If mammals continue and cross into Zone 4, Event Control Room communicates location to On-Water Assets to prepare for race shut-down.

Zone 4

- a) If a marine mammal is sighted entering Zone 4, the HDO Manager is immediately notified.
- b) HDO Manager notifies the Event Control Room Manager.
- c) The Event Director shall:
 - o **delay racing** if racing has not commenced (i.e., during the pre-start sequence)
 - o **cease racing and instruct all boats to drop off the foils if racing is underway, support boats shall be instructed to keep speed below 5knots.**
- d) the Animal Response Boat will maintain close and constant watch of mammal/mammals to monitor direction of movement.
- e) Land-based HDOs continue tracking of location and direction of movement until mammal is out of viewing range.
- f) Racing may resume or commence 10 minutes after mammal has left Zone 4 and is moving in the direction of the harbour entrance OR at least 30 minutes from the last sighting within Zone 4.

The rehearsal and race day procedures are summarised in Appendix E.

9. Strike incident response and reporting protocols

In the event of a strike incident with a Upokohue/Hector's dolphin or other marine mammal (i.e., New Zealand fur seal), SailGP will activate the incident response and reporting protocols below in collaboration with DOC. We understand representatives from DOC will be on/on the water for the duration of on-water activities.

- a) The HDO closest to the incident should inform the Event Control Room Manager via VHF radio and gather information about the incident location.
- b) The Event Control Room will notify all vessels and all activities will be suspended.
- c) The HDO Manager will immediately alert the marine mammal vet, DOC and Te Hapū o Ngāti Wheke contact people. The Safety Boat and the Animal Response Boat are immediately alerted by the Event Control Room Coordinator and will follow DOC/Te Hapū o Ngāti Wheke's instructions
- d) First responders will attend to injured sailors or boats in distress.
- e) DOC/Te Hapū o Ngāti Wheke will direct recovery of injured animals.
- f) HDO Manager will collect incident details and report to SailGP's Head of Operations to activate the marine mammal incident communications escalation plan.
- g) The Sail GP Head of Operations and HDO Manager will prepare incident report.

A strike or death is a significant event and must be elevated to the Kaihautū as soon as practical. If death occurs, then a state of tapū will exist and the Kaihautū will deploy the appropriate persons and process. The Kaihautū may consider Rahui (location and time specific restriction/s).

9.1 Incident communication plan

In case of a vessel strike incident, SailGP and its communications team will activate its marine mammal incident communications escalation and collective response plans, working in close contact with DOC, Te Hapū o Ngāti Wheke Rāpaki, Christchurch NZ, and the local authorities identified in the communications plan.

The marine mammal incident communications escalation plan and the collective response plan (provided in Appendix G) has been collectively prepared by SailGP with input from DOC, Te Hapū o Ngāti Wheke, Rapaki and Christchurch NZ. The Plan outlines the collective operational response protocols and communication response in the event of a vessel strike incident.

Vessels shall record any incidents involving the injury or mortality of a marine mammal using the incident reporting form in Appendix F. Incident reporting forms will be shared with DOC and Te Hapū o Ngāti Wheke, Rapaki within 24 hours of the incident.

10. Department of Conservation liaison procedures

A two-way liaison with the Department of Conservation shall be established for exchange of marine mammal sighting data for the event period from 23 February to 19 March 2023. The Department of Conservation shall be contacted regularly over the event period to obtain recent sighting information.

Contact persons and contact details (To be confirmed closer to the event)

Department of Conservation:

SailGP:

Environment Canterbury:

11. References

Childerhouse S, Johnson O, Tremblay-Boyer L. 2020. *DOC MIT2019-01 Dolphin dissuasive device mitigation in inshore fisheries. Prepared for Department of Conservation. Cawthron Report No. 3507. 34 p. plus appendices.*

Leunissen E, & Dawson, S. 2018. *Underwater noise levels of pile-driving in a New Zealand harbour, and the potential impacts on endangered Hector's dolphins.* Marine Pollution Bulletin, Volume 135.

Mackenzie DL & Clement DM. 2018. *Abundance and distribution of ECSI Hector's dolphin. New Zealand Aquatic Environment and Biodiversity Report No. 123.* Ministry of Primary Industries, Wellington

Pine MK. 2021a. *Acoustic data from bottom-mounted hydrophones during the Prada Cup tournament in Auckland during January 2021.* Unpublished data.

Pine MK. 2021b. *Acoustic monitoring of Hector's dolphins within Lyttelton Harbour.* Unpublished data.


12. Applicability

Enviser Ltd has prepared this report for F50 League New Zealand Limited in accordance with the agreed scope. No other party, aside from SailGP, may rely on this report, or any conclusions or opinions within it, for any purpose without the express written permission of Enviser Ltd.

The opinions and conclusions within this report are based on the information that was viewed during the preparation of the report.


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The power of science®

13. Karakia

Ti-he...Mauri ora

Ki te whai ao

Ki te Ao Marama

Whano, Whano, Hara-mai Te Toki.

Hui e, ha-u-mie, taiki e...

Gather, breathe & bind together as one.

Appendix A

Acoustic monitoring of Upokohue/Hector's dolphins

Upokohue/Hector's dolphins are present throughout Lyttelton Harbour/Whakaraupō but are more prevalent in the outer-harbour waters. This is supported by recent passive acoustic monitoring (PAM) data which uses the measure of detection positive minutes (DPM) within a 24-hour period, defined as minutes containing at least one positive detection of Hector's echolocation clicks, to determine the presence of Upokohue/Hector's dolphins (Pine MK 2021b).

Monitoring data from 2017 to 2021 demonstrates lower use of mid-harbour and Port waters compared to outer-harbour waters within the same seasons (see Figure 9). For example, the median ($\pm 75\%$ quartile) DPM during March each year ranged between 16 ± 35 and 159 ± 232 at the mid-harbour site (MM1), but between 112 ± 133 and 191 ± 269 DPM at the outer-harbour site (MM3).

Similarly, when using the measure of detection positive hours (DPH) within a 24-hour period, defined as hours containing at least one positive detection of Hector's echolocation clicks, DPH values were consistently lower within the mid-harbour waters, with upper DPH ranges of approximately 10 throughout 2020, and as high as 23 in the outer-harbour waters (see Figure 10).

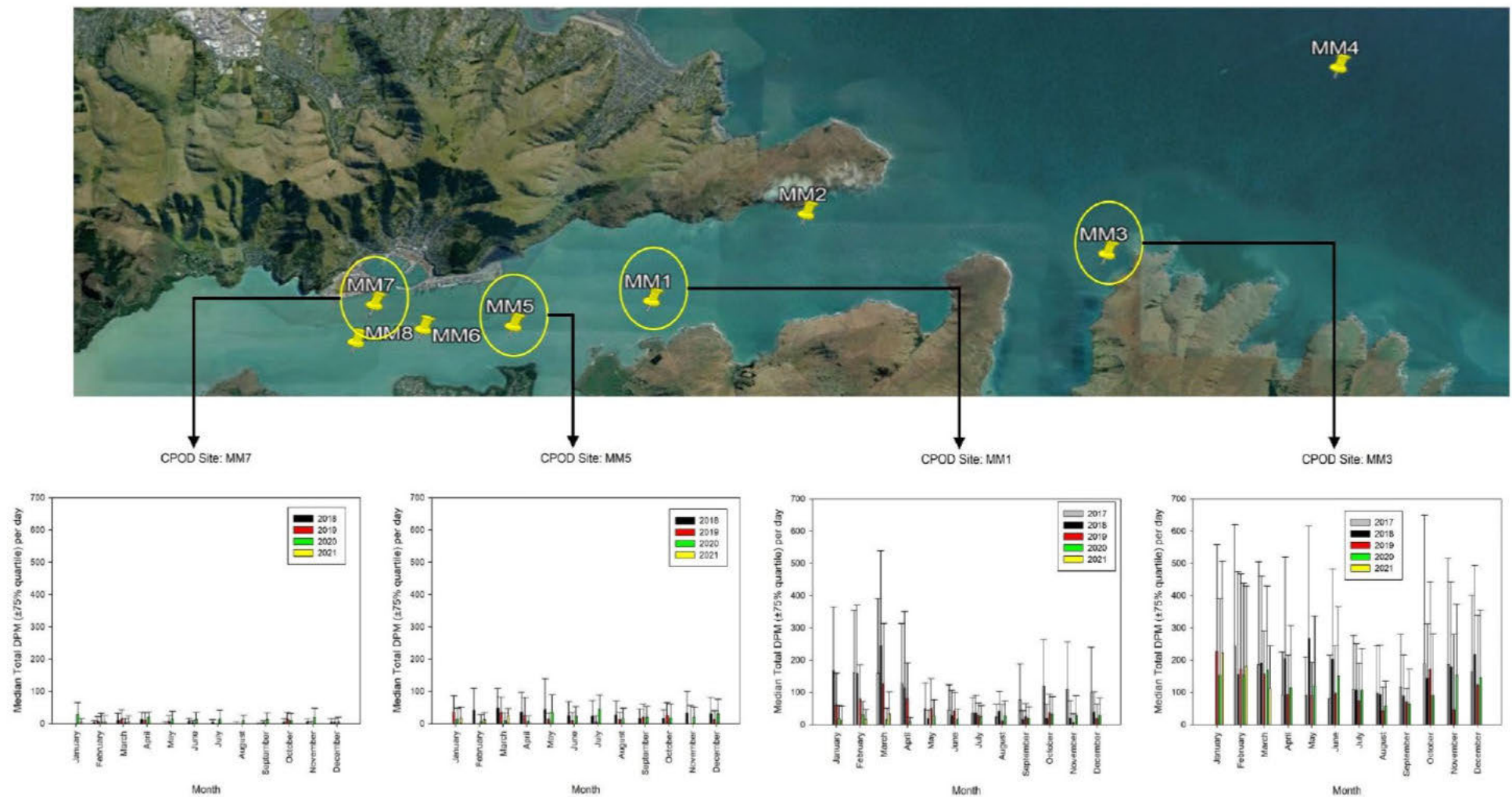


Figure 9: Median ($\pm 75\%$ Quartile) detection positive minutes (DPM) over each month between 2017 and 2021, for selected locations (Pine MK 2021b).

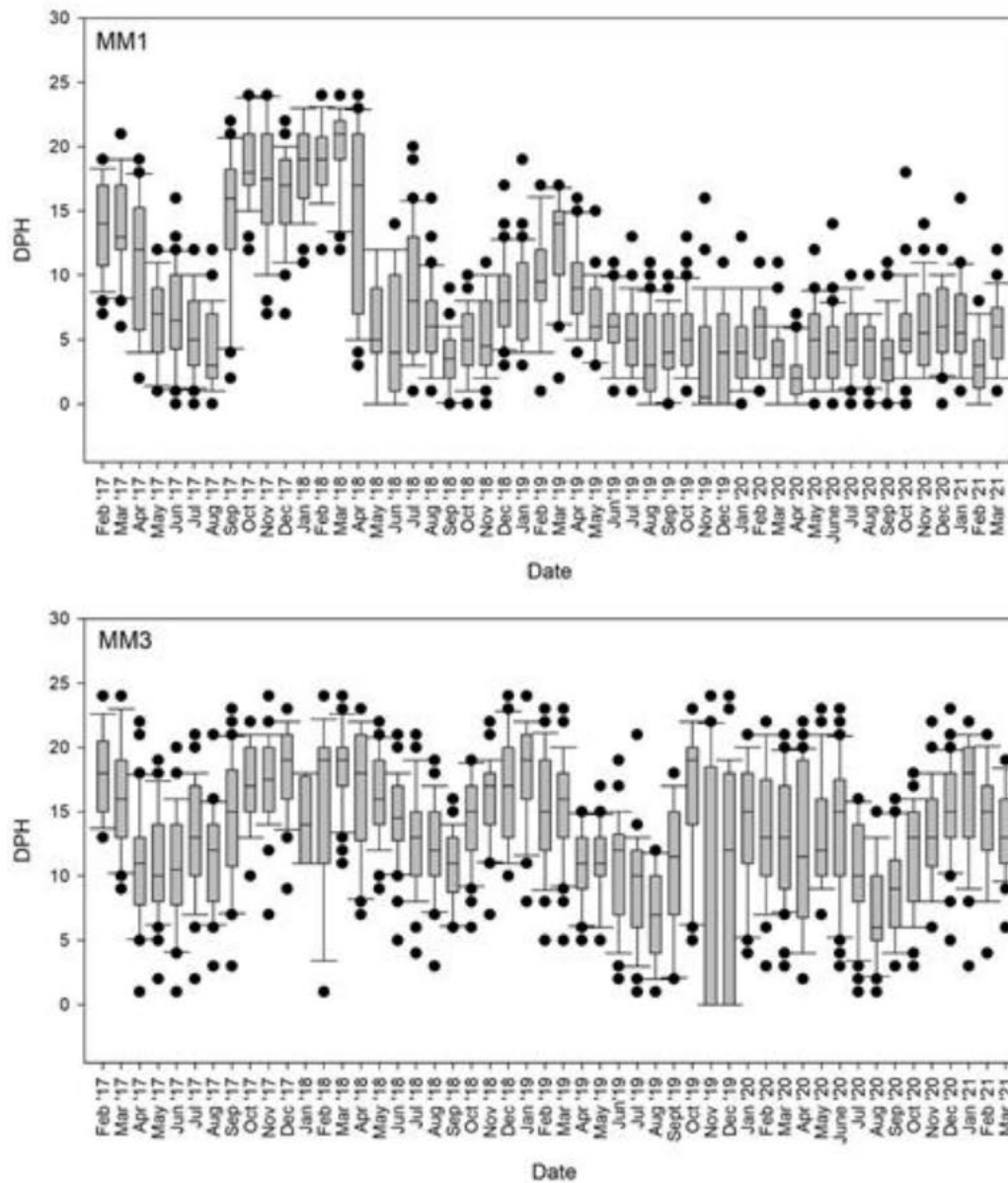


Figure 10: Detection positive hours (DPH) during each month within the mid-harbour site MM1 (top panel) and outer-harbour site MM3 (bottom panel) (Pine MK 2021b).

Appendix B

Banks Peninsula marine mammal species summary

More than 25 marine mammal species have been sighted or stranded within the waters of Banks Peninsula. However, only the Upokohue/Hector's dolphin and New Zealand fur seal reside in Lyttelton Harbour/Whakaraupō year-round with the Southern Right whale often sighted offshore of Banks Peninsula.

Of the estimated 15,000 Upokohue/Hector's dolphins known to occur around the South Island, approximately 3,000-6,000 are found in the waters surrounding Banks Peninsula (MacKenzie & Clement 2016). This Banks Peninsula population is one of the highest concentrations of Upokohue/Hector's dolphins around the South Island. The dolphins reside in the bays and harbours of Banks Peninsula, including Lyttelton Harbour/Whakaraupō in the summer and autumn months and move further offshore in the cooler months.

The calving season for Upokohue/Hector's dolphins is between October and March. While calves are regularly sighted within Akaroa and Lyttelton Harbour/Whakaraupō each summer, no distinct calving and/or nursery areas have been identified.

Upokohue/Hector's dolphins are a "nationally vulnerable species", exposed to threats including:

- entanglement in both commercial and recreational fishing gear; particularly set nets and trawling, resulting in incidental mortality or serious injury,
- low reproductive rates (calf every 2-3 years) and late maturity (start breeding after 7-9 year of age and only live to 20-25) means naturally slow population growth,
- boat strike (for newborn calves and young animals), and
- sensitivity to disturbance from underwater noise (e.g., shipping traffic and construction).

Several New Zealand fur seal breeding colonies are located throughout the more eastern and southern bays of Banks Peninsula (more than 20 km away from Whakaraupō/ Lyttelton Harbour and the offshore disposal ground). However, New Zealand fur seals often cover large distances away from their breeding grounds and are commonly seen within Whakaraupō/ Lyttelton Harbour.

Appendix C

Marine mammal observation recording forms

Working Document

MARINE MAMMAL SIGHTINGS FORM

Date	Time at start of sighting	Time at end of sighting	
Observer name		Observation station position	Water depth (metres), Beaufort, glare:
Species		Grid location of animal (when first sighted)	Grid location of animal (when last sighted)
Description (include features: size, colour and pattern, shape and position of dorsal fin, direction and shape of blow)		Total number	Number of adults
		Number of juveniles	Number of calves
Behaviour (at start of sighting and any changes observed relative to racing or spectator fleet) (Feeding, resting, travelling, socialising, breaching, bowriding etc.)			Photograph taken <div style="text-align: center;">Y N</div>
			Direction of travel (compass) <div style="display: flex; justify-content: space-around;"> <div>N</div> <div>S</div> </div> <div style="display: flex; justify-content: space-around;"> <div>NE</div> <div>SW</div> </div> <div style="display: flex; justify-content: space-around;"> <div>E</div> <div>W</div> </div> <div style="display: flex; justify-content: space-around;"> <div>SE</div> <div>NW</div> </div> <div style="display: flex; justify-content: space-around;"> <div>variable</div> <div>stationary</div> </div>
Direction of travel (relative to race area) Towards Away Parallel (east or west direction) Variable Stationary Other (explain)		Event activity at first animal detection Pre-event/practice Between races Pre-start sequence Racing underway	Event activity at last animal detection Pre-event/practice Between races Pre-start sequence Racing underway
Action taken Informed HDO Manager and Event Control Room Manager Delayed start Stand-by Shut down			

MARINE MAMMAL OBSERVER WATCH

Observer name and location:

RECORD FOR ALL WATCHES EVEN IF NO MARINE MAMMALS ARE SEEN

Observer watch start/end times:

Race start/end times.....

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Appendix D

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Appendix E

Procedure summary sheets

Working Document

Free practice day procedures - 16 March 2023

PRE-PRACTICE PROCEDURES

HDOs and volunteers begin land-based observations in Zones 2, 3 & 4 **2 hours** before scheduled practice start time

Harbour transect survey within practice area by drone or observer boat **2-3 hours** before scheduled practice start time

Marine mammal sighting locations reported to HDO Manager and Event Control Room Manager

Sighting locations reported to all land-based observation stations and Event Control Room and tracked for as long as possible up to practice start time

Marine mammal detected in Zones 2 within 30 minutes of scheduled practice start time

Activities can commence but must stay out of Zone 2 and 3

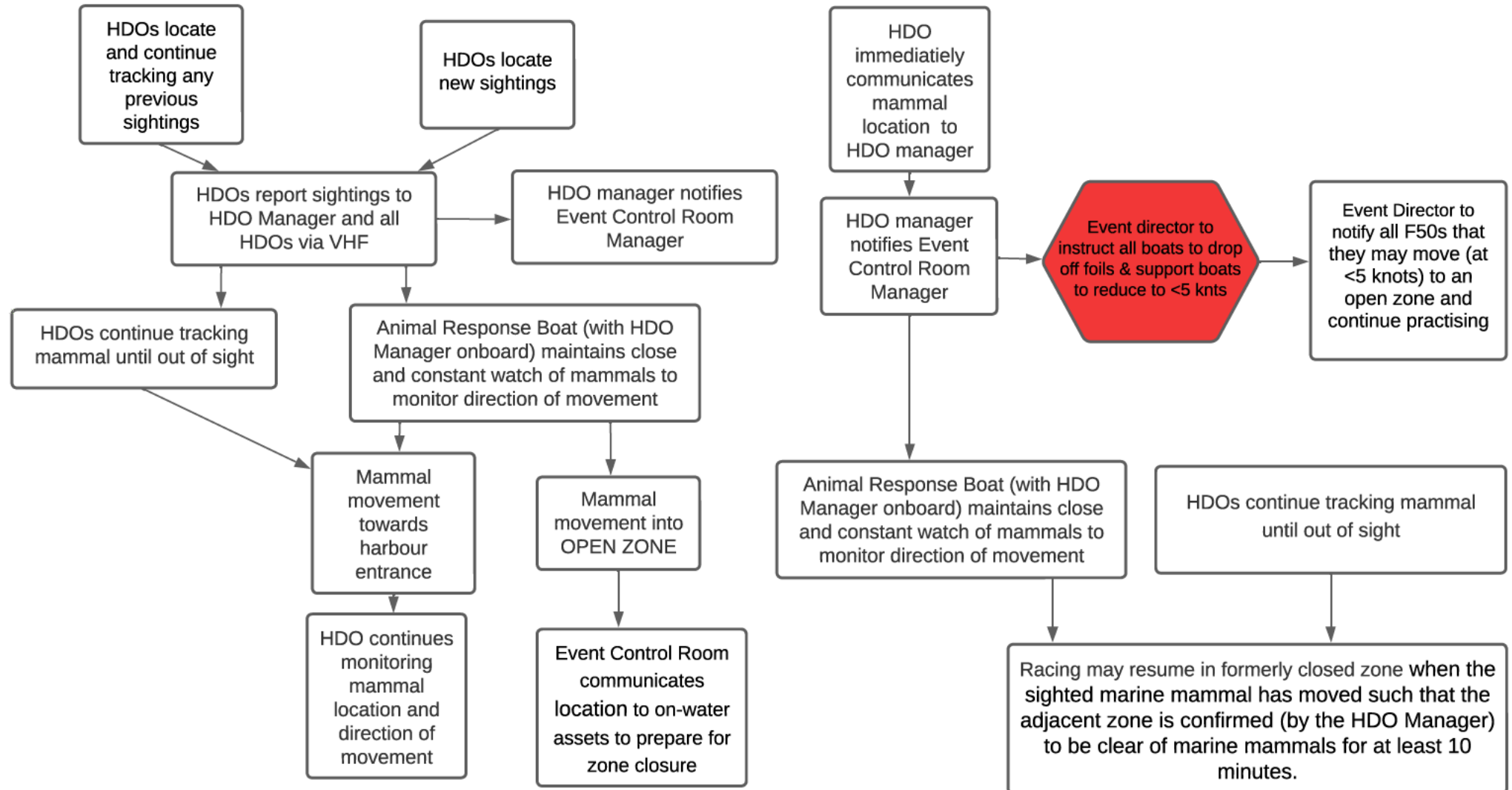
If the marine mammal continues into Zone 3, then sailing activities must be delayed until the mammal leaves Zone 3 in an east-wards direction **and allows for at least one clear zone between the mammal and the sailing activity**

SIGHTING PROCEDURES DURING PRACTICE - ALL ZONES

A clear zone must be maintained between the sailing activities and a sighted marine mammal. If a mammal is sighted, sailing **must cease** in the adjacent zone.

OPEN ZONE Practise can occur. No active sightings of marine mammal in the zone or adjacent zone

CLOSED ZONE Practice **MUST NOT** occur and all SailGP vessels must maintain speeds <5 knots. Active sighting in the zone, or an adjacent zone



Procedure summary sheets - 17, 18 & 19 March 2023

PRE-EVENT PROCEDURES

HDOs and volunteers begin land-based observation stations at least **4 hours** before scheduled start of on-water activities

Harbour transect survey within practice area by drone or observer boat **no earlier than 2-3 hours** before scheduled start of on-water activities

Marine mammal sighting locations reported to HDO Manager and Event Control Room Manager

Survey boat remains in Zone 1 and 2 to carry out on-water observations for the duration of on-water activities.

Sighting locations reported to all land-based observation stations and tracked for as long as possible up to start of on-water activities

No marine mammals detected in Zones 3 and 4

Marine mammal detected in Zone 4 within 30 minutes of scheduled start of on-water activities

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Activities postponed with 10-minute restart countdown period starting from when the marine mammal leaves Zone 4, moving in the direction of the harbour entrance

SIGHTING PROCEDURES DURING RACING/REHEARSAL

Zone 1 & 2

HDOs locate and continue tracking any previous sightings

HDOs locate new sightings

HDOs report sightings to HDO Manager and all HDOs via VHF

HDO manager notifies Event Control Room Manager

HDOs continue tracking mammal until out of sight

Zone 3

HDOs locate and continue tracking any previous sightings

HDOs locate new sightings

HDOs report sightings to HDO Manager and all HDOs via VHF

HDO manager notifies Event Control Room Manager

HDOs continue tracking mammal until out of sight

Animal Response Boat (with HDO Manager onboard) maintains close and constant watch of mammals to monitor direction of movement

Mammal movement towards harbour entrance

HDO continues monitoring mammal location and direction of movement

Mammal movement into Zone 4

Event Control Room communicates location to on-water assets to prepare for race shut-down

Zone 4

HDO immediately communicates mammal location to HDO manager

HDO manager notifies Event Control Room Manager

BEFORE OR BETWEEN RACING

Event Director to postpone race start

RACING UNDERWAY

Event director to cease racing and instruct all boats to drop off foils & support boats to reduce to less than 6knts

Animal Response Boat (with HDO Manager onboard) maintains close and constant watch of mammals to monitor direction of movement
HDOs continue tracking mammal until out of sight

Racing may begin 10 minutes after mammal(s) have left Zone 4 OR at least 30 minutes from the last sighting within zone 4

Appendix F

Incident reporting form

Working Document

MARINE MAMMAL INCIDENT REPORTING FORM	
DATE	
TIME	
OBSERVER/REPORTER	
INCIDENT LOCATION ON VESSEL (PORT, BOW, PROPELLER, FOIL...)	
VESSEL POSITIONING	
LATITUDE (NORTHING)	
LONGITUDE (EASTING)	
VESSEL TYPE, ACTIVITY, AND SPEED AT TIME OF INCIDENT ¹	
SPECIES	
INDIVIDUAL OR GROUP	
NUMBER OF ADULTS	
NUMBER OF JUVENILES	
ANIMAL(S) ACTIVITY BEFORE INCIDENT AND AFTER ²	
DESCRIPTION OF INJURY OR MORTALITY	
GENERAL DESCRIPTION OF CONDITIONS	

¹ Support boat, vessel, spectator boat etc.

² Feeding, resting, travelling, socialising socialising, breaching, bowriding etc.

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