

BEFORE THE ENVIRONMENT COURT

ENV-2012-WLG-000057/58/85

UNDER THE

Resource Management Act 1991

IN THE MATTER OF

Appeals pursuant to Clause 14 of
Schedule 1 of the Act in relation to the
Proposed Regional Coastal Plan:
Kermadec and Subantarctic Islands

BETWEEN

SANFORD LTD.

and

**THE NEW ZEALAND SEAFOOD
INDUSTRY COUNCIL LTD.**

and

HERITAGE EXPEDITIONS LTD.

Appellants

AND

MINISTER OF CONSERVATION

Respondent

STATEMENT OF EVIDENCE OF JAMES VEERE DILLEY

14 October 2016

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INTRODUCTION

1. My full name is James (Jim) Veere Dilley. I am a Master Mariner and the Regional Harbourmaster for Environment Canterbury, where I am responsible for Lyttleton and Timaru ports, cruise ship operations at Akaroa and Kaikōura harbours and the waters of the Canterbury region. I have held this role since August 2012.
2. Prior to that I was the Deputy Harbourmaster for the Auckland Regional Council for 7 years, following 21 years of sea service, including 8 years' service as Master.
3. While working at sea I sailed on container, Ro-Ro, bulk and general cargo ships and tankers. I also sailed on square rigged sailing ships operating as youth development and sail training vessels.
4. As Harbourmaster my role is to ensure the safety of navigation within the waters under my jurisdiction. This includes such activities as the assessment of competency and examination of candidates for a Pilot licence, approval of the operating procedures of port companies, setting of operational limits on any vessels using a port or on the activities of a port, emergency management, risk assessment and safety management systems for the port, harbour and regional waters.
5. As Deputy Harbourmaster in Auckland and as Harbourmaster in Canterbury I have implemented the New Zealand Port and Harbour Marine Safety Code. This Code sets out requirements for the review of maritime activities, including the assessment and highlighting of risk and provides a robust system of safety management. In both regions, the systems have gained approval and confirmation of compliance from Maritime New Zealand and both systems have been certified under ISO 9001:2008.
6. I remain current in my knowledge and understanding of commercial shipping as I undertake regular training and undertake voyages to sea as Master. This allows me to ensure my Certificate of Competency is in date and is updated for any changes in the Standards of Training and Certification of Watch-keepers Convention (STCW).
7. I currently undertake several additional roles within the maritime field in New Zealand. These contract roles include the provision of:

- 7.1 Harbourmaster services and support to the Chatham Islands Council for the Chatham Islands marine area.
 - 7.2 Maritime advice to the Department of Conservation for New Zealand's offshore islands including Campbell, Auckland, Snares, Antipodes, Bounty and Kermadec Islands.
 - 7.3 Appointed Regional on Scene Commander for marine oil spill response within the Canterbury region
 - 7.4 Appointed as a deemed National on Scene Commander, marine oil spills for Maritime New Zealand.
8. I am an experienced recreational water user and have undertaken extensive voyages on my own yacht. These have included voyages to the Southern Ocean and Subantarctic, North and South Pacific and North Atlantic oceans and include a single-handed passage from England to New Zealand on board a self-built, 26 foot, engineless vessel. The voyages are normally of one or two year's duration. I also have undertaken numerous shorter voyages within all New Zealand's coastal waters.
9. I have the following qualifications:
- 9.1 Certificate of Competency Class 1 Deck (Master Mariner) issued by the Maritime and Coastguard Agency, UK.
 - 9.2 Square Rig Masters Certificate, issued by the Nautical Institute, UK.
 - 9.3 Certificate of Achievement (Higher National Diploma), Nautical Science, UK.
 - 9.4 Commercial Launch Master, issued by Maritime New Zealand, NZ.
 - 9.5 Ocean Yachtmaster, issued by the Royal Yachting Association, UK.

10. I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses (set out in the Environment Court's Consolidated Practice Note, 2014).
11. This evidence is within my area of expertise, except where I state that I am relying on what I have been told by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

SCOPE OF EVIDENCE

12. My evidence relates to the access and anchoring provisions included in the *Proposed Regional Coastal Plan: Kermadec and Subantarctic Islands*.
13. I understand that the Department has sought to provide for existing use of the marine environment of the islands to the extent this is consistent with the preservation of natural character. The existing uses of the islands include: tourism and recreational yachts, fishing, research, DOC management activities and wreck exploration and salvage – as set out in the values section of the Proposed Plan on pages 6 - 22. This existing vessel type usage is consistent with my opinion as set out in paras 21 - 50.
14. The proposed plan identifies two key issues to be addressed: navigation safety incident and the risk of an oil spill and the risk of a biosecurity breach. The Department has engaged me to provide advice on the former - navigation safety matters. The key methods to minimise these risks are access restrictions close in to shore using vessel length as a proxy; and a prohibition on using heavy fuel oil (HFO) as a fuel or carrying it as a cargo (in line with the prohibition in Antarctic Waters in the MARPOL Annex 1 Chapter 9. The plan uses the same definition of HFO as in MARPOL Annex 1 Chapter 9).
15. Specifically, I will discuss the reasons for these provisions having been developed, having regard to issues identified and addressed in the *Technical maritime advice for the preparation of a regional coastal plan for New Zealand's off-shore islands* report, and in the *Proposed Regional Coastal Plan: Kermadec and Subantarctic Islands: Decision of the Commissioner*. I will also discuss the amendments to those

provisions sought by the submitters and the subsequent meetings, discussions and navigation safety context of any changes or provisions that may be pertinent.

16. I am familiar with / have been provided with and read copies of the following documents

16.1 *Proposed Regional Coastal Plan: Kermadec and Subantarctic Islands: Decision of the Commissioner.*

16.2 *Proposed Regional Coastal Plan Kermadec and Subantarctic Islands.*

16.3 *Proposed Regional Coastal Plan Kermadec and Subantarctic Islands Officers' report*

16.4 *Technical maritime advice for the preparation of a regional coastal plan for New Zealand's off-shore islands*

17. I confirm that the matters on which I am giving evidence are within my areas of expertise.

OUTLINE OF RELEVANT PROVISIONS IN THE PROPOSED PLAN

18. The Proposed Plan defines zones of restricted access and specific anchorage sites within 1,000m of mean high water spring (MHWS). Vessel length¹ is then used as the distinguishing factor in determining which vessels can access or anchor in the specified zones or anchorage sites.

19. For the Subantarctic Islands the zones are 0-300m from MHWS, 300-600m from MHWS, and 600-1000m from MHWS. For each of these areas, access is given an activity status for vessels which vary, based on the type or length of the vessel. Anchorage sites are identified, noting what size vessel is permitted to anchor there.

20. For the Kermadec Islands there is only one zone, out to 300m around Raoul Island, and out to 600m for all other Kermadec Islands and islets. As explained by Sarah Hucker of the Department, the difference in access restrictions at the Kermadecs is to account for the different

¹ Or type of vessel, e.g. ancillary vessel.

physiological conditions – namely the steep seabed profiles and lack of internal sheltered waters and the different patterns of use and therefore pressures on the islands.

21. These provisions are set out in policies 7, 9, 10 & 12, rules 29 -58, and the maps in Appendix 1 of the Proposed Plan.

USAGE OF ISLANDS

Use of the Subantarctic Islands

22. The New Zealand Subantarctic Islands lie in a remote location to the south and south east of New Zealand's South Island. Their position, a minimum of 250 nautical miles away from the mainland and shipping routes, means the islands are not subject to high numbers of visiting or passing vessels. In addition to this, good seamanship dictates a mariner does not approach any navigational danger (which islands and associated rocks and shoals are), any closer than is entirely necessary. The weather and sea conditions experienced at the islands can be severe and include restricted visibility, strong winds and high seas which further limits the number of vessels that may navigate in the area. In general, any vessel visiting the Subantarctic Islands would only do so for a specific purpose which required it to come close to the islands or it would keep well clear.
23. The vessels that may have a specific purpose to visit the Subantarctic Islands would be those whose activities or operations are based on or around those islands. By this I mean that it is the Islands themselves that are the destination for the vessel rather than a convenient area in which to shelter while undertaking operations at another location. This would include:
 - 21.1 Vessels delivering or collecting Departmental or other scientific personnel or equipment and stores from the islands.
 - 21.2 Vessels undertaking tourism at the islands (including recreational vessels).
 - 21.3 Vessels undertaking a specific operation at the islands e.g. bathymetric survey vessel.

21.4 Vessels seeking shelter or to make repairs.

Use of the Kermadec Islands

24. The Kermadec Islands lie to the northeast of New Zealand. They are situated a minimum of 430 nautical miles to or from the North Island. They lie along a shipping route for vessels travelling from New Zealand and parts of Australia to Tonga, Cook Islands and French Polynesia. This means vessels may pass the islands on passage along the shipping-routes; however, the Kermadec Islands themselves are not heavily visited. In general, any vessel visiting the Kermadec Islands would only do so for a specific purpose which required it to come close to the islands or it would keep well clear.
25. The vessels that may have a specific purpose to visit the Kermadec Islands would be those whose activities or operations are based on the islands. This would include:
 - 21.1 Vessels delivering or collecting Departmental or other scientific personnel or equipment and stores from the islands.
 - 21.2 Vessels undertaking tourism at the islands (including recreational vessels).
 - 21.3 Vessels undertaking a specific operation at the islands e.g. bathymetric survey vessel.
 - 21.4 Vessels seeking shelter or to make repairs. Recreational yachts may be more frequently seeking shelter for the purpose of comfort as they travel to or from the tropical regions.
26. For both the Subantarctic and the Kermadec Islands, vessels delivering scientific equipment, stores and/or undertaking work for the Department will be commercial vessels. The size of the vessel will be dependent on the nature of the work being undertaken. The more common vessels are 'S.V. Tiama', 'S.V. Evohe' and 'R.V. Polaris' of 15 metre, 25 metre and 21 metre lengths respectively. These smaller vessels are most suited to delivering a small party of personnel and their associated equipment to

a remote location, their small size making them ideal to gain access to areas where larger vessels cannot safely navigate.

27. The slightly larger size of these vessels than recreational vessels allows them to carry suitable equipment for the conditions encountered at the islands, yet their limited passenger carrying capability means they retain a shallow draft, minimal windage, small displacement and are manoeuvrable.
28. Vessels of the Royal New Zealand Navy (RNZN) may provide logistical support to the Department by delivering or collecting Department or other scientific personnel or equipment and stores from the islands. RNZN vessels may be of varying sizes. The RNZN vessels carry specialist landing and logistic support craft specifically designed to move personnel and equipment from vessel to shore and undertake exercises and operations of this nature regularly throughout the world.
29. Some vessels may seek shelter at the islands. These vessels will generally include expedition vessels, recreational vessels, fishing boats, racing yachts or similar sized vessels. The degree to which the vessels seek shelter for comfort, convenience or safety will vary.
30. I am aware of one round-the-world yacht which took shelter at the Auckland Islands to effect temporary repairs to the rigging. I am also aware of recreational vessels taking shelter at Raoul Island for comfort while awaiting more favourable conditions to continue their voyage.
31. It is unlikely any passing commercial shipping, by which I mean commercial cargo or passenger vessels on international voyages, would venture near the islands for shelter or to effect repairs.
32. With the exception of emergencies, the need to take shelter should be minimal and then, most likely, based on comfort or convenience. The degree of shelter taken is also of relevance. A vessel sitting 1000 metres off the lee side of Auckland Island would be in a considerably more comfortable position than a vessel in the open sea off the islands. That same vessel would be even more comfortable tucked up 400 meters from the shore at anchor but while that adds comfort, it is not necessary for reasons of safety.

33. As discussed in paragraph 34, this means that any vessel that may be undertaking activities in the waters near the islands should not need to take shelter on the premise of safety except in exceptional circumstances. This would include such vessels as fishing vessels. This is consistent with comments of Cpt. K Buckens *Technical marine advice for the preparation of a regional coastal plan for New Zealand's off shore Islands* page 6 'fitness for purpose'².

SHIPPING TYPES AND VESSEL REQUIREMENTS

34. Any vessel should be suitably designed, built and equipped (including manning) to withstand the weather and conditions that are foreseeable for the area in which it is planning to navigate. This is a basic premise of good seamanship and a requirement of Maritime Rules for commercial and all New Zealand registered vessels which may navigate in those waters. This means a vessel operating in the waters around the islands should be able to safely operate in all anticipated conditions with no need to shelter for safety, other than in exceptional circumstances.

Vessels less than 25 metres in length (recreational vessels)

35. The recreational vessels visiting either the Kermadec or Subantarctic Islands are generally less than 25 metres in length. These are vessels from New Zealand and overseas vessels on extended voyages or circumnavigations. Very few recreational vessels venture south to the Subantarctic Islands. In most cases the vessel owners have prepared well for the voyages and the vessels are sound and well equipped. They are often navigating with a small crew, maybe two or three persons, but not usually professional mariners.
36. Recreational vessels will be seeking a suitable area to gain some shelter in adverse conditions. The shelter is sought not for safety or fear of vessel damage but to allow the crew to wait comfortably and rest until more favourable conditions exist for continuing their passage.
37. Recreational vessels, being small, have minimal manoeuvring issues around the islands. The limiting factor for these vessels is likely to be the experience and competence of the crew which will also impact on the preparation of the vessel and its equipment. Equipment may be a

² Buckens Report, page 6.

compromise between what is required balanced against what can be carried on board the vessel.

38. An example of such a compromise may be the anchoring equipment carried on board. The limitation of weight carrying ability may mean such a vessel uses a combination of rope and chain for anchoring rather than an all chain rode. The ability of such a vessel to carry a secondary anchor and chain equivalent to its main anchor may be limited leaving the vessel reliant on one main anchor with a significantly lesser secondary anchoring system.
39. I note the Buckens report also makes reference to the suitability of anchoring equipment on recreational vessels and draws a similar conclusion concerning the equipment a recreational vessel may normally carry. The Buckens report recommends the carriage of suitable anchoring equipment be required on recreational vessels³.

Vessels less than 25 metres in length (fishing vessels)

40. Fishing vessels of less than 25 metres in length are frequent visitors to the Subantarctic Islands. These vessels are fishing in the waters offshore but adjacent to the islands. In normal operations these fishing vessels remain at sea and continue fishing until they have reached capacity, then return to port or a transfer location, to unload their catch.
41. Prevailing weather conditions may result in periods when a fishing vessel is unable to safely undertake its fishing operation. In these conditions a fishing vessel may 'heave too'; simply lying with the seas 30 degrees or so from the ships head and moving very slowly ahead, or take shelter at the islands. In either case the vessel is not in danger or at risk but is simply seeking a comfortable period until conditions allow fishing operations to resume.
42. These fishing vessels are commercial vessels and I would expect them to be suitably equipped and able to withstand all conditions that are likely to be experienced in the waters around the islands.

³ Buckens report, page 7.

43. As these vessels are seeking shelter for comfort during periods of rough weather, the location of any anchorage is not a critical factor. There is no need to be near a certain location, say for landing equipment.

Vessels less than 42 metres in length (fishing vessels)

44. While the majority of fishing vessels that visit the islands are less than 25 metres in length, there are specific fishing vessels that are up to 42 metres in length. These vessels are physically larger not only in length but in beam (width), draft (depth below the water) and freeboard and accommodation. This allows a greater capacity for crew, cargo, fuel and stores. However, there is a consequential increase in the displacement of the vessel, its windage (surface area on which the wind has effect) and these factors affect the vessels ability to manoeuvre.
45. These vessels have similar working patterns to the smaller fishing vessels and similar requirements for shelter for comfort. Their larger size does mean they are likely to be able to continue fishing operations in slightly worse conditions than the smaller fishing vessels.

Vessels greater than 25 metres in length (commercial tourism vessels)

46. Commercial tourism vessels are in general greater than 25 metres in length. These vessels are in essence small ships and are commonly known as 'expedition' vessels. Several companies operate such 'expedition' vessels that visit New Zealand waters. An example of such a vessel is the 'Spirit of Enderby' at 72 metres in length. These expedition vessels may be converted from older working vessels or purpose designed and built for the role.
47. Commercial tourism vessels should be well equipped for the specific areas in which they operate and the intended operation they undertake. If the vessel is to operate most effectively, the equipment on board the vessel will exceed the minimum statutory requirements to enable the vessel to operate within as wide an envelope as is possible for the tourists' comfort and personal safety.
48. I expect such vessels to be fitted with anchoring equipment that also exceeds standard requirements. The nature of the weather conditions in the Subantarctic area means that a vessel can expect to be anchoring in strong winds on many occasions. The loss of one anchor should have

minimal effect, if any, on the safe operation of the vessel at the islands. This may mean the vessel is fitted with high holding power anchors and additional chain. This will be important for the vessel to have the ability to continue standard operations following a single point failure of any equipment.

49. These tourism vessels require capacity for passengers, crew and equipment and stores for those passengers and crew. To provide this capacity the vessels will have large accommodation and storage spaces. The vessels will generally have multiple decks of accommodation above the main deck giving a larger windage.
50. As vessels increase in length there is an increase in draft (depth of the vessel below the water), beam (width of the vessel) and accommodation space and above waterline area. These increases in size bring the advantages of greater space for passengers, stores and equipment and a steadier working platform that is not so susceptible to wave action. There is however, a consequential increase in the displacement of the vessel, its windage (surface area on which the wind has effect) and these factors affect the vessels ability to manoeuvre. There is no single point at which a vessel becomes 'less manoeuvrable'; the process is incremental and is a product of all the applicable factors. These factors vary for every vessel.

Vessels greater than 75 metres in length

51. With larger vessels, greater than 75 metres in length, there is a need for greater manoeuvring space than for small vessels in any given location at the islands. The requirement for greater manoeuvring space, with a suitable depth of water, is compounded by the increased draft of the vessel meaning that less space is actually available than for a vessel of lesser draft. With the addition of the often windy conditions encountered at the islands the safe manoeuvring of a vessel becomes more complex and requires greater space.

IMPLICATIONS OF THE PROPOSED PLAN PROVISIONS ON 'INNOCENT RIGHTS OF PASSAGE'

52. Vessels navigating the oceans of the world need to be able to do so freely without undue restrictions preventing them from reaching their

destination. However many rules within territorial waters (within 12 nautical miles of the shore), frequently impact on the navigation of vessels. These rules may require the carriage of a pilot, require permission to enter an area or require a vessel to take a certain route past an area. While these requirements do impact on navigation they do not prevent a vessel from navigating to its destination.

53. The Proposed Plan places restrictions on vessels approaching the islands by 1000m or less. Outside that area there is no restriction.
54. The Buckens report states that the creation of restricted access zones would not *“hinder the innocent passage that all ships enjoy while passing the islands, as good seamanship demands greater distance to any known dangers to navigation.”*⁴
55. The restricted zones are unlikely to have any effect on passing vessels. The United Nation Convention on the Law of the Sea (UNCLOS) includes the right of innocent passage, allowing foreign ships to pass through the territorial sea, without entering internal waters. Best practice requires that ships travel at a safe distance from navigational hazards and although the precise distance in question differs, based on the *“type, size and manoeuvring capabilities of the ship, and on environmental factors such as weather patterns and availability of updated weather forecasts, currents and natural debris such as seaweed, and on external factors such as accuracy of nautical charts and date of most recent survey of the area”*⁵, for vessels <75 metres in length, best practice requires a safe distance of >2 nautical miles. The report also notes that few ships would have reason to transit within 10 nautical miles of the islands.
56. Many harbours and coastal areas around the world have restrictions on navigation. These areas do not affect the right of innocent passage. They manage the risks associated with those areas and require vessels to navigate outside those areas. Examples of such restrictions include: Traffic separation schemes; Harbourmaster directions that can be related to vessel size; Navigation Safety Bylaws and Controls; A Mandatory ‘Area to be Avoided’ adopted by the International Maritime

⁴ Buckens report, page 2.

⁵ Buckens report, page 3.

Organisation (IMO). I elaborate on examples of all of these below when discussing vessel length as a proxy.

57. It is clear that the only vessels that will be affected by creation of the restricted zones will be those vessels approaching the islands for shelter or to undertake activities there. In both cases the freedom of passage around the islands remains available. The only restriction concerns navigation very close to the shoreline. Far greater restrictions exist in most harbours and coastal waters throughout the world.
58. The Proposed Plan includes a note at the beginning of the rules tables as follows: *“Note: No rules can prevent vessels from accessing the territorial or internal waters for refuge in the event of an emergency or any other force majeure or when in distress or for the purpose of assisting others in distress or danger (refer UNCLOS26 article 18(2)).”* This provides clarity for plan users, that in emergency situations, the plan restrictions do not apply. I understand draft consent order documents have been sent to the Court that resolve the appeals against the rules prohibiting the use of heavy fuel oil (HFO). Part of that resolution was to include the UNCLOS words in a rule rather than a note. I did review the proposed wording for incorporating the “Note” into the proposed plan rules as new Rule 1, adding the following circumstances to the UNCLOS words: “where in the reasonable judgment of the captain of the vessel it is required to: (i) avoid serious risk to life or health; or (ii) repair or prevent serious damage to the vessel”, subject to conditions on duration and reporting.

DEVELOPMENT OF THE RESTRICTIONS AND MY ADVICE ON SUBMISSIONS AND APPEALS

59. The Department specifically requested navigation safety advice on 3 key matters raised in appeals. I address each of these issues before turning to the issues of additional anchorage requests: and the scale and level of detail in the planning maps in Appendix 1 in the proposed plan. They are:

- 59.1 The use of vessel length as a proxy for the numerous factors that relate to a vessel’s risk assessment (i.e. vessel length; propulsion system; type and location of propellers; number, type and position of rudders; presence

and power of bow and/or stern thrusters; windage of the vessel relative to its power; age of the vessel; fuel type; duration of access etc.).

- 59.2 Swinging arc of vessels and anchoring on a lee shore – the restriction on anchorage close into shore.
- 59.3 The use of Curtis and Macauley islands in the Kermadecs for shelter and transfer of fish catch – the navigation/safety issues of a vessel seeking shelter at those islands which, due to their physical characteristics (such as shape and size), currents and predominant wind; and age and accuracy of charts, offer no safe anchorage.

Vessel length as a proxy

Buckens report:

60. The *Technical maritime advice for the preparation of a regional coastal plan for New Zealand's off-shore islands* report (the Buckens report) reviews the initial provisions drafted for the Proposed Plan, and considers the use of vessel length as a proxy for the numerous factors that contribute to a vessel's risk assessment.
61. The Buckens report concludes that vessel length is a reasonable method of classification to be used in these circumstances, and the restricted access zones (measured seaward from the MHWS) is a pragmatic approach. It acknowledges that the reasoning behind the identification of the zones is based on information about the distance certain rodents can swim and given the intent to protect the islands and marine environment from pests, this is reasonable. Importantly, it goes on to note that these limits "should not interfere with the normal operation of vessels that are currently visiting the area."⁶
62. The report states that "*the proposed length classification is simple and acceptable for navigational safety purposes. Feedback from the tourism/recreational and fisheries industry and research of operator's websites confirms that the current actual use of the area falls well within these classification requirements.*"⁷ It is important to note this. I

⁶ Buckens report, page 2.

⁷ Buckens report, page 7.

understand that in the development and identification of these access restrictions and anchorage sites, the current use and requirements of users of the areas were considered.

63. For vessels >75 metres in length travelling through the area, the restricted zones are unlikely to have any effect as best practice requires a safe distance of >2 nautical miles. The report also notes that few ships would have reason to transit within 10 nautical miles of the islands. The right of innocent passage is discussed further below at paras 78-84.
64. Scampi boats: The Buckens report notes that “*Appropriate shelter at a distance of more than 300m from shore for the scampi vessel will depend on the prevailing wind and swell at the time.*”⁸ I agree with the Buckens report. I note the Proposed Plan provides for this by providing anchorages for scampi boats less than 25 metres in length within the 300m boundary, and any scampi vessel in excess of 25 metres in length may use the anchorages for vessels up to 42 metres and 75 metres in length.
65. The report recommends discretionary access to ships greater than 125 metres in length to go as close as 600m from MHWS at the Subantarctic Islands, to be granted on a case by case basis⁹. This effectively allows vessels larger than 125m to apply for a permit to go into Port Ross at Auckland Island, but none of the other internal waters of the Subantarctic Islands.

Commissioner’s decision:

66. Submissions¹⁰ queried the use of vessel length as the determinative measure, and the zones identified as 0-300m, 300-600m, and 600-1000m from MHWS. They sought access restrictions based on fuel type used by vessels, rather than vessel length, given the threat posed by oil spill – they sought to increase the vessel length categorisations from 25 metres up to 45 metres, and 75 metres up to 125 metres. They also sought to remove the restriction zones, stating that the impact and cost

⁸ Buckens report, page 8-9.

⁹ Buckens report pages 10-15.

¹⁰ Decision of the Commissioner, page 50 - <http://www.doc.govt.nz/Documents/getting-involved/consultations/current-consultations/prcp-decisions-submissions-by-submitter.pdf>.

of these zones was understated, and sought instead that one simple trigger was used – whether the vessel intends to land.

67. The officer's report noted that as well as the risk of oil spill, these provisions seek to protect indigenous biological diversity. It outlines that the 0-300m from MHWS zone is the highest risk zone. It was selected on the basis that it is the generally accepted limit a Norwegian rat can swim. Only applying provisions to vessels that intend to land is not acceptable, because "all vessels that go close into shore are a biosecurity risk".¹¹ Further, I understand the anchorage sites were selected to provide for existing use and existing users were consulted.
68. Other submissions noted that due to the length of anchoring chain, boats are further restricted in the locations they can anchor due to these rules.¹² The officer's recommendation notes that the advice in the Buckens report did consider this, and found that the chosen sites have ample swing room.¹³ The officer's recommendation also acknowledges that for longer vessels, the distance of the swinging arc will need to be taken into account by the master of the vessel when anchoring outside the zone.¹⁴ *[I agree, noting that this is something all good seamen should do as standard practice.]* The Commissioner agreed with the officer's recommendation, and rejected the relief sought.¹⁵
69. Other submissions sought deletion of the zones, stating that vessels needed full discretion to choose a path based on weather conditions, and using modern technology to avoid navigational hazards.¹⁶ The officer's recommendation notes that the main reason for these zones is not only navigational safety, but the risk of biosecurity breach and oil spill.¹⁷ The Commissioner agreed that this was an acceptable reason for the zones, which still provide for existing use as a permitted activity, and that the zones are therefore reasonable. The Commissioner retained the zones in the Proposed Plan.¹⁸

¹¹ Decision of the Commissioner, page 50.

¹² Decision of the Commissioner, page 51.

¹³ Buckens report, page 15.

¹⁴ Decision of the Commissioner, page 51.

¹⁵ Decision of the Commissioner, page 51.

¹⁶ Decision of the Commissioner, page 56.

¹⁷ Decision of the Commissioner, page 56.

¹⁸ Decision of the Commissioner, page 56.

My opinions on the use of vessel length as a proxy:

70. As set out in more detail below in paras 71 - 75, I agree that the use of vessel length, as a simple proxy for the categorisation of vessel manoeuvrability, and therefore access, is acceptable. Vessel length is used throughout New Zealand and the world as a proxy for the navigation risk and safety of vessels.
71. There are many factors that have a bearing on risk and the safe navigation of a vessel. Captain Joanne Laing, in her report entitled “Proposed Coastal Management Plan for the Subantarctic Islands “and which formed part of the submission by HEL, raises many factors¹⁹. These factors cover the design of, and equipment on board, the vessel and external factors such as depth of water and weather conditions.
72. The ultimate analysis of a vessel’s risk and safe navigation profile is an individual assessment of every individual vessel and her crew on the day of the planned passage. Such a method of assessment is likely to be unduly complex and impractical.
73. The Department has chosen a certain and unambiguous parameter for determining risk and safe navigation of a vessel- the length of the vessel.
74. As I have already noted, while a coarse measure, vessel length is used as a proxy for safe navigation throughout New Zealand and the world. Examples in New Zealand include:
- 74.1 The requirement for a vessel to carry a pilot within pilotage areas use a limit of vessel length of 40 metres or more²⁰. I attach a copy of Maritime Rules Part: 90 Pilotage as Appendix 6.
- 74.2 Harbourmaster directions within some New Zealand coastal areas set a limit of vessel length of 40 metres or more for restricted areas. Vessels wishing to access those areas must first obtain the permission of the Harbourmaster²¹.

¹⁹ ‘Proposed Coastal Management Plan for the Sub Antarctic Islands’ report by Capt. Joanne Laing Pages 1-2 items 1-26

²⁰ Maritime Rules Part 90 Pilotage

²¹ Harbourmaster directions for Canterbury and Chatham Islands

- 74.3 Navigation Safety Bylaws and Controls also have provisions that limit vessel access based on vessel length and require permission of the Harbourmaster prior to entry. Examples of this are Great Barrier Island, Kawau Island and the Mahurangi River in the Auckland region²².
- 74.4 A Mandatory 'Area to be Avoided' exists in the vicinity of the Poor Knights Islands adopted by the International Maritime Organisation (IMO). This requires vessels of greater than 45 metres in length to navigate outside that area²³.
- 74.5 Pilotage training (competency) schemes use vessel length to stage the training of a pilot.
- 74.6 Port operating procedures use vessel length to assess the requirements for tugs, whether two pilots are carried or one and to determine the parts of a port a ship may be allowed to navigate to.
75. The underlying rationale is that the length of the vessel is an adequate proxy for an assessment of the navigational risk and safety of vessels. This use of vessel length as such a proxy has proven effective and is easily understood. In my opinion its use in the Proposed Plan is appropriate.

Identification of anchorages

Buckens report:

76. The Buckens report acknowledges that having permitted anchorages (i.e. without prior approval from DOC) available to vessels of a certain length is a pragmatic approach allowing recreational vessels to safely drop anchor.²⁴
77. The proposed plan identified specified anchorages for vessels <25 metres in length and <75 metres which are in general "well-chosen with ample swinging room."²⁵ The sites "appear to have reasonable holding

²² cl. 56 Auckland Council Navigation Safety Bylaw and Controls 2014

²³ NP51 Para. 1.5

²⁴ Buckens report, page 6.

²⁵ Buckens report, page 15.

ground in general and offer some shelter for the prevailing conditions”.²⁶ As well as this, vessels have discretion to anchor at any location further than 300m from the shore (MHWS²⁷).

78. The current nautical charts show locations of historical anchorages. The Buckens report recommends “DOC request LINZ to remove these anchorages from the charts and from the NZ pilot (NP 51) and replace them with the DOC approved anchorages so as to avoid ambiguity and confusion²⁸. It is important that nautical publications are kept up to date and reflect the current information available. Mariners have an obligation to use, and notify any correction to, nautical publications. I would agree with this recommendation to correct nautical charts and sailing directions.
79. Nautical charts and sailing directions are a significant source of information for all mariners. The publications ensure a mariner has accurate up to date information available on which to formulate passage plans and make reasoned and sensible decisions. Such information includes anchoring positions, whether they be anchoring positions dictated by a harbour or coastal authority, or anchoring positions based on historical information.
80. There is a comprehensive worldwide system in place to allow these publications to be kept up to date and as accurate as possible. Information to allow corrections of New Zealand publications is collated and promulgated by LINZ.
81. The report noted that both island groups are valuable as shelter in bad weather, and I note that the Proposed Plan includes provisions relating to free access during emergency situations.
82. The Buckens report discusses “fitness for purpose” of vessels²⁹ and notes the various safety legislation with which vessels must comply. As previously noted, in my opinion it would be uncommon for a vessel to seek shelter at either island group for reasons of safety as opposed to comfort while awaiting favourable conditions. The regular seeking of

²⁶ Buckens report, page 15.

²⁷ Mean High Water Springs.

²⁸ Buckens report, page 17.

²⁹ Buckens report page 6.

shelter for reasons of safety may indicate a vessel is not “fit for purpose” for the conditions experienced at either of the Island groups.

Commissioner’s decision:

83. The *Buckens’ report* refers to a number of safe anchorage sites identified by LINZ off the Kermadec Islands (7 anchorages) and the Subantarctic Islands (14 anchorages). The Department agrees that these be removed from the LINZ charts and replaced by those approved anchorages identified within the Proposed Plan, as recommended by the *Buckens report*.
84. Submission by Talleys Group Limited questioned why these 21 anchorages were being removed, and sought their inclusion in the Proposed Plan³⁰. The submission noted that safe anchorage must remain at the discretion of the master of the vessel.
85. The Officer’s recommendation noted that *“the ‘preferred’ anchorages shown on the maps and listed in the rules were selected to provide for existing use and consulted on with those existing users”*. It also noted that the charts which feature those 21 safe anchorages were *“mostly carried out before the introduction of IHO1998 standards which require a design scale of about 1.5mm, and are at variable standards from 50m to 500m to unknown. The [technical marine advice the Department received] recommends that the Department approach LINZ and request those 14 anchorages off the Subantarctic Islands and 7 off the Kermadec Islands currently shown on the LINZ charts be removed and replaced with the DOC approved anchorages.”*³¹
86. The Commissioner rejected the relief sought, adopting the officer’s reasons.
87. Other submissions sought amendment to Policy 9. In its first draft, Policy 9 read: “To identify preferred anchorages as exceptions to the access restrictions to allow for safe anchorage for vessels of an appropriate size.”³²

³⁰ Decision of the Commissioner, page 11.

³¹ Decision of the Commissioner, page 11.

³² Decisions version of the Proposed Regional Coastal Plan: Kermadec and Subantarctic Islands, page 27.

88. A submission sought that Policy 9 be amended by deleting the words “of an appropriate size”, querying the correlation between size and risk, and noting that size is not defined.³³
89. The officer’s recommendation was to amend Policy 9 to provide clarification. This was almost entirely accepted by the Commissioner, who replaced “of an appropriate size” with “that need to be close in to shore for safe anchorage because of their size”.³⁴
90. The matter relating to the correlation between size and risk was further addressed by the Commissioner with the addition of a paragraph in the Proposed Plan³⁵. This paragraph explains the rationale for the surface water activities based on zones of access and vessel length. The paragraph accepts the multiple and varying factors that may come into play in an assessment of risk and states “*Vessel length is used as a broad brush proxy for numerous factors that can influence risk*”³⁶.
91. The anchorage sites provided within the Proposed Plan provide adequate and suitable anchoring positions for vessels seeking shelter at the islands. The anchorages are positioned to allow suitable safety margins, by restricting the proximity to shore, while still providing adequate shelter. The designation of and use of the anchorage sites by length of vessel, as a proxy for navigational risk and safety of vessels, is appropriate and is consistent with similar use throughout New Zealand and the World.

Swinging arc of vessels and anchoring on a lee shore

92. The proposed rules identify anchorage locations. The appellants requested additional anchorages to those proposed by the Department. I was asked for advice on their practicality and the need for these additional locations, which I discuss below. I was also asked for advice concerning the swinging arc of vessels, the ability of the proposed plan’s rules to account for the turning arcs of vessels and to consider a request from Heritage Expeditions Ltd to anchor large vessels of 125 metres in length within the 300m zone within Musgrave Inlet, within Carnley

³³ Decision of the Commissioner, page 11.

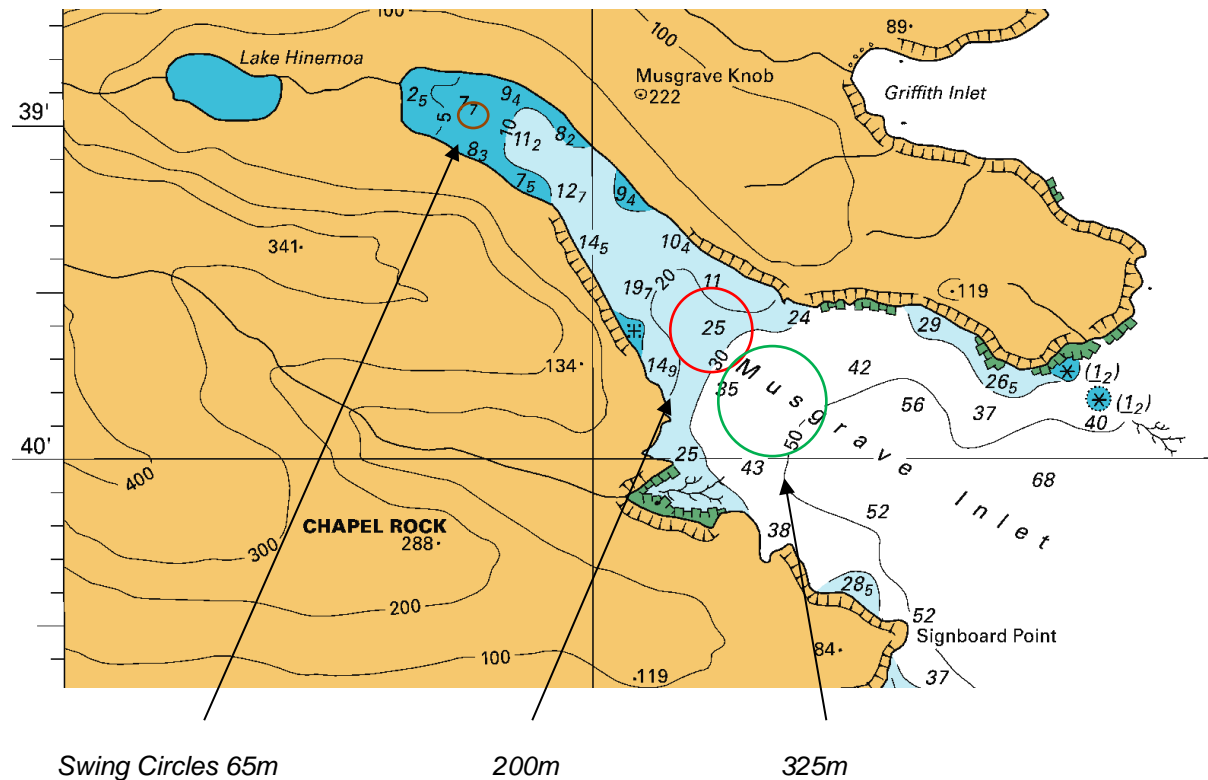
³⁴ Decision of the Commissioner, page 11.

³⁵ Decisions version of the Proposed Regional Coastal Plan: Kermadec and Subantarctic Islands, pages 26- 27.

³⁶ Decisions version of the Proposed Regional Coastal Plan: Kermadec and Subantarctic Islands, page 26.

Harbour. Further, Sanford's requested the addition of a note at the beginning of the rules tables for surface water activity controls on access as follows: "Any movement of a vessel into an area that would normally be regarded as a breach of a rule, will not be regarded as a breach of that rule if the movement is solely due to swing around an anchor point."

Anchoring in Musgrave inlet and the swinging room available.



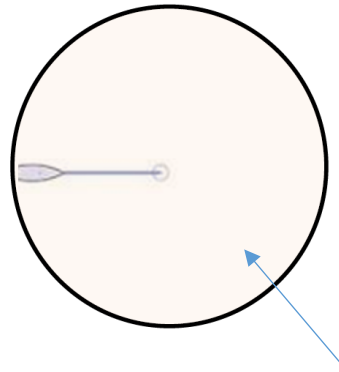
A very basic swing circle radius can be calculated by:

Length of anchor chain + vessel length = radius of the swing circle

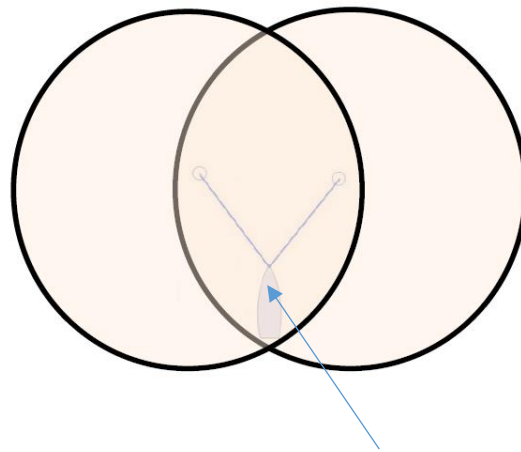
- 125m vessel anchored in 40m gives: 200m (7.3 shackles)chain +125m length= 325m radius
- 75m vessel anchored in 25m gives: 125m (4.5 shackles)chain+75 length=200m radius
- 25m vessel anchored in 8m gives: 40m (1.5 shackles)chain+25m length=65m radius

93. This takes no account of trigonometry but does allow a small safety factor by making the swing circle larger than it will actually be. I have used a 5:1 scope of anchor chain to depth as this is the minimum considered prudent; a 7:1 scope would be preferable. In stronger winds it is prudent to use more anchor chain. It is also possible to increase

holding (i.e. prevent the anchor dragging) by using two anchors. This also reduces swinging room.



swing circle single anchor (full circle area)

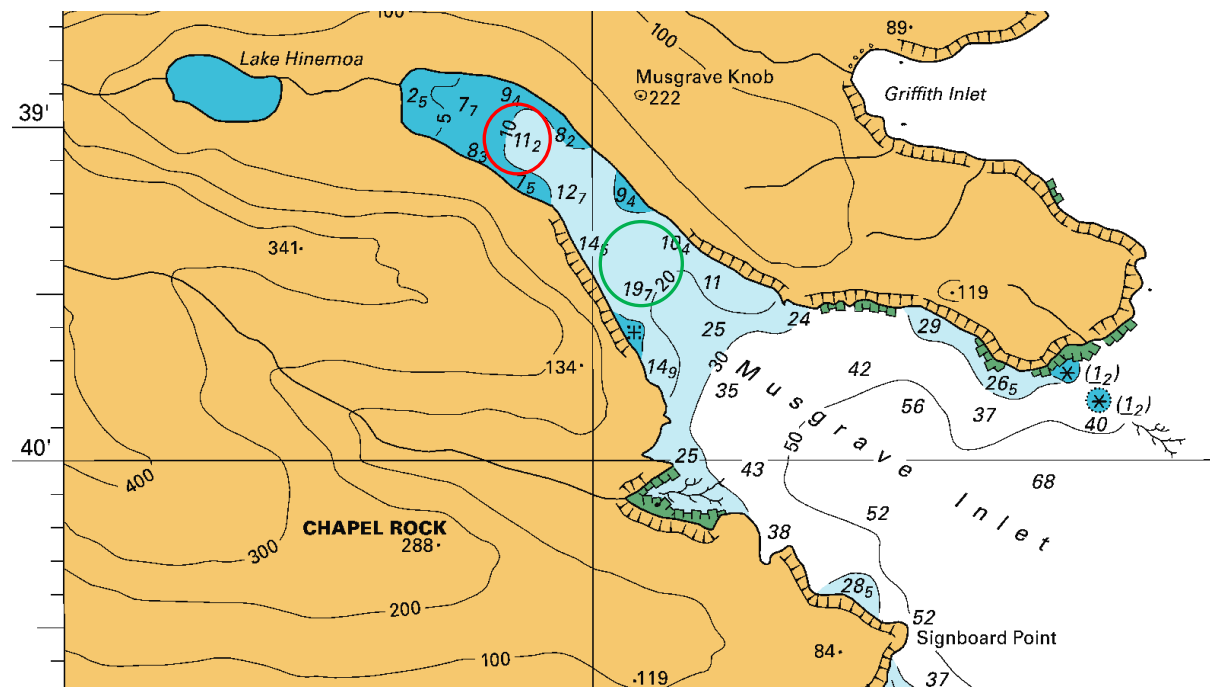


swing circle two anchors (overlapped area only)

94. The use of two anchors, as shown above, and the reduced swing circle allows vessels to move further into Musgrave Inlet to anchor. The use of two anchors would give a better holding in stronger conditions. Where winds are likely to change direction, or are fluky, the anchor chains may become twisted. This can be managed by the use of various procedures.
95. The vessels of less than 25 metres in length will be able to anchor almost anywhere within Musgrave inlet with little issue. Vessels up to 75 metres in length are better suited to areas where water depth is between 10m to 25m and use two anchors in stronger conditions to increase holding and reduce swing. Vessels of 75 - 125 metres in length are suited to areas of Musgrave inlet where the water depth is between a

minimum of 15- 50 metres. The use of two anchors is strongly recommended for these vessels in anything but settled conditions.

96. Below are some swing circles for vessels on a single anchor in a lesser depth than shown above. It is assumed the vessels may anchor overnight in this location therefore I have used a minimum of 4 shackles of anchor chain as I believe this is prudent for overnight anchorage. The swing circles show how little room is available to allow a vessel to swing. It may help to demonstrate that vessels over 25 metres in length wishing to use Musgrave inlet should anchor in the outer parts of the inlet in depths of 20 metres or more unless they intend to use two anchors either in a V format or in an alternative format that restricts vessels from swinging.



125m vessel anchored in 15m gives: 110m (4 shackles) chain +125m length= **235m radius**

75m vessel anchored in 10m gives: 110m (4 shackles) chain+75 length=**185m radius**

97. In strong conditions, where wind is likely to funnel along the inlet, more chain is required and it would be prudent and seamanlike for a vessel of more than 75 metres in length to seek shelter in a less constrained location such as Carnley Harbour or Port Ross, or to lie to anchor in the

outer part of Musgrave Inlet. This would allow use of the maximum amount of anchor chain.

The need for vessels 75 -125 metres in length to anchor, or swing on their anchor, inside the 300m zone?

98. When anchoring a vessel it is important to consider the wider environment of the area in which you are located. At a minimum, a master would place a vessel so as to be able to swing through 360° at the full extent of its anchor chain. If this is not done there is the risk a vessel may swing due to a change of wind, tide or gusts from a nearby hill or bay and ground or endanger itself close to a lee shore.
99. It is unlikely that a master of a vessel of 75 - 125 metres in length would wish to anchor in a position that may place them barely 3 ships lengths from the shore. It should be noted that this is a distance from the shoreline where underwater dangers are likely to be extending from the shoreline closer to the ship. In such a position there will be a minimal amount of time to identify an issue, prepare for and then undertake necessary actions to avoid a potential grounding.
100. One of the many questions a master continually asks is -“is there a safer alternative”. This helps to ensure that a course of action is not mechanically adopted. Rather, on all occasions when anchoring, a master will be looking for this ‘safest’ option. This should be undertaken with the full understanding, involvement, oversight and agreement of the bridge team.
101. If the nature of the area makes it necessary to anchor close to shore, for example a steeply shelving seabed, or very deep water, it may be prudent for the vessel to anchor elsewhere, or to remain underway (not anchored or made fast to the shore or structure). When underway a vessel can undertake an operation nearer to shore but then immediately move further offshore. This may mean the vessel would need a greater level of bridge and engine room manning than if at anchor. However, where a vessel is anchoring as close as 300m to the shore it may well keep the bridge and engine room fully manned anyway.

102. Unless there are some specific dynamics of a particular area with which I am not familiar, I can see no need to anchor a vessel of 75 - 125 metres in length so close to shore.

Use of Curtis and Macauley islands in the Kermadecs for shelter and transfer of fish catch

103. The fishing industry requested access for small fishing vessels (25-30 metres in length) at Curtis and Macauley islands in the Kermadecs for shelter and transfer of fish catch. The Department asked my advice on navigation safety issues associated with this proposal and the following paragraphs set out my assessment of it.
104. The chart NZ2223 shows the anchorage positions noted in NP51 with a small anchor symbol (see chart extracts). NP 51 is the New Zealand Pilot (NP 51) in the British Admiralty Sailing Directions series. NP51 covers the offshore and coastal waters around the North and South Islands of New Zealand, Stewart Island and adjacent islands, Kermadec, Chatham, Bounty, Antipodes, Auckland and Campbell Islands. It is apparent from these charts that soundings and survey data for the area of Curtis and Macauley islands are sparse and questionable. Both anchorages and coastal areas have a chart note warning about coastal navigation. This note states “Mariners should exercise caution when navigating in the vicinity of these islands due to the lack of survey data and also due to the known volcanic activity of the area; there may be less water than charted.”
105. This lack of survey data and the questionable depth is apparent from the large areas of white around the islands (where no depths are shown) and the contour lines are depicted as broken rather than solid lines. This conclusion is further reinforced by reference to the source data diagram (see extracts below) which shows the data used to construct the chart in this particular area is from:
- i. Macauley Island; “Random soundings from various sources”.
 - ii. Curtis and Cheeseman; “New Zealand Government Survey 1965” “RV Tangaroa 2002, 2004, & 2007”

106. The most recent surveys (2002-2007) are for the area of the suggested anchorage at Curtis Island³⁷. The chart still represents this information as broken contour lines on the chart which indicate the information provided is questionable. This may be explained by a comment in NP51 which states “Caution. Navigation of Stella Passage, between Curtis Island and Cheeseman Island, is not recommended as the area is subject to continued volcanic uplift, and depths in the vicinity of the islands may be less than charted; see 11.6.”³⁸ Further comment on volcanic activity is made and it is noted that in NP51 11.20 paragraph 3 “Curtis Island was visited in 1989 when the island was reported to have been uplifted a further 9m.”
107. NP51 11.6 sheds further light on the nature of the area and states “Kermadec Islands and the surrounding seas lie in an area of known volcanic activity. There may be less water than charted in the vicinity of the islands which are not fully surveyed.”
108. From this information it appears there are two possible anchorages in ‘suitable conditions’. At Macauley Island 2 cables (370m) offshore. And at Curtis & Cheeseman Islands, 3 cables (556m) offshore. As the anchorages are on the NE side of the islands they would be exposed to any wind or swell from the west through north to south. The anchorages are therefore possibly useable in south west wind and swell.
109. NP51 includes statistical data on wind strength and direction³⁹. This information is provided for the months of May and November. The symbol and system used to depict the wind data on the map is called a Wind Rose. There is no Wind Rose for the exact location of Macauley, Curtis and Cheeseman Islands so I have used the two nearest, positioned to the northeast (NE) and southeast (SE) of the island. This gave the approximate data below.

Percentage of time the wind is at or between south through southwest to west.

<i>Location</i>	<i>May</i>	<i>November</i>
<i>NE Wind Rose</i>	<i>29%</i>	<i>24%</i>
<i>SE Wind Rose</i>	<i>50%</i>	<i>37%</i>

³⁷ NP51 11.22

³⁸ NP51 11.21

³⁹ NP51 pages 25 and 26

110. This shows that for 35% of the time the wind will be in a direction which makes these possible anchorages useable.
111. When a wind blows over water it creates waves. These waves will build in size until either the wind dies or changes direction, or the wind is of insufficient strength to build larger waves. When the wind dies it takes some time for these waves to dissipate. This would mean waves continue to make the sea conditions rough after the wind has died away. These waves are ordinarily referred to as 'swell'. They are generally spaced well apart and will be of no threat to a well found vessel but may cause it to roll, pitch or heave.
112. The ocean environment around Macauley Island is exposed. By this I mean there is no large land mass, reef system or shallow reefs to help break up any swell. This means that the ocean swell will be almost continually present. When a swell meets a solid object and passes it the wave is refracted. This process means the swell will bend (or wrap) around the island. This process is demonstrated in the photo and diagram below.

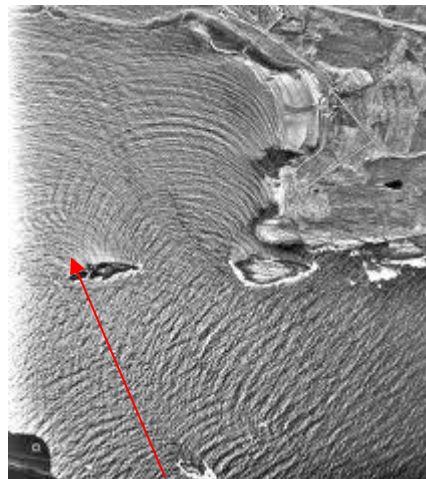


Photo of waves refracting around an island

Note rough area behind island

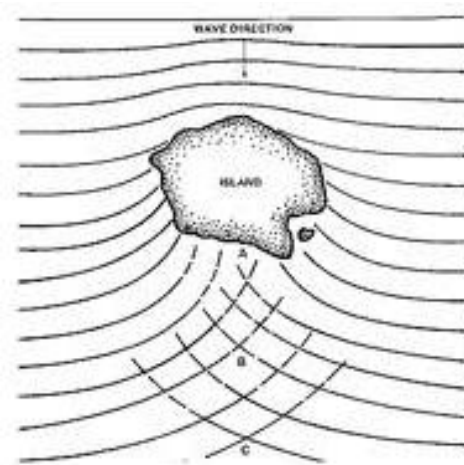
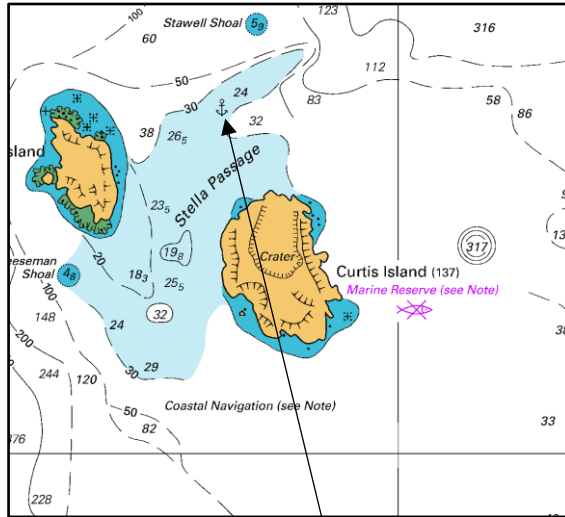


Diagram showing how waves are refracted around an island

113. The 'bending' (refraction) of the waves can be seen in the photo. The diagram shows what occurs behind an island. The swell passing either side of the island is bent around. The two swells now meet behind the island, with slightly less energy, but combine to create a confused and roly sea condition.

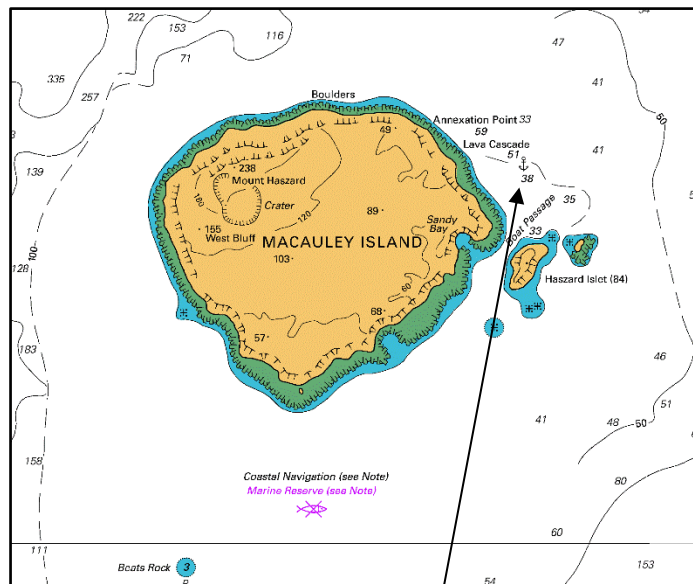
114. There are two small islets off the east point of Macauley Island (Haszard [sic] Islet and an unnamed islet). These would help to dissipate some of the wave action, but may actually increase the confused and roly conditions.
115. The appeal to the Proposed Plan by the New Zealand Seafood Industry Council (now Seafood NZ) requests a sheltered position for ship to ship transfer and shelter. Any vessel operating within the area should be able to withstand the weather conditions likely to be experienced. It is unlikely that any un-forecast extreme weather would be experienced within this area given the forecasting and weather data that is freely available today. Any vessel operating in an area must be able to withstand the conditions that are likely to be experienced there. If a vessel should find conditions deteriorate to such a level that she is no longer able to withstand them and shelter is required, then Raoul Island further to the north is a suitable location. It offers better shelter in the lee of a larger island and bays which offer greater protection from refracted waves. Raoul Island is also regularly used by vessels re-stocking the Island, the Royal New Zealand Navy and many scientific vessels.
116. The operation of ship to ship transfer would require the two vessels to come alongside or very close to each other or for a tender to be used between the vessels. Given the minimal amount of shelter available at the islands and the exposed and roly nature of the islands in all but the most settled conditions, it is unlikely such an operation could be reliably undertaken with any frequency. Raoul Island further to the north is a more suitable location for the reasons just discussed. It is noted that when describing anchorages at Macauley, Curtis and Cheeseman Islands no reference is made in NP51 to good, sheltered, secure locations or to smooth water, calm water, or other conditions that are required for ship to ship transfer.
117. Raoul Island lies approximately 60 nautical miles from Macauley Island and 80 nautical miles from Curtis and Cheeseman Island.
118. Having reviewed the information available to any master on board a vessel it appears to me that the anchorages available at Macauley, Curtis and Cheeseman Island are unsuitable for ship to ship transfer operations. I also believe that any shelter afforded by these anchorages would be minimal, and that in poor weather they would be unsuitable for

anchoring. I also note that navigation in the area is, at best, imprudent. In my opinion a prudent mariner would remain well clear of the area.



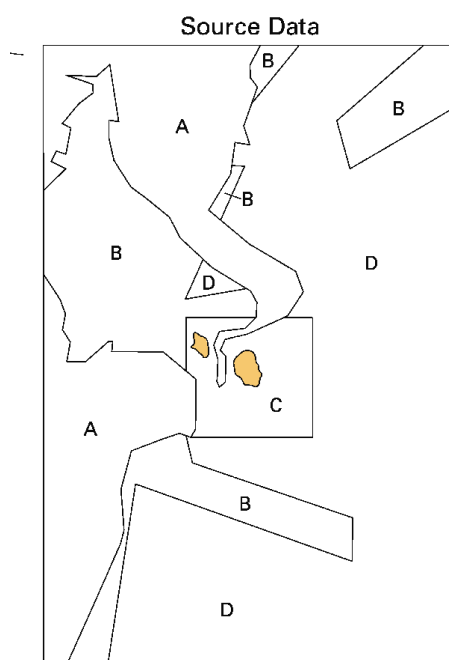
Extract chart NZ2225

Curtis and Cheeseman Island anchorage



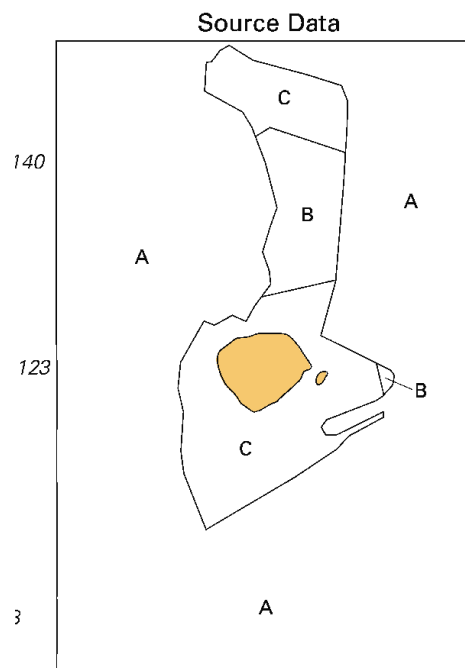
Extract chart NZ2225

Macauley Island anchorage



A. RV TANGAROA 2002,2004 & 2007 1:20 000
 B. HMNZS MONOWAI 1992 1:250 000
 Track Soundings
 C. New Zealand Government Survey 1965
 D. Random soundings from various sources

*extract chart NZ2225, source data
 diagram
 Curtis and Cheeseman Islands*



A. RV TANGAROA 2002,2004 & 2007 1:20 000
 B. HMNZS MONOWAI 1992 1:250 000
 Track Soundings
 C. Random soundings from various sources
 345

*extract chart NZ2225, source data
 diagram
 Macauley Island*

COASTAL NAVIGATION

Mariners should exercise caution when navigating in the vicinity of these islands due to the lack of survey data and also due to the known volcanic activity of the area; there may be less water than charted.

Extract chart NZ2225, Note on Coastal Navigation

119. Based on my advice the Department advised Sanford on 3 May 2013 as follows:

“We have discussed your suggestion of including an additional point at Macauley Island. The consistent advice we are getting is that there are no safe anchoring points in the vicinity of this island to facilitate ship to ship transfers. It is very seldom calm and even when there is little wind the swell is problematic. We have sent you Jim Dilleys’ advice on this matter.”

120. The Department subsequently provided me with a NZ Navy Minute dated 7 May 2013, which documents the experience of RNZN ships and

HMSNZ Wellington (WGN) in particular of anchoring at Macauley, Cheeseman and Curtis Islands. I attach a copy of this Minute as Appendix 3.

121. The Minute from the NZ Navy reinforces the points I have made regarding the risk of anchoring at these islands. At paragraph 2 it is noted:

“Substantial geological evidence exists to suggest that continuous volcanic activity occurs among the Kermadec Islands chain. The islands are lifting at a rate which is geologically rapid; all depths are to be treated with considerable caution and checked against other sources of information.”

122. In relation to anchoring at Macauley Island the minute notes the following at paragraphs 3 and 4:

“Anchoring is possible around the island with WGN on her recent trip on the North East (NE) side of the island. The bottom type WGN anchored in was rock, not good holding ground however, following guidelines of ref A [attached to the RNZN Minute] WGN remained at anchor for 4 hours allowing GNS to conduct their tasks. This was only possible because the ship was in the lee of the island with a NE wind and swell.

During WGN second visit to the island [Macauley] the swell was from the NE and this made anchoring near the boat landing sites unachievable. To get GNS ashore again WGN launched the sea boats and remained underway until required to uplift GNS. Any significant swell creates large surf requiring boat drivers and swimmers to exercise caution when landing.”

123. With respect to Cheeseman and Curtis Islands the RNZN minute notes the following at paragraph 4 [second paragraph 4], 5 and 6:

“Anchoring is not advised due to the rapid change of depths and volcanic activity. WGN did not pass closer than [sic] 6nm from the islands during her recent trip and Ref B [attached to the RNZN Minute] recommends that the fragility of the whole island is such that landing is not to be made unless of scientific necessity.

A boat landing is possible on the NE side of the Curtis Island if required.

Curtis Island is an active volcano that is considered second in activity only to White Island.”

124. On 8 August 2013 the Department noted that Sanford and Solander still wanted access to Macauley Island for fish transfer activities despite my advice on the navigation safety risks. The Department also explained that the parties had adjusted the proposed fish transfer activity such that it was consistent with Rule 50 in the Proposed Plan (page 55) that allows access within the zone out to 300m from MHWS for vessels up to 75 metres in length to launch and then to subsequently collect ancillary craft and passengers – i.e. they would not anchor. The Department then asked for my advice on suitable conditions for when this activity could occur.
125. I provided this advice on 28 August 2013 as follows:
 - 125.1 Do not allow access closer than 300m from MHWS.
 - 125.2 Put a size limit on the length of vessels.
 - 125.3 Limit the area of access and mark it on a chart.
 - 125.4 The transfer operation may not be undertaken if a cruise ship is within the area, or has ancillary craft operating in the area.
 - 125.5 No more than two vessels, excluding ancillary craft, may be in the area at any one time.
 - 125.6 The area may not be entered and a transfer operation must cease when:
 - (a) swell in area of the planned transfer operation exceeds 0.5 metres; or
 - (b) swell in the vicinity of the island exceeds 1 metre; or
 - (c) wind speed in the vicinity of the island exceeds 15 knots from the south through southwest to west; or

- (d) wind speed in the area of the planned transfer operation exceeds 10 knots from west through north to south.

125.7 The wind strength/direction and swell noted above as 'in the vicinity of the island' would fit into the category of Beaufort scale 3 (force 3). I would go to 4 (force 4) as a maximum (this would be 16 knots and 2 meter swell).

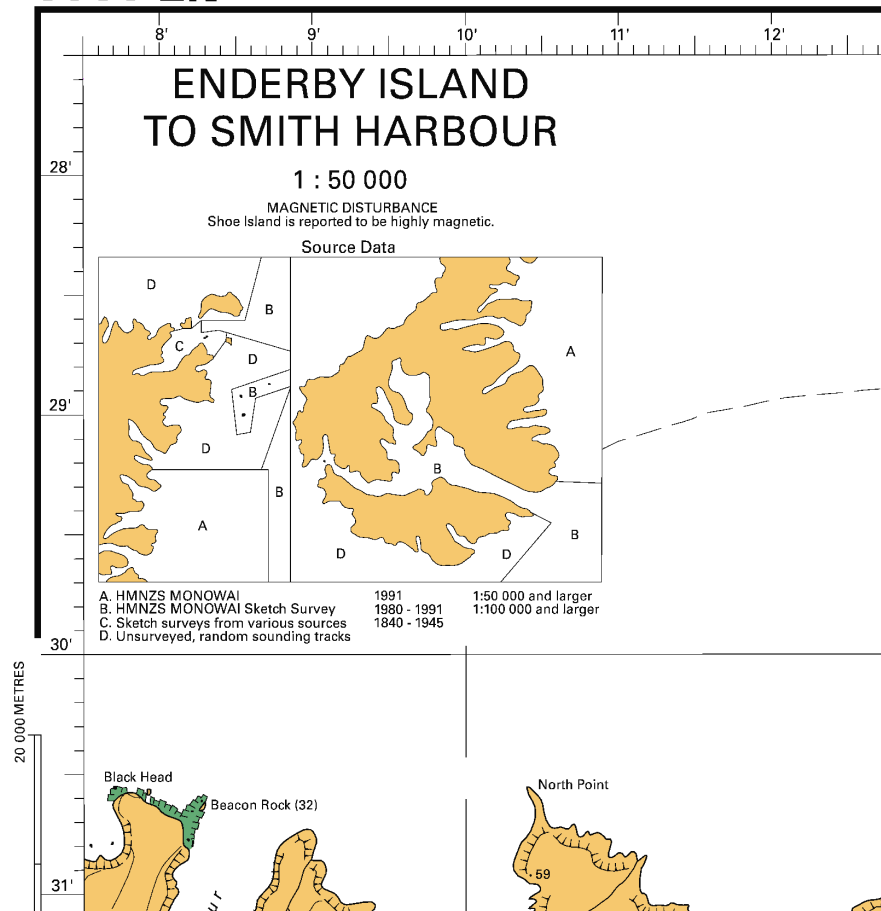
- 126. I attended the mediation in Wellington on 21 October 2013 to discuss access and anchoring issues with the appellants. Mr Charles Hufflet of Solander Fishing and Steve Collier [vessel manager] of Sanford also attended. Mr Hufflett noted they also want access for the same activity on the SW of Macauley Island in a zone between 300m and 600m so they can always look for the lee. I considered it practical to have two options to account for different wind conditions.
- 127. I provided advice to the Department on a draft rule to provide for access at Macauley for the activity of fish transfer and a chartlet developed to show these two zones (along with chartlets for all the anchorages to be included in the Proposed Plan discussed below).

The scale and level of detail of the anchorages and requests for additional anchorages

- 128. I understand that both appellants, Heritage Expeditions and the fishing industry, requested more detail on the exact location and extent of the anchorages together with distance measurements expressed in nautical miles.
- 129. I provided advice to the Department on the development of a set of chartlets to show the exact location and extent of the anchorages. I understand these are to be included in the Proposed Plan as a separate Appendix.
- 130. The chartlets were provided to the appellants for their comment on 9 April 2013. Not all the issues relating to the anchorages are resolved.

Additional anchorages requested by appellants

131. The Proposed Plan contains identified anchorages, shown on maps in Appendix 1 of the Proposed Plan and referred to in the rules. I understand these were identified by DOC initially and discussed with users before the Proposed Plan was notified. I understand some further anchorages were requested in submissions and were considered by the Commissioner at hearing.
132. Both appellants identified further anchorages or changes to existing anchorages in their appeals. The Department sought my advice on their practicality and need. I will explain the advice I gave next, request by request (i.e. anchorage by anchorage). I note the Department's view that the number of anchorage locations should be kept to the minimum necessary to concentrate the adverse effects of anchoring and other potential adverse effects at those locations while ensuring there are sufficient locations to accommodate existing use patterns, provide for access to the visitor landing sites and to provide a full range of options for safe anchorage in the differing environmental conditions that can occur at the islands. That said, my advice is based on the navigation safety aspects of those requests.
133. A key factor influencing navigation safety and the identification of anchorages is the accuracy of charting and nautical publications. I advised the Department with this in mind, providing excerpts from the NZ Pilot Book NP51 and from the Mariners Handbook, drawing attention to the source data and survey quality [Attached as Appendix 2].
134. I copied an excerpt of Chart NZ2862 in my advice to the Department, noting that areas D and C (C is Port Ross) contain minimal survey data. Areas A and B (B is Carnley Harbour) are more recent but to an undefined standard. I remain of the view, despite disagreement with Heritage Expeditions advisors on this point, that my concerns are entirely valid.

Z98Z ZN**DEPTHS**

Source data for current Chart NZ2862.

Sandy Bay, Enderby Island, Auckland Islands

135. Heritage Expeditions' appeal sought to show the anchorage on the maps and increase anchor size to 125m. The Department notes the GPS location for anchoring at Sandy Bay provided by Heritage Expeditions is 360m offshore – well outside the 300m zone.
136. My advice was: If the ship anchors on the noted anchorage 360m offshore her swing circle, with a 5:1 chain to depth scope, would be approximately 137 metres plus the length of the ship. This would mean they may swing inside the 300 metre limit. A simple answer is for the ship to anchor slightly further offshore. It is noted the maximum depth at CD is, in general, less than 30m (with the exception of two small areas exceeding 30 metres). This is suitable for anchoring. This does place the vessel beyond a possible very small lee provided by Butterfield Pt.

However this lee would only exist in westerly winds, and is of marginal benefit at best.

Ocean Island, Port Ross, Auckland Islands

137. Heritage Expeditions' appeal sought to provide a new anchorage for vessels up to 125 metres in length in this location. They noted that this anchorage is occasionally used on a temporary basis when the wind is out of the S-SW. In such conditions they move off the Enderby Island anchorage and stay at this point overnight before leaving for Carnley Harbour.
138. My advice was: Given the nearby anchorage at Port Ross, although marked as 75 metres in length, there appears no safety basis for this request. The Port Ross anchorage offers far greater shelter, and is no significant distance from the proposed Ocean Island anchorage.
139. The proposed Ocean Island anchorage does not offer any greater safety for a vessel having to depart the area at night, or during day light, as from both anchorages the practice of good seamanship would dictate a vessel depart to the north of Ewing Island, and not to the west of that island where the passage is marked "*passage is not recommended*".

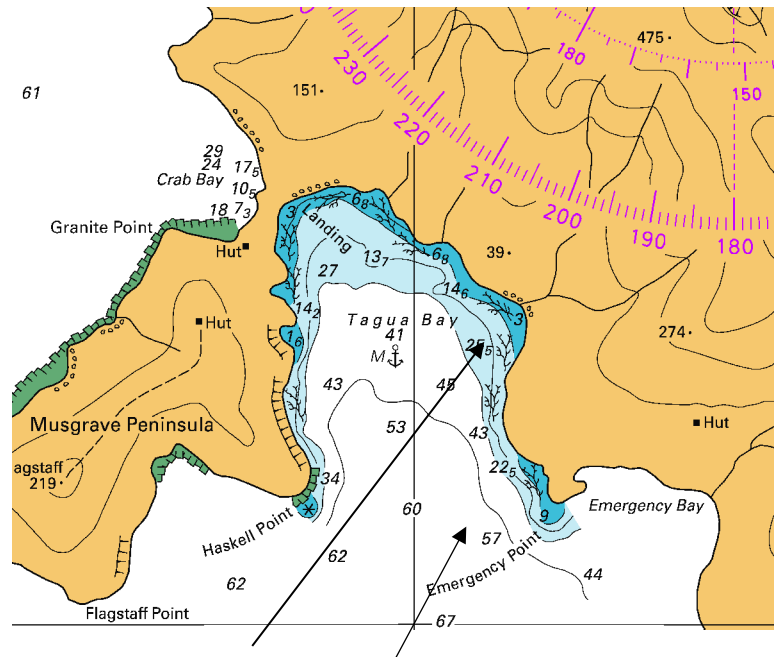
Smith, Norman and Hadfield Harbours, east coast Auckland Island

140. Heritage Expeditions' appeal sought to provide new anchorages for vessels up to 125 metres in length at all three of these harbours on the east coast of Auckland Island.
141. I have been asked my view on any safety reasons for selecting either Norman or Hanfield Inlet. I have advised that I do not think the winds will be majorly different in either inlet. Both have heads below a saddle in the ridgeline above. Both will be open to funnelling wind, Hanfield slightly less (if anything) as it has a restriction, then opens out again.

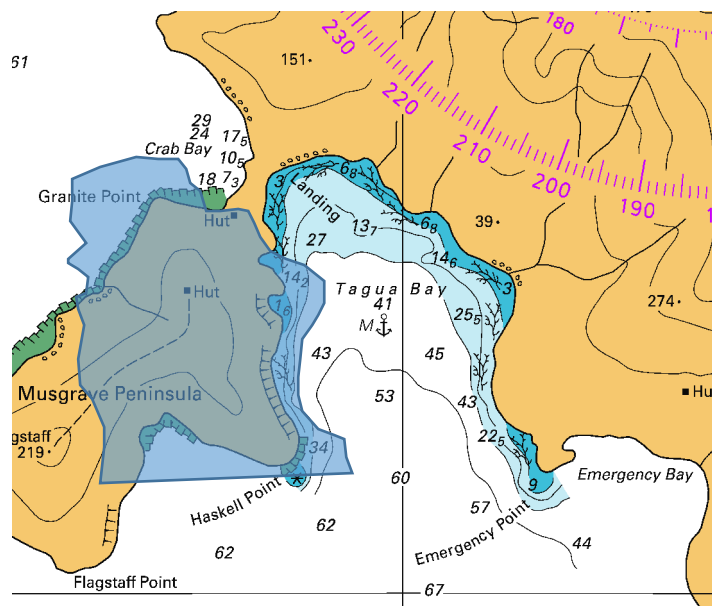
Tagua Bay, Carnley Harbour

142. Heritage Expeditions' appeal sought an additional anchorage to the east marked as Emergency Bay to take account of different wind directions. My advice was: I doubted that Emergency Bay is a suitable anchorage but it is not clear from the appeal point if this is the bay to which HEL is

referring. I suggested that they are referring to a small bay in the east of Tagua Bay (see suggestion below).



I would suggest this is the bay rather than Emergency Bay



A better indicator of allowable anchorage area

Figure of Eight Island, Carnley Harbour, Auckland Islands.

143. Heritage Expeditions appeal sought to provide new anchorages for vessels up to 125 metres in length at Figure of Eight Island, in Carnley Harbour, to give access to visitor sites at the head of North Arm. The Department advised that it had specifically extended the 300m zone further out to encompass Figure of Eight Island because sea lions use

Figure of Eight Island; that there is a visitor site at Erlangen Clearing; and that they consider Raynall Point anchorage is sufficient for exploring North Arm.

144. My advice was: There is nothing to prevent the vessels launching and loading ancillary craft while underway. The current scenario allows the vessels to do this in an area close to Figure of Eight Island. If the conditions were unsuitable for this type of operation it is likely they would be unsuitable for launching and loading the ancillary craft with the vessel at anchor. It is noted that the manoeuvrability of the vessels and skills of the masters used by HEL is one of the key points used in their submissions for greater access to the area.

Unnamed Bay opposite Tagua Bay, Carnley Harbour, Auckland Island

145. Heritage Expeditions appeal sought to provide new anchorages for vessels up to 125 metres in length at an unnamed Bay opposite Tagua Bay in Carnley Harbour, to provide a sheltered option in strong easterlies. In relation to this appeal point the Department asked my advice on whether an additional anchorage was needed to provide shelter in easterlies and noted that they do not want any anchorages at Adams Island.
146. My advice was: Given the mention of easterly conditions I would suspect Heritage Expeditions may be referring to Crab Bay to the NW of Tagua Bay. The other possible location is Fleming Bay on the SW side of Grafton Point. A position in the lee of the bluff may have provided some shelter however I would have expected an uncomfortable swell to wrap around Grafton Point.
147. In easterly conditions (perhaps off Raynal Point) with the anchorage in the 50m hole would have been a possible location if the vessel decided to stay at the islands rather than depart to sea or the western side of the islands.

North of Camp Cove, Carnley Harbour, Auckland Islands

148. Heritage Expeditions appeal sought to provide new anchorages for vessels up to 125 metres in length north of Camp Cove, in Carnley Harbour because it has been used before (and was requested in their original submission) and gives access to Camp Cove visitor sites.

149. In relation to this appeal point it remains unclear to me (and the Department) what Heritage is wanting.

Camp Cove, Carnley Harbour, Auckland Islands

150. This anchorage is included in the Proposed Plan for vessels up to 25m in length. Sanford requested it be increased to allow vessels up to 42m in length to use it. I understand there is an uncharted rock near this anchorage. It was decided this was not a safe anchorage option for vessels larger than 25 metres in length.

Ringdove Bay, Antipodes Island

151. Heritage Expeditions appeal sought to provide new anchorages for vessels up to 125 metres in length at Ringdove Bay, Antipodes Island. The appeal noted this location was “*Unlikely to be used, although useful as a safety precaution*”.
152. The Department was clear that the Proposed Plan has deliberately not provided for any anchorages in the Antipodes, Bounties and Snares islands (other than for an existing CRA8 fisherman). The Department has provided access for vessels up to 75m in length inside the 300m zone to off-load zodiacs and passengers but not to anchor. They are required to move out of the zone and come back in again when collecting passengers and zodiacs.
153. In my advice to the Department, I noted that the current practice of loading and unloading ancillary craft in an open ocean environment supports the suggestion I make above concerning access to Figure of Eight Island from Raynall Point anchorage, or from a vessel underway nearer the island.
154. I note the comment from Heritage Expeditions regarding ‘safety’. My view (as set out above) is that it is far safer not to navigate a vessel to the islands but to remain off-shore. Safety and comfort or convenience can be confused.
155. Further, Cpt. Zinchenko’s “*Notes on Navigating in the New Zealand Sub Antarctic Islands and Kermadec Islands. Feb 2011*” (which was included with Heritage Expeditions submission) is noted. Cpt. Zinchenko states that “Anchoring in the southern-eastern part of the island in Ringdove Bay is impossible because of deep water.”

Raynal Point, Carnley Harbour, Auckland Island

156. After receiving the detailed chartlet showing the Raynal Point anchorage, questions were raised concerning why it extended to the north of the bay and not to the south. The Department advised the reason was the presence of the wreck of the Grafton, which is a site of historic heritage to the south. I noted that no chart data is shown for the area south of the anchorage and to the south of Raynall Point.
157. I have advised that the area to the south of the anchorage is shown on the chart as slightly shallower and may be available as an anchorage to vessels of less than 25 metres in length. This was included as an option on the chartlet.

Anchorage Cove, Antipodes Island

158. Heritage Expeditions appeal sought to provide a new anchorage for vessels up to 125 metres in length at Anchorage Cove, Antipodes Island. On this appeal point the Department has reiterated the position at paragraph 152 above.
159. I refer again to Cpt. Zinchencko's "*Notes on Navigating in the New Zealand Sub Antarctic Islands an Kermadec Islands. Feb 2011*" (which was included with Heritage Expeditions submission). Cpt. Zinchencko states that 'It is possible to anchor in Anchorage Bay (between Antipodes and Bollons Island) and embark or disembark passengers into zodiacs but only in relatively calm conditions'. From this note it appears that the anchorage and embarking/disembarking of passengers is only possible in calm conditions. This appears to indicate the anchorage may not be suitable for anything but settled conditions.

Perseverance Harbour, Campbell Island

160. Heritage Expeditions appeal sought to split the anchorage in Perseverance Harbour at Campbell Island into two anchorages and change it to allow vessels up to 125 metres in length. Heritage Expeditions considered the anchorage in the Proposed Plan on map 6 to be in the wrong location adding that there needs to be some discretion because its suitability depends on which way the wind is blowing. In the SW the anchorage point is off the old wharf but in the NW, the anchorage is tucked under Beaman Hill.

161. The chartlet enlarged the area to encompass both locations identified by Heritage Expeditions.

Laurie Harbour, Port Ross, Auckland Island

162. Sanfords appeal sought to add Laurie Harbour in Port Ross, Auckland Island as an anchorage for vessels up to 42 metres in length. It is unclear whether this is still being pursued.

Waterfall Inlet, east coast Auckland Island

163. Sanfords sought to change the existing anchorage for vessels up to 25m in length to allow vessels up to 42 metres in length. Waterfall Inlet is too tight for larger vessels and the wind can be fluky – it comes into the bay above the word “waterfall” on the chart and curves around past the anchor marked on the chart back into the coast where the chart shows depths 4 and 5. The 42 metre long fishing vessels retain the options of Hanfield, Norman or Musgrave Inlets all located slightly north on the east coast of Auckland Island.

Musgrave Harbour, Carnley Harbour, Auckland Island

164. I note that Sanford also sought that Musgrave Harbour anchorage for vessels up to 25 metres in length be increased to allow vessels up to 42 metres in length. Musgrave Harbour anchorage has been increased to allow vessels up to 75 metres in length.

Fishing Rock, Raoul Island

165. The appellants questioned why the anchorage at Fishing Rock is shown outside the zone 300m from MHWS when Rule 57 as amended by the Commissioner’s decisions refers to the anchorage as being inside the zone 300m from MHWS. The Department advised Sanford that the intention was to have the anchorages at Fishing Rock and Denham Bay (discussed further below) outside the 300m zone as indicated on the maps; and that the amendment to the rule was an error. They are included on the maps and chartlets for information to users, since they are the most frequently used anchor sites by experienced users of the islands.
166. Sanford sought access and anchoring for vessels less than 25 metres in length inside the zone 300m from MHWS. The Department sought my

advice on the practicality and safety of this. I advised that if such access was to be provided, warnings should be included as follows:

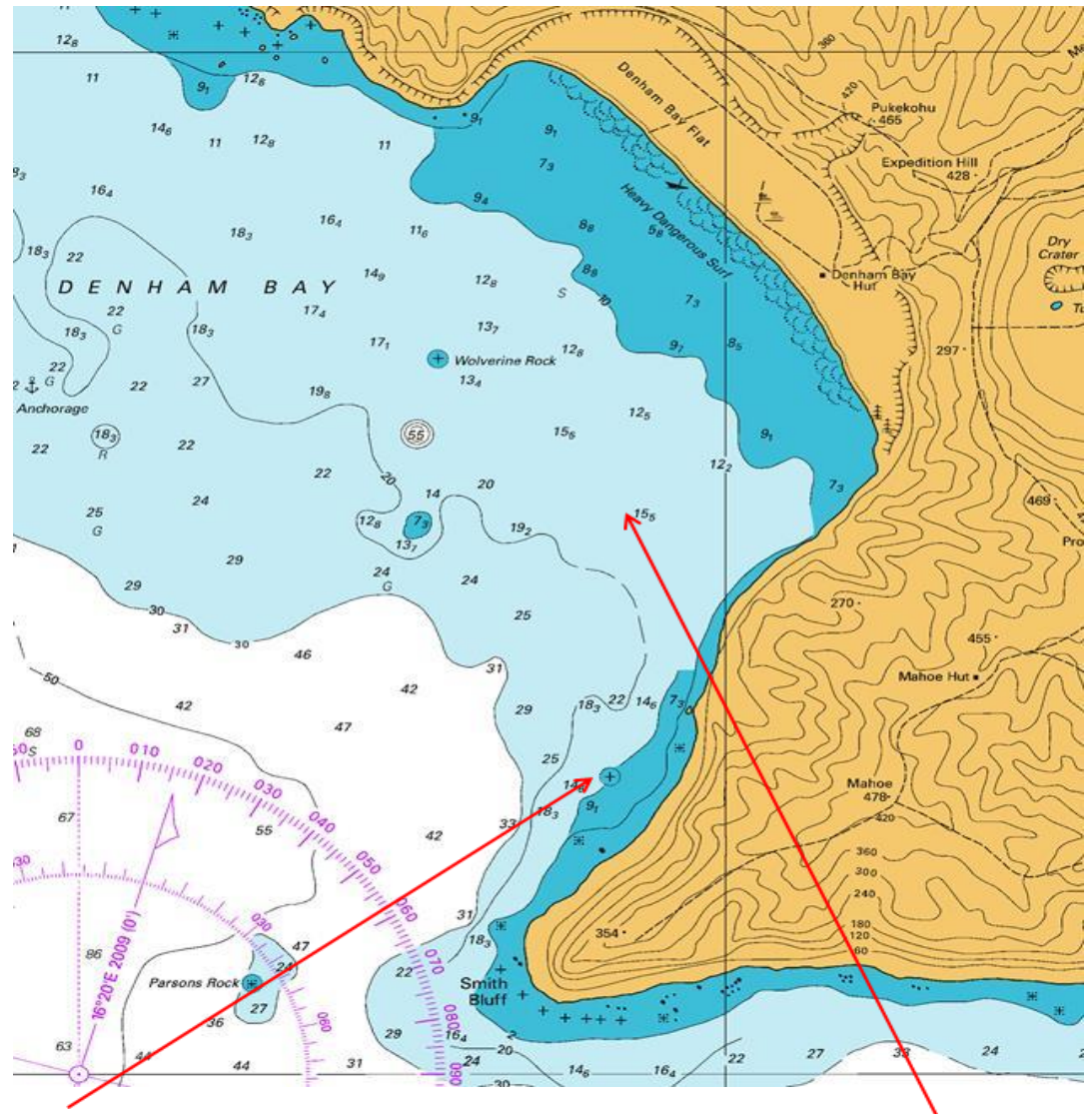
“Vessels choosing to rely on this rule and access and anchor closer than 0.16nm (300m) from MHWS at Fishing Rock need to be cognisant of the risks – age and nature of hydrographic survey data and continuous active volcanic activity with potential to alter seabed depth and features. Vessel masters also need to be mindful that the rapid and severe changes in weather conditions experienced at the islands can quickly make an apparently sheltered anchorage a lee shore situation with little sea room available. The coast along the north side of Raoul Island offers no headlands or outcrops to provide shelter.”

167. A chartlet was developed to reflect this.

Denham Bay, Raoul Island

168. Similar to Fishing Rock, the appellants questioned why the anchorage is shown outside the zone 300m from MHWS.

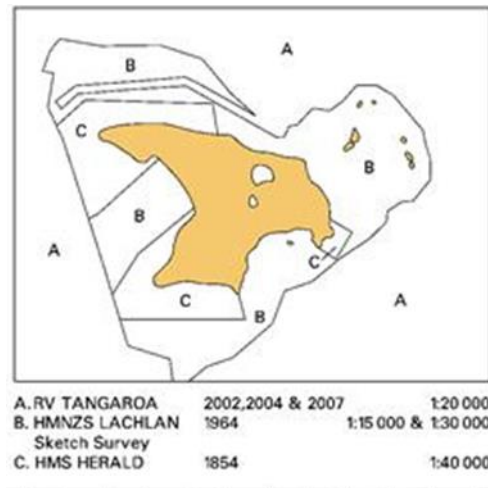
169. My advice to the Department was that in Denham Bay the use of the 300m mark as the boundary for anchoring is appropriate in some locations, for example off the Denham Bay Flat. The chart clearly shows a gentle shoaling of water and I would expect this to generate significant surf with any swell entering the Bay. This is also supported by the warning on the chart concerning surf. While landing on the beach in settled conditions may be possible, I would be cautious of anchoring close off here. A swell can arrive at any time and may be well in advance of an approaching weather pattern or even related to a distant weather pattern such as one in the Southern Ocean. Getting any vessel underway takes time and thus increases exposure to risk in any deteriorating conditions. Along the SE shore of the Bay, where the anchor symbol is shown on map C2 (page 80 of Proposed Plan) there is actually a rock – refer chart below.



Rock

My preference for anchoring in a NE or E Blow.

170. This rock is about 275m offshore. In anything but the most ideal conditions it would be unwise to go closer in. The survey data for this location on the current chart is from 1854 and is likely to be incorrect now given the volcanic and exposed nature of the islands. In my opinion, navigation closer than 300 metres from MHWs should not occur here.



Source Data Diagram from Chart NZ2225

171. I advised that Denham Bay is a suitable anchorage for vessels of 20 metres or less in certain conditions, and not in other conditions. I would consider it suitable for NE and E blows at the position indicated and use Boat Cove if the wind went North at any point West of North. The other anchorages are all useable in the right conditions. There is no anchorage at Raoul Island that is great in all weathers. There may be occasions when no anchorage on the islands is suitable and a vessel needs to put to sea, or steam up and down in the lee of the islands. A vessel unable to undertake this should not be in the area.
172. I understand from the Department that based on my advice above, and advice from a regular user of Denham Bay (Nigel Jolly), it advised the appellants on 19 August 2013 that the anchorage location in Denham Bay in the Proposed Plan (Map C2, page 80) was not the best location and it should be shifted further N-NE but still outside the 300m zone, to achieve the safest location for anchoring in NE or E winds, for both smaller (<25 metres length vessels) and larger vessels. The Department advised appellants that the dangers at this Bay strongly suggest it would be most unwise to anchor inside the 300m mark and noted anchoring is permissible (under the Proposed Plan) anywhere seaward of the 300m mark. The Department stated its strong preference is to correct this error and remove reference to Denham Bay from Rule 57, and shift the recommended anchorage location N-NE to the more suitable location for shelter in NE or E winds. As noted above at paragraph 165, the Department explained that the recommended anchorages at both Denham Bay and Fishing rock were shown on the maps because they are the safest recommended anchorages in the right wind conditions.

Sanford however, disagreed with the Departments proposed amendments, instead wanting the anchorage to remain in Rule 57, so that it was inside the zone 300m from MHWS.

CONCLUSION

173. The submissions condense to three matters within my field of expertise.
174. The right of innocent passage is not restricted by the provisions within the Proposed Plan. Access to the waters around and past the islands remains free and vessels can clearly navigate without undue restriction. There are some controls that provide certain access to anchorages in some locations and prevent vessels, dependant on length and therefore size, from navigating too close to the shore. These controls are less restrictive than those found in most harbours and coastal waters around New Zealand and the World. It is my opinion the controls do not prevent the right of innocent passage.
175. The Proposed Plan uses length as a proxy for the navigation risk and safety of vessels. The manoeuvrability and navigational safety and risk profile of any vessel is based on many factors. These factors will vary from day to day and make assessment at that detailed level difficult. To provide a concise and clear parameter, vessel length has been chosen by the Department to differentiate the navigation safety and risk profile of vessels. This use of vessel length as a proxy for navigation safety and risk profile of vessels is commonly used in ports, harbours and coastal waters around New Zealand and the World.
176. The vessel length groupings are consistent with the vessel types currently using the island and reflect a sensible grouping of similar vessels by navigation safety and risk profile. The Proposed Plan allows for the individual assessment of vessels over 125 metres in length. These provisions are sensible and the groupings are reasoned.
177. I could understand and assess any submission that requested amendments to anchorage vessel size limits where the length differential was a few metres. I do not believe amendment of the vessel size limits by up to 50 metres (75 metres to 125 metres) is in any way justifiable as the navigation and safety risk is increased for no additional safety for that vessel. The provision for individual assessment of vessels, and the free access during emergency situations, adequately provides for these vessels.

178. The anchorages provided within the Proposed Plan allow vessels to seek shelter at the Islands or await embarkation/disembarkation of passengers, equipment and stores. The anchorages provide good shelter in the conditions for which they are suited. No submitter has challenged the suitability of the anchorages. The contention appears to be that more anchorages are required and/or for access closer to the shore in the existing proposed anchorages.
179. In my opinion the distinction between safety and comfort or convenience has been confused. The proposed Plan includes adequate provision for safety, allowing vessels to undertake the necessary actions to obtain safe anchorage. While it may be more convenient or comfortable to have anchorages available at every location a ship may wish to visit or stop, it is not an argument based on safety. In my opinion the proposed anchorages, together with the provision for emergency access, allow suitable shelter to be found at the islands.
180. It should be noted there will be occasions when any location becomes unsafe to anchor and that some islands may be unsuitable to anchor at or approach as conditions deteriorate. The prudent mariner would not approach a coast in such conditions instead seeking suitable sea room and deep water.

A handwritten signature in black ink, appearing to read 'J. Dilley', with a period at the end.

James Veere Dilley

13 October 2016

Appendix 1

References

1. *Technical maritime advice for the preparation of a regional coastal plan for New Zealand's off-shore islands* K Buckens, B Young, December 2009
2. *Proposed Regional Coastal Plan: Kermadec and Subantarctic Islands: Decision of the Commissioner.*
<http://www.doc.govt.nz/Documents/getting-involved/consultations/current-consultations/prcp-decisions-submissions-by-submitter.pdf>
3. *Proposed Coastal Management Plan for the Subantarctic Islands*
Captain Joanne Laing
4. Notes on Navigating in the New Zealand Sub Antarctic [sic] Islands and Kermadec Islands. Prepared by Captain Demetriy Zinchenko Feb 2011
5. NP51 New Zealand Pilot
6. NP100 Mariners Handbook
7. LINZ Nautical Charts

Appendix 2

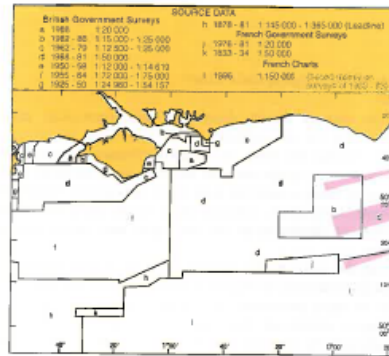
1. Extract Mariners Handbook

CHAPTER 2

- 3 A type approved ECDIS will display a warning if the mariner attempts to use ENCs at scales larger than that of the source chart.

Interpretation of source data
2.18

- 1 Each chart carries a statement, below the title, referring to the origin of the data used to compile the chart. Where known, sources of hydrographic information are shown by means of a source diagram. (See example below).



Source Diagram (2.18)

- 2 The source diagram is a scaled replica of the chart, showing the coverage, dates, scales and authority for the various types of source material used. Black stipple is used in source diagrams to highlight particular areas, for example; unsurveyed areas or surveys with sidescan sonar. The source diagram may also show areas of shallow banks, or routing measures, to assist in relating the sources to the chart. Where insufficient information is available to include a source diagram, details of the source material used for the chart are given in a written summary.
- 3 The data is a guide to the dependability of a survey. As the surveyor's instruments and techniques have improved so he has been able to increase the accuracy and completeness of his work. Source Diagrams on Admiralty Charts and ARCS show the date, scale, and source of survey, to permit mariners to assess the content against the advice in the following paragraphs. ENCs do not have Source Diagrams; instead, they include provision for the population of data fields with information about the reliability of "objects" (see 1.35). The object "Category of Zone of Confidence" (CATZOC) in ENCs gives an estimate of the reliability of source data (at the time of survey) related to five quality categories for assessed data (ZOC A1, A2, B, C and D) with a sixth category for data which has not been assessed (ZOC U). Maintained Depth areas are encoded as ZOC A1 in ENCs. At present, many ENCs have all, or most, data populated as category U (unassessed).
- 4 The categorization of hydrographic data quality is based on three factors: Position accuracy, Depth accuracy, Seafloor coverage (certainty of feature detection), as shown in the following table.

CATEGORY OF ZONES OF CONFIDENCE
(ZOC TABLE)

1	2	3	4
ZOC	Position Accuracy	Depth Accuracy	Seafloor Coverage
A1	± 5m	= 0.5m + 1% depth	Full seafloor coverage. All significant features detected and depths measured.
		Depth (m) Accuracy (m)	
		10 ± 0.6	
		30 ± 0.8	
		100 ± 1.5	
		1000 ± 10.5	
A2	± 20m	= 1.0m + 2% depth	Full seafloor coverage. All significant features detected and depths measured.
		Depth (m) Accuracy (m)	
		10 ± 1.2	
		30 ± 1.6	
		100 ± 3.0	
		1000 ± 21.0	
B	± 50m	= 1.0m + 2% depth	Full seafloor coverage not achieved; uncharted features, hazardous to surface navigation are not expected, but may exist.
		Depth (m) Accuracy (m)	
		10 ± 1.2	
		30 ± 1.6	
		100 ± 3.0	
		1000 ± 21.0	
C	± 500m	= 2.0m + 5% depth	Full seafloor coverage not achieved; depth anomalies may be expected.
		Depth (m) Accuracy (m)	
		10 ± 2.5	
		30 ± 3.5	
		100 ± 7.0	
		1000 ± 52.0	
D	Worse than ZOC C. Full seafloor coverage not achieved; large depth anomalies may be expected.		
U	Unassessed		

- 5 All conditions in columns 2-4 of the table must be met for a ZOC category to be determined. ZOC A1 will apply only to those areas surveyed to exceptionally stringent conditions for very special reasons. Modern surveys of critical areas will usually carry ZOC A2 classification. ZOC A1 and A2 require very high accuracy standards which were rarely achieved with technology available before about 1980. Therefore, many sea lanes which have been regarded as adequately surveyed may carry a ZOC B classification.
- 6 ZOC C is a very broad category which covers a range of surveys, from those which may be very thorough but just fail to meet an accuracy criterion, to those which are very scant in coverage. The existence of uncharted features hazardous to surface navigation will vary from situation to situation. The mariner should further assess the quality of data in these areas, based on detail shown on the ENC such as approximate soundings and seafloor character.
- 7 It is important to note that ZOC categories apply to the time a survey was executed. As time elapses, the confidence that can be placed in accuracy of the data

will diminish, particularly in areas of mobile or otherwise unstable seafloor. Within ENCs, the object "Quality of Data" (M_QUAL) may be attributed with dates for survey start and end (SURSTA & SUREND), which will enable the mariner to make some estimate of the possible changes to depth which may have taken place since the survey was carried out, guided by the character of the seafloor in the area.

8 A few hydrographic offices are replacing the traditional Source Diagram on paper charts with ZOC Diagrams. Consequently, in derived charting areas, these are now appearing on Admiralty paper charts and ARCS (for example, on charts around Australia). At present, the date is not usually given in paper chart ZOC Diagrams so it is essential that the mariner treats any ZOC value with due caution, taking account of the character of the seafloor.

9 All the following remarks about sources apply to data included on paper charts, ARCS and ENCs.

2.19

1 Many of the earliest surveys were primarily exploratory, concerned with the finding and locating of undiscovered lands. Indeed, until about 1850 more attention was paid to fixing the coast than to any systematic form of sounding.

On charts derived from exploratory surveys, the soundings are often scattered, with irregular gaps between them, and enclosed by incomplete depth contours. On those derived from leadline surveys, soundings may be regular out to about the 20 m depth contour, but are usually sparse thereafter.

2 Charts based on sketch and running surveys, which were frequently used until about 1850, and sometimes thereafter, should be used with considerable caution.

From about 1864, when steam finally replaced sail in British surveying ships, regular lines of soundings became the established practice, though inshore sounding remained less systematic until oars and sail were replaced by the first power-driven boats carried by surveying ships soon after 1900.

1 Lead and line were the only means of obtaining soundings until the echo sounder came into general use in British ships in about 1935. Attention is sometimes drawn in the title or Source Diagram to the use made of leadline surveys.

Sidescan sonar (2.27) came into general use in British surveying ships in 1973.

The maximum draught of vessels in use at the time of a survey, also affected the depths to which soundings were carried, and the depths of shoals examined. The draught of a ship rarely exceeded 6 m until the launching of *SS Great Eastern*, with an intended draught of 9.1 m, in 1858. Draughts of 15 m were considered a maximum until about 1958. Now, supertankers may draw as much as 30 m.

Survey standards and relevant depths have been closely allied to what has been considered necessary for safe surface navigation and the maximum draught of vessels transiting the world's seas.

2.20

Yet, in spite of the advances in surveying methods and the many reports received from ships on passage, undiscovered dangers, particularly to deep-draught vessels, must still be expected even on well-frequented routes.

Walter Shoals, on the route from Cape of Good Hope to Selat Sunda, with 18 m over them and with oceanic depths stretching 100 miles or more around them, were not discovered until 1962.

2.21

1 It is important not to be deceived by the appearance and style of modern charts which do not show with such clarity as older charts those areas where information is sparse. This particularly applies to the small scale charts of the International series (1.18). With all metric charts, which may often contain only the information from old charts redrawn to the new style, it is important that the date of the survey be considered before the appearance of the chart. A chart drawn from an old survey with but few soundings may have had further soundings added to it later from ships on passage, thus masking the inadequacy of the original survey.

2 On modern charts, where soundings are regular, even if shoal and depth contours can be inserted with confidence, fewer soundings are shown than on older charts which included most of the soundings on a survey.

2.22

1 Where the seabed is unstable, differences between recent and older surveys used for a chart will sometimes be apparent from discontinuities in depth contours and breaks in the colour tints. If the latest survey has been inserted by Notice to Mariners block update, it will not normally be shown on the Source Diagram on the chart.

Depth criteria for Dangerous and Non-Dangerous Wrecks

2.23

1 Modern charting standards specify that new wrecks will be charted showing the least depth over them, if known. Depicting wrecks in this manner, in preference to the use of the symbols for dangerous (⊕) and non-dangerous (+) wrecks, provides the mariner with the maximum useful information, and allows him to assess what degree of danger the particular wreck represents for his particular vessel.

2 Mariners should be aware, however, that the symbols for dangerous and non-dangerous wrecks remain in common usage on charts published by the UKHO and other hydrographic offices and, furthermore, that the different hydrographic organisations may use different criteria to differentiate between these two classifications of wreck.

3 The depth criteria used by the UKHO to differentiate between the two classifications of wreck have changed over the years. If the depth of water over a wreck was thought to be equal to, or less than, the depth criteria in the table below, then the wreck would have been charted as dangerous (⊕).

Date	Depth criteria
Before 1960	14.6 m (8 fathoms)
1960 - 1963	18.3 m (10 fathoms)
1963 - 1968	20.1 m (11 fathoms)
1968 onwards	28.0 m (15 fathoms)

The progressive changes above were a reflection of the ever increasing sizes of vessel which were entering service during the period.

2.24

1 Mariners should be aware, however, that circumstances exist which result in wrecks with a depth of less than 28 m over them being charted as non-dangerous wrecks (less-dangerous wrecks might be a more appropriate term) on present day editions of Admiralty charts. Such circumstances include:

2. Extracts NP51 New Zealand Pilot

W of South West Cape, and a reef, extending 1½ cables SW, thence:

W of Cape Lovitt (2½ miles NNW), the W point of Auckland Island, thence:

W of Detached Rock (4 miles N), the outermost of several rocks off Bristow Point, thence:

W of Disappointment Island (50°36'·5S 165°58'·0E) a rocky, generally inaccessible island, which has the appearance of three sugarloaf hills from a distance.

- 2 Thence the track leads generally NE, passing (with positions from North West Cape (11.71)):

NW of Invercauld Rock (2 miles SSW), thence:

NW of Column Rocks (3 cables W), thence:

NW of Black Head (3 miles ENE), a dark-looking promontory with a deep cavernous indentation at the base, thence:

Clear of Bristow Rock (10 miles NE), which seldom breaks and in the vicinity of which there are heavy overfalls.

The track then leads to a position NE of Enderby Island.

Side channels

Rose Island

11.75

- 1 **General Information** On both sides of Rose Island (50°31'S 166°15'E) there are narrow channels leading into Port Ross but the tidal streams set very strongly through them and the sea occasionally breaks right across. Passage is not recommended. See the chart.

Between Ocean Island, 8 cables ESE of Rose Island, and Tucker Point, 1½ cables SSW, there is a narrow channel with a depth of 4 m across a shoal flat.

Passage east of Kekeno Point

11.76

- 1 **Directions.** Passage E of Kekeno Point (50°35'S 166°17'E) cannot be recommended, but if attempted by small craft, care should be taken to avoid kelp or ripples. The track passes, from N, (with positions from Kekeno Point):

E of a depth of 5·5 m (4 cables NNE), thence:

Clear of a depth of 6·4 m (8½ cables ENE), and:

- 2 W of Dundas Island (1½ miles ENE), situated at the inner end of a reef marked by breakers in heavy weather, on which lies Green Island, 1½ miles ENE of Dundas Island, thence:

W of a dangerous rock (1¼ miles SE), lying 4 cables WSW of Blanche Rock.

Passage east of Disappointment Island

11.77

- 1 A strong current sets between Disappointment Island (50°36'·5S 165°58'·0E), Sugar-Loaf Rocks, 1 mile E and Auckland Island, 3½ miles E. Although the passage is deep, it is only suitable for boats even in fine weather owing to uncharted pinnacle islets and rocks.

Anchorages and harbours

Chart NZ 2862 plan of Enderby Island to Smith Harbour

Port Ross

11.78

- 1 **Description.** Port Ross is situated at the NE end of Auckland Island. The harbour is approached from E and entered between Enderby Island (50°30'S 166°18'E) and

Ewing Island, 1 mile S. There is a least charted depth of 16·4 m, 2½ miles within the entrance.

Topography. The S coast of Enderby Island is formed of basalt columnar cliffs, topped with a scrub-covered tableland. At a gap in the cliffs, at the head of Sandy Bay, there is a sandy beach extending to a line of low dunes composed mostly of shell. These are the only dunes on Auckland Islands.

- 2 The harbour is bordered on both sides by high land, covered with trees and large ferns to the water's edge; the bays are bordered by basaltic rocks. Deas Head (50°31'·6S 166°13'·5E), formed by high basaltic columns, is remarkable. Shoe Island, 7 cables S of Deas Head, is bold.

Local magnetic anomaly. Shoe Islet is highly magnetic.

Local weather. At the harbour entrance violent squalls blow down from the hills during strong W winds.

- 3 **Directions.** The harbour is entered S of strong overfalls and dangerous eddies off Pebble Point, the SE point of Enderby Island. The passage between Ewing Island and Frenchs Island, 5 cables SW, is not recommended as it is obstructed with very thick patches of kelp and has only been partially surveyed.

The bays in the shores of the harbour are easy of approach. See 11.75 for other entrances to Port Ross.

- 4 **Anchorages and landing place.**

Sandy Bay (50°30'S 166°17'E) is a convenient temporary anchorage, being protected from all except SE winds, with holding ground of tenacious clay. An anchorage suitable for vessels of coaster size is shown on the plan.

- 5 **Terror Cove** (50°32'·2S 166°13'·0E) and Erebus Cove, close S, afford nearly landlocked anchorage, in the positions shown on the plan. Sir James Ross anchored HMS *Terror* and fixed his observatory in Terror Cove in 1840. There is a good landing beach on the shore of Erebus Cove, W of Johnson Point, which separates the coves. See 1.49 regarding restrictions on landing.

- 6 **Laurie Harbour** is entered SE of a rocky shoal, extending 2½ cables E of Beacon Point (50°32'·9S 166°13'·0E), which has a least charted depth of 4 m. The harbour is almost landlocked and affords the most secure anchorage in Port Ross, in the position shown on the plan.

Smith Harbour

11.79

- 1 **Description.** Smith Harbour (50°42'S 166°08'E), which is landlocked and safe, has a least width of 2 cables.

Directions. The harbour is approached from E on a recommended route, as shown on the plan.

Anchorage can be obtained in the entrance to Smith Harbour, in 54 m, and in the SW part of the harbour, in 6 to 17 m. The anchorage positions are shown on the plan.

Norman Inlet

11.80

- 1 **Description.** The entrance to Norman Inlet (50°43'S 166°10'E) is not easy to identify lying N of a 13·6 m patch, marked by kelp, S of which lies the entrance to Hanfield Inlet.

Directions. The inlet is approached from E on a recommended route, as shown on the plan.

Useful mark:

Shag Rock, 7½ cables N of the entrance, which is a large, flat, black rock.

- 2 **Anchorage** may be obtained as follows:

In the entrance, in about 53 m, as shown on the plan. About 2 miles inside the entrance on a bank, about 3 cables wide, marked by kelp, which extends across the inlet, in 8.9 to 14.5 m.

At the head of the inlet, where there is a width of 2 cables. This is a perfectly landlocked anchorage in 13 to 22 m.

- 3 **Caution.** The land on both sides of the inlet is high and at the head are three deep gorges which draw the wind from various directions, causing gusts and whirlwinds of great strength and making the safety of vessels at anchor doubtful.

Hanfield Inlet

11.81

- 1 **Description.** Hanfield Inlet (50°44'S 166°10'E) is entered between West Head and East Head. The inlet has two arms separated by Middle Head, 1 mile within the entrance. In North Arm there is a small sandy beach and in South Arm there is a magnificent waterfall, 1 mile WSW of Middle Head. The inlet is open NE, but the wind seldom blows from this quarter.

- 2 **Directions.** The inlet is approached from E on a recommended route, as shown on the plan.

Anchorage can be obtained in North Arm in 13 m. The holding ground S of Middle Head is bad. See the positions shown on the plan for South Arm.

Waterfall Inlet

11.82

- 1 **Description.** Waterfall Inlet anchorage is entered through a channel, 1 cable wide, N of Shelter Point (50°49'0S 166°12'7E). The channel opens into a basin about 2½ cables wide, which has bold shores and is free from dangers, except for some drying rocks among the inner part of a patch of kelp off Shelter Point.

Anchorage can be obtained near the S shore of the basin, in about 6.4 m mud, well sheltered from all winds.

Carnley Harbour and Western Arm

11.83

- 1 **Description.** Carnley Harbour is entered from E between Cape Farr (50°51'7S 166°13'4E), and Gilroy Head, 1½ miles SSW and forms the E part of the channel between Auckland Island and Adams Island. From its E entrance the harbour extends 6½ miles WNW to Flagstaff Point, the S point of Musgrave Peninsula. There it is joined by Western Arm which separates the W part of Auckland Island from Adams Island.

- 2 At the W end of Western Arm, Victoria Passage, about ½ cable wide, leads to the open sea S of Monumental Island (50°50'S 165°55'E), in a least depth of 3.7 m (50°50'2S 165°55'2E).

Between Musgrave Peninsula and McClure Head, 8½ cables WNW, the harbour N is divided into two inlets, North Arm and Musgrave Harbour, by Circular Head. North Arm, to the E, is spacious.

Tidal levels. Mean spring range about 1.0 m; mean neap range about 0.5 m. See information in *Admiralty Tide Tables*.

- 3 **Local magnetic anomaly.** Deflection of the magnetic compass is reported to occur in Carnley Harbour.

he E entrance is exposed to heavy outflow from the harbour. When the directly in or out, violent gusts often ons off high, precipitous land on both

sides of the entrance. In bad weather, the wind comes down over high land in severe squalls and whirlwinds, which are dangerous for boats under sail.

- 4 **Anchorage.** Depths are generally too great for anchorage in Carnley Harbour and Western Arm. Anchorage, sheltered from S wind and heavy swell, may be found in the following positions, in about 41 m, as shown on the chart:

Tagua Bay (50°49'S 166°05'E), mud, and; Camp Cove (50°51'S 166°01'E).

In 1939, HMS *Leander* (7270 tonnes) anchored in 46 m about 1 mile SE of Figure-of-Eight Island (50°45'9S 166°01'4E). The vessel remained overnight without dragging, in spite of gales.

- 5 There is good anchorage within Figure-of-Eight Island in 7 to 18 m. The channel SW of the Island is obstructed by reefs and the anchorage should be entered passing NE of a 2.7 m rocky shoal extending about 2 cables SE of the island.

Landing can be made in the NW part of Tagua Bay as shown on the chart.

Fly Harbour

11.84

- 1 **Anchorage.** According to a report in 1890, Fly Harbour (50°54'S 166°06'E) affords perfect shelter inside a remarkable bar of kelp which extends across the entrance.

CAMPBELL ISLAND

General information

Chart NZ 3111 plan of Campbell Island

Description

11.85

- 1 Campbell Island or Motu Ihupuku (52°32'S 169°11'E) lies on Campbell Island Rise, about 350 miles S of South Island, New Zealand.

The waters off the E coast of Campbell Island between Bull Rock (52°28'S 169°14'E) and South Point, 6½ miles S, are deep and clear of charted dangers about 5 cables offshore. They afford shelter in Northeast Harbour, 2½ miles S of Bull Rock, and in Perseverance Harbour, 3½ miles farther S.

- 2 In the waters N, W and S of Campbell Island, between Bull Rock and South Point, there are a number of islands and rocks lying up to 2 miles offshore. There is no shelter in these waters.

Topography

11.86

- 1 The island is of volcanic origin, the coasts are bold, and the rocks and islets lying off them have remarkable forms. On the NW coast, Mount Azimuth, 4 miles SW of Bull Rock, rises vertically as part of an almost continuous high plateau which forms the N end of the island. Elsewhere hills of less elevation and low ground back the remainder of this coast. Mount Lyall, 4½ miles SSW of Bull Rock, extends as an E/W ridge separating Northeast Harbour (52°31'S 169°12'E) from Perseverance Harbour, 3½ miles S.

Appendix 3

NZ Navy Minute dated 7 May 2013

**ROYAL NEW ZEALAND NAVY
HMNZS WELLINGTON
MINUTE**

WGN 3253-0001

07 May 13



CO-WGN 30/5

ANCHORING AT MACAULEY, CHEESEMAN AND CURTIS ISLANDS**Reference:**

- A. BR 45 Vol 1(2), Chap 14
- B. NZBR 46

Introduction

1. This minute seeks to outline the experiences of RNZN Ships and HMNZS Wellington (WGN) in particular of anchoring at Macauley, Cheeseman and Curtis Islands.
2. Substantial geological evidence exists to suggest that continuous volcanic activity occurs among the Kermadec Islands chain. The islands are lifting at a rate which is geologically rapid; all depths are to be treated with considerable caution and checked against other sources of information.

Macauley Island

3. Anchoring is possible around the island with WGN on her recent trip anchoring on the North East (NE) side of the island. The bottom type WGN anchored in was rock, not good holding ground however; following the guidelines of ref A WGN remained at anchor for four hours allowing Geographic Nuclear Service (GNS) to conduct their tasks. This was only possible because the ship was in the lee of the island with a NE wind and swell.
4. During WGN second visit to the island the swell was from the NE and this made anchoring near the boat landing sites unachievable. To get GNS ashore again WGN launched the sea boats and remained underway until required to uplift GNS. Any significant swell creates large surf requiring boat drivers and swimmers to exercise caution when landing.

Cheeseman and Curtis Islands

4. Anchoring is not advised due to the rapid change of depths and volcanic activity. WGN did not pass closer than 6nm from the islands during her recent trip and ref B recommends that the fragility of the whole island is such that landing is not to be made unless of scientific necessity.
5. A boat landing is possible on the NE side of the Curtis Island if required.

6. Curtis Island is an active volcano that is considered second in activity only to White Island.



M.J. WILSON
SLT, RNZN
NO WGN

Enclosure:

1. NZBR 46, Article 0109
-

0109. Kermadec Islands

Updated by OTAGO on 14 Jul 2011.

General

1. **Historical.** The Kermadec chain of volcanic islands consists of L'Esperance Rock, Curtis, Cheesemen, Macauley and finally Raoul Islands. D'Entrecasteaux was a French explorer who discovered part of the chain in 1773 and named them after his second in command. Raoul gets its name from D'Entrecasteaux's navigator. Macauley and Curtis were discovered by LT Watts RN, in 1778. In 1886 the islands were annexed to Great Britain and the administration was passed to New Zealand in 1887.
2. **Political.** The islands are very valuable ecologically having many unique features; indeed the rarity of some of the island plant species must be emphasised to shore parties prior to disembarking. The Kermadec Chain is on the border of the Pacific and Indian continental plates resulting in interesting geological features including visible volcanic activity on Curtis Island.
3. **Environmental.** The marine environment of the Kermadec Island chain is protected by NZ's largest Marine Reserve which surrounds all islands in the chain out to the 12nm Territorial Limit. Anchoring is allowed provided that great care is exercised. It is an offence to discard any rubbish into the Reserve and fines up to NZ\$250 000 and/or six months imprisonment may be enforced.
4. **Residents.** The Department of Conservation (DOC) has a base on the northern side of Raoul Island where an average of eight DOC workers/volunteers reside on a 6-8 month rotation.

Administration

5. **Sullage.** Not applicable.
6. **Communication.** DOC have a satellite phone on Raoul Island. Daily contact is also made with New Zealand via radio and email. VHF is also supported. Raoul Island monitors VHF 16. Raoul Island can also be contacted via email: raoulsatmail@ruralinzone.net.

Navigation

7. **General.**
 - a. Substantial geological evidence exists to suggest that virtually continuous volcanic activity is occurring along the Kermadec chain. The islands are lifting at a rate which is geologically rapid. Over the last seven years Cheeseman and Curtis Islands have lifted some seven metres. Depths are to be treated with considerable caution.

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- b. L'Esperance and L'Havre Rocks. Boat landing is possible on E side of L'Esperance Rock in fine weather and has been used. SOUTHLAND winched scientists onto L'Esperance Rock. SOUTHLAND's helicopters only sighted L'Havre Rock when a larger than normal wave broke over it. SOUTHLAND remained some two miles to the SE of L'Esperance Rock moving slowly N.
- c. Curtis and Cheesemen Islands. Curtis Island is an active volcano probably second only to White Island in activity. The crater has boiling mud pools, hot springs and many funnel holes exist around the crater rim. The island is covered with ice plants and the soil is so heavily burrowed by nesting terns that it is impossible to walk without collapsing burrows. The fragility of the whole island is such that landing is not to be made unless of scientific necessity. During SLDs visit one geologist suffered burns when his foot broke through the crust in the crater into boiling mud. The ship considered passing between Curtis and Cheesemen Islands but the geologists embarked strongly advised against this due to the lifting phenomenon. Boat landing is possible on the NE side. The site of the survivors' depot at the NW corner of the crater is discernible if one is aware of the spot, however, no trace of the depot remains.
- d. Macauley Island. An extinct volcano covered in lush grass and some shrubs. Macauley is of scientific importance as an example of natural regeneration following the eradication of the goats in 1973/1974. The island abounds in parakeets, and kiore (*rattus exulans* – the Polynesian rat) is also common and points to early Polynesian occupation. Landing is possible by boat on the NE side. Shallow water at 30 fathoms exists to the NE of Hazard Islet. Considerable turbulence was observed between the island and McDonald Rock and this was attributed to a deep E current striking the steeply rising island and water being forced to the surface. The cliffs on the NW of the island are spectacular.
- e. Raoul. Anchorages as indicated on Chart BA 568 are available dependent on weather. A summary of the anchorages and points of interest used during RES' two visits in 2007 are as follows:
 - (1) Boat Harbour - Anchorage: Sheltered from SW swell. Minimal shelter from easterly swell. Reasonable holding ground of shingle, pebbles and small volcanic rocks. Good area for transferring stores to Fishing Rock
 - (2) Fishing Rock - Landing: Sheltered from southerly swell. Is the only place where heavy stores can be offloaded by boat. Stores craned ashore from ship's boat using manual derrick, then up the hill on a 'foxway'. The speed of store transfer can be affected by the speed of the shore team, with a build up of stores on the landing area of Fishing Rock a possibility. Suitable in up to Sea State 3; however a skilled boat operator is needed to keep the boat steady against the landing area with a heavy swell. The derrick on Fishing Rock extends out from the rocks so a fibreglass hull boat (J3 RHIB) can be used to transfer stores. For personnel transfers J3 RHIBS are not suitable as the boat is required to lean

Online Publication

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up against the rocks. In May 2011 OTA had a zodiac embarked which helped with this. Personnel were transferred from the Ship via RHIB to the zodiac which was positioned just off Fishing Rock. Once personnel were transferred into the zodiac the zodiac completed the transfer ashore by resting against Fishing Rock. The Rock can be quite dangerous as the foot/hand holds are slippery and are not evenly spaced.

Anchorage: OTA anchored 500m directly North of Fishing Rock in May 2011 to conduct the re-supply. While uncomfortable at times the Ship held her anchor well. In May 2011 OTA anchored 300m west of the chartered position on the western side of Mayer Island. This is a common anchorage for vessels visiting Raoul Island. OTA held her anchor well in this position.

Photo of Derrick on Fishing Rock, Raoul Island

- (3) Boat Cove - Landing: Sheltered from all conditions, except a south-easterly swell at the landing itself. Can be exposed when launching and recovering RHIB. It is only suitable for personnel and light stores as there is a fair distance from the landing back to the track. The South-East Anchorage is also in this area, however was not able to be assessed.
- (4) Denham Bay - Anchorage/Landing: Good option for anchoring when too rough on the north side. Landing at the far ends of the beach is not too difficult in calm weather, however will prove difficult in anything but a small swell. From the landing it is approximately a 45 minute walk to the DOC accommodation from Denham Bay hut. (The first 20 minutes is almost vertical).

8. Approaches. See paragraph 5 a to e.

9. Anchorages. See paragraph 5 a to e.

10. Berthage. See paragraph 5 a to e.

Communications

11. Air.

- a. L'Esperance and L'Havre Rocks. These rocky outcrops are iaw Chart NP 59. During SLDs visit, winds were from the W and no landing sites were available. In E wind conditions, small but adequate areas exist for wheels light operations. A large bird population inhabits these islets. In 1989 WNs Wasp placed drums of A1 jet fuel on L'Esperance to replace ageing stocks.

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- b. Curtis and Cheeseman Islands. Despite the land being undermined by burrowing birds, suitable landing sites exist on Curtis Island. In places the surface appears smooth and firm however, it is quite fragile. An extreme bird danger exists. Cheeseman Island was not visited. It is smaller than Curtis with similar topography to L'Esperance Rock but small landing sites do exist. In 1989 WNs Wasp placed drums of A1 jet fuel on Curtis Island to replace ageing stocks.
 - c. Macauley Island. This island is sloping and rolling to the E. It has a firm surface structure with lush grass coverage. The W bluff is precipitous and creates turbulence in light NW winds. The remainder of the island is sheltered in such conditions and no problems were encountered.
 - d. Raoul. A large gentle landing site exists in close proximity to the weather station; however, in other than light air conditions turbulence exists throughout the day. In moderate W winds, large variations in wind conditions will be encountered on the leeward side. In strong winds, flying operations within the crater area will experience severe turbulence. Elsewhere on the island normal ridge wave precautions are adequate. Small landing sites exist around the island; the easiest being at Denham Bay. Caution is to be exercised on approaching because of the numerous new huts and the bird strike hazard during the nesting season. Flying with underslung loads is best done in the early morning when turbulence is less.
12. Road/rail. There is a tractor and trailer available for the transport of stores etc from the top of the flying fox to the camp.

Recreation

- 13. Sights. During the visit by WN and END, a two helicopter restore was effected using parties ashore. Later a number of personnel went ashore to have a look around the island, which was welcomed by the permanent staff.
- 14. In June 2011 OTA sent a small party ashore and were given a tour of the crater lake and DOC estate. A shared lunch with OTA ships CO and DOC workers was had at the DOC estate followed by a game of volleyball.
- 15. In June 2011 OTA Ship's Company went recreational diving off the west coast of Meyer Island. The water was very clear and alot of marine life was observed. There were a considerable number of reef sharks in the area however no issues were encountered. Depending on the season a number of dangerous shark species are known to frequent the area.

Miscellaneous

- 16. Liaison. Management of Raoul Island is the responsibility of the DOC, including the operation of the meteorological station. Notice of all visits to the Kermadec Islands by RNZN vessels is given in writing to the DOC. Staff Officer Current Operations (SOCO) does all planning on behalf of RNZN units and will liaise directly with a representative from the DOC who in turn deals with the various

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other government and civil scientific organisations with an interest in the Kermadecs. Ships will not normally be involved in direct planning with the DOC until immediately prior to embarking of the expedition stores and personnel. It is however, important to establish an agreed manifest of stores to be embarked for Raoul resupply as early as possible, and to establish convenient delivery dates and times of the stores to the ship. If possible a DOC representative is to be onboard during embarkation to liaise between the ship and suppliers.

17. General comments. Visiting ships are advised that Raoul Island personnel are always keen to purchase large quantities of alcohol and contact should be made prior to sailing from previous port to ascertain their requirements. Although part of New Zealand, the Kermadecs are treated as overseas by the agriculture department and material from them has to be handled accordingly.
18. Prior to personnel landing on Raoul Island all gear including footwear is to be checked for dirt, seeds and any other biological matter or organisms that could threaten the fragile and unique biodiversity of the Islands. A DOC worker will normally check all arriving visitors on arrival at Fishing Rock to ensure compliance.

Appendix 4

Extracts Auckland Council Navigation Safety Bylaw and Controls 2014

56 Areas of restricted access for large vessels

(1) The Harbourmaster may specify an area of navigable water as restricted to large vessels and specify controls for the use of the area.

(2) The owner and/or person in charge of a large vessel must not allow their vessel to enter into an area of restricted access to large vessels without the prior written approval of the Harbourmaster.

Explanatory note: The controls made under the Navigation Safety Bylaw 2014 contain maps showing areas of navigable water permanently reserved by the Harbourmaster as restricted access to large vessels.

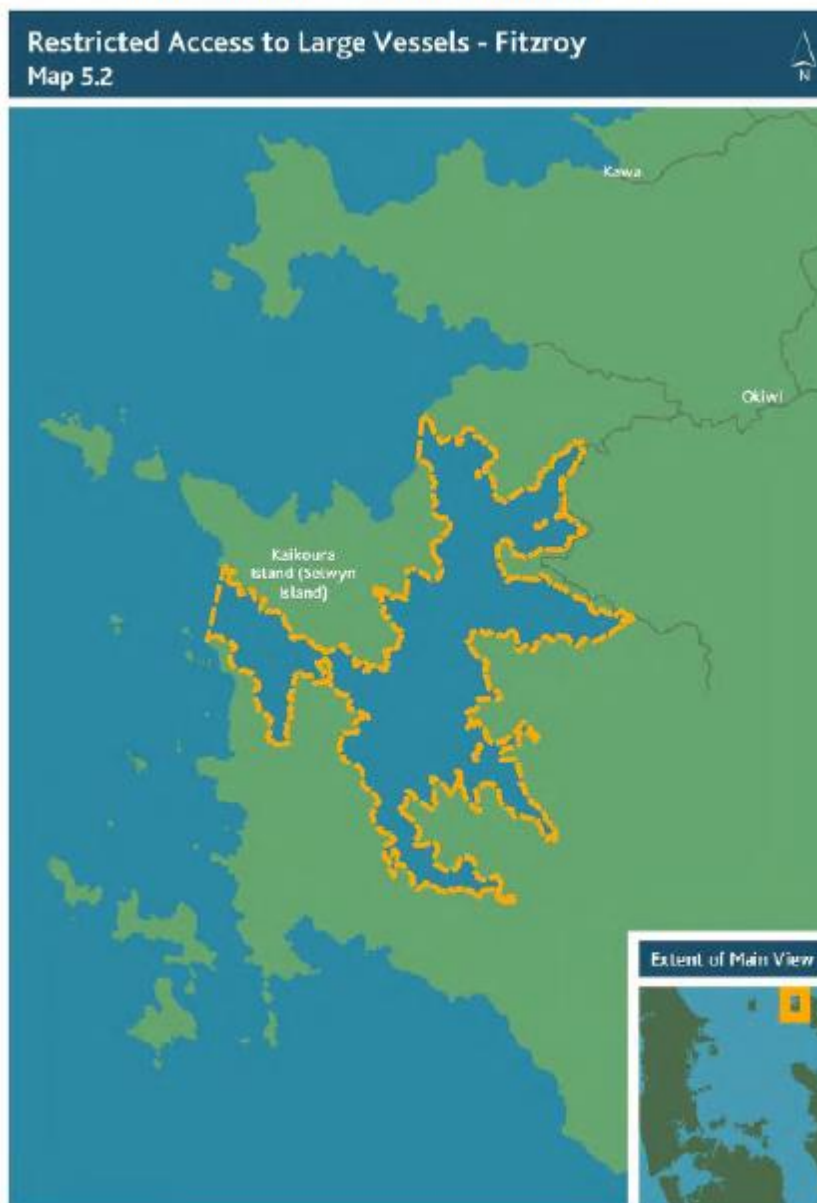
Area reserved as restricted access to large vessels.



Area reserved as restricted access to large vessels.



Area reserved as restricted access to large vessels.



Area reserved as restricted access to large vessels.



36 Prohibited and restricted anchorages

(1) Except in an emergency, a person must not:

(a) anchor or moor a vessel within a prohibited anchorage under this bylaw without the prior approval of the Harbourmaster;

(b) anchor a vessel within a restricted anchorage under this bylaw unless the vessel is kept ready to make immediate departure and an anchor watch on board the vessel is maintained at all times.

Explanatory note: The controls made under the Navigation Safety Bylaw 2014 contain maps showing areas of navigable water permanently reserved by the Harbourmaster as prohibited and restricted anchorage areas.

The restrictions do not apply to commercial vessels that have been directed to use one of the named anchorages by the Harbourmaster. Vessels may apply to the Harbourmaster for approval to anchor in these areas for commercial, engineering, construction, or scientific purposes. Requests must be directed to the Harbourmaster's office.

Area reserved as prohibited anchorage area.



There are no markers in the sea area. The exact area is defined by the following Land Information New Zealand (LINZ) navigational charts:
 NZ 532 - Approaches to Auckland
 NZ 5322 - Auckland Harbour East
 NZ 5323 - Auckland Harbour West

Area reserved as prohibited anchorage area.



The prohibited anchorage area is that sea area in Matiatia Bay between the lines described as follows:

- (i) from the northern edge of the boat ramp located to the north of the old Matiatia Wharf to the headland (Mokemoke Point) on the northern side of the entrance to the bay;
- (ii) from the southern edge of the boat ramp located to the south of the new Matiatia Wharf to the headland (Te Whetumatarau Point), on the southern side of the entrance to the bay.

Area reserved as prohibited anchorage area.



There are no markers in the sea area. The exact area is defined by the following Land Information New Zealand (LINZ) navigational chart:
NZ 5322 - Auckland Harbour East

Area reserved as prohibited anchorage area.



There are no markers in the sea area. The exact area is defined by the following Land Information New Zealand (LINZ) navigational chart:
NZ 5323 - Auckland Harbour West

Area reserved as restricted anchorage area.



There are no markers in the sea area. The reserved anchorage area is that area of the Waitematā Harbour contained to the west of a line drawn from the eastern side of North Head to the point where Orākei Wharf joins from the land at Takaparawha Point and east of a line drawn along the west side of the Auckland Harbour Bridge.

Appendix 5

Harbourmaster Directions

Environment Canterbury Harbourmaster's Direction 1-12 Akaroa Harbour – Area of Restricted Access

1. Preamble

This direction is issued pursuant to section 33F of the Maritime Transport Act 1994, to define the area of Akaroa Harbour Area of Restricted Access, and prescribe the requirements for the manner in which the vessels will navigate within this area.

2. Definitions

“Akaroa Harbour Navigation Safety Operating Requirements” – means the most recent operating manual relating to the Akaroa Harbour issued by the Harbourmaster.

“Harbourmaster” - means a Harbourmaster appointed under section 33D of the Maritime Transport Act 1994..

“Vessel” - means any description of craft used in navigation

“Tonnage” - means the tonnage of the vessel as measured under the Universal Measuring System as defined in the International Convention for the Tonnage Measurement of Ships 1969

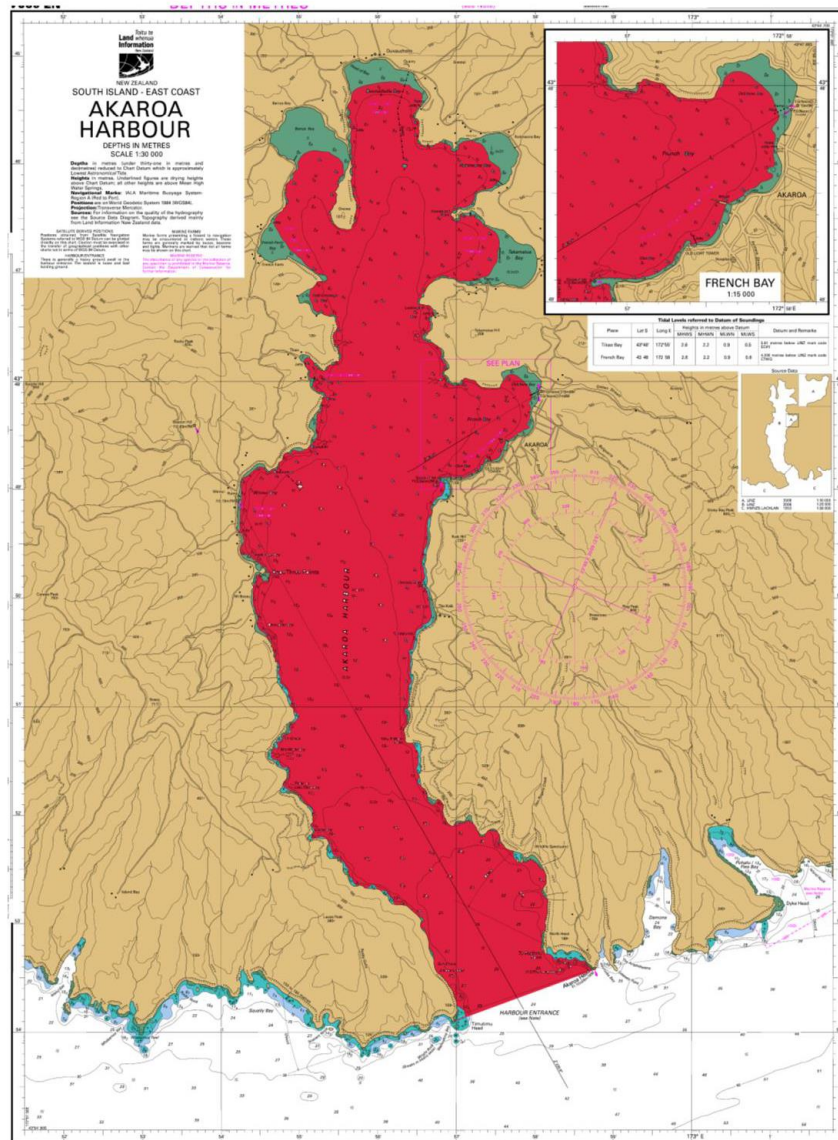
3. Application

These directions apply to any vessel:

- 500 gross tonnage or greater; or
- 40 metres length overall or greater; or
- Any vessel directed by the Harbourmaster.

4. Area Concerned

The area of Akaroa Harbour to the north of a line joining Timutimu Head and Akaroa Head.



Akaroa Harbour area of restricted access (shaded red)

5. Navigation Requirements

No vessel may enter into or remain within the area defined in 4. above without the prior permission of the Harbourmaster. A vessel granted permission to enter or remain within the area must operate in accordance with the Akaroa Harbour Navigation Safety Operating Requirements.

6. Previous Direction

All previous directions relating to the Akaroa Harbour are cancelled.

7. Liability

The Canterbury Regional Council shall not, in any case, be responsible for any loss or damage arising from the negligence of the master or crew of any vessel to which this direction applies, or for any loss, damage or incident involving the vessel.

Jim Dilley
Regional Harbourmaster
Environment Canterbury
September 2012

Environment Canterbury
Harbourmaster's Direction 1-13
Kaikoura Peninsula – Area of Restricted Access

1. Preamble

This direction is issued pursuant to section 33F of the Maritime Transport Act 1994, to define the area Kaikoura Peninsula-area of restricted access, and prescribe the manner in which the vessels will navigate within this area.

2. Definitions

"Kaikoura Peninsula Navigation Safety Operating Requirements" – means the most recent operating manual relating to the Kaikoura Peninsula issued by the Harbourmaster.

"Harbourmaster" - means a Harbourmaster appointed by Environment Canterbury under section 33D of the Maritime Transport Act 1994..

"vessel" - means any description of craft used in navigation

"tonnage" - means the tonnage of the vessel as measured under the Universal Measuring System as defined in the International Convention for the Tonnage Measurement of Ships 1969

3. Application

These directions apply to any vessel:

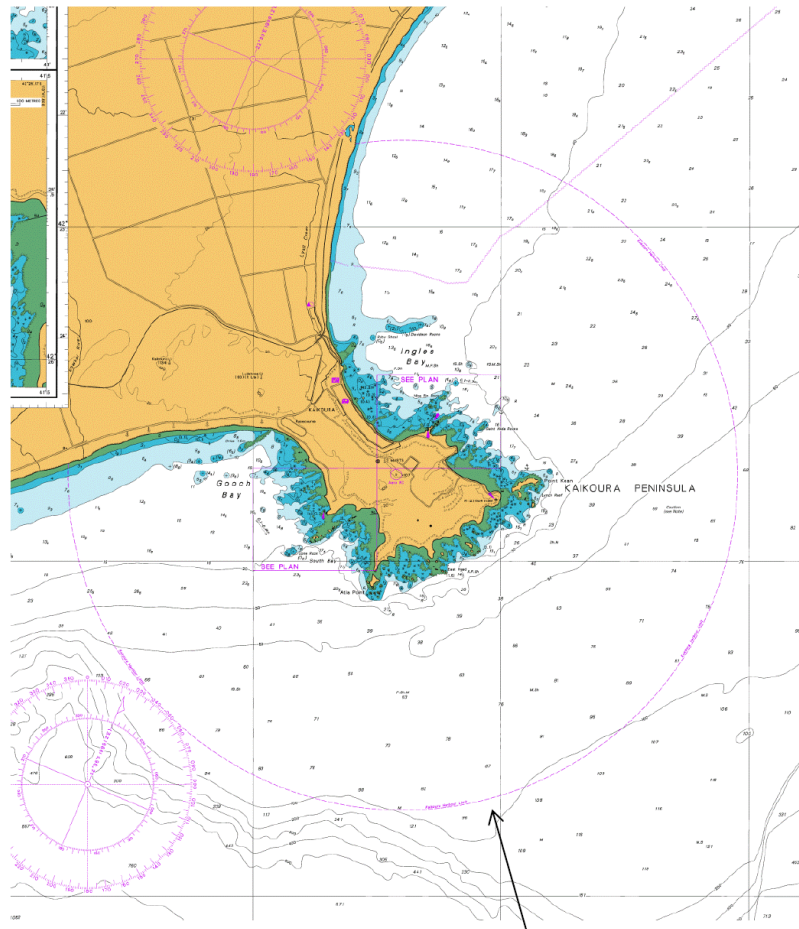
- 500 gross tonnage or greater; or
- 40 metres length overall or greater.

4. Navigation Requirements

No vessel may enter into or remain within the area defined in 5. (below) without the prior permission of the Harbourmaster. A vessel granted permission to enter or remain within the area must operate in accordance with the Kaikoura Peninsula Navigation Safety Operating Requirements.

5. Area Concerned

The area of the sea that falls within the arc of a circle of three nautical miles radius centred on the highest point (107m) of the Kaikoura Peninsula.



Kaikoura Peninsula area of restricted access boundary

6. Liability

Environment Canterbury shall not, in any case, be responsible for any loss or damage arising from the negligence of the master or crew of any vessel to which this direction applies, or for any loss, damage or incident involving the vessel.

Jim Dilley
Regional Harbourmaster
Environment Canterbury
2 August 2013

Amended 8 November 2013

**Chatham Islands Council
Harbourmaster's Direction 1-13 (amended)
Chatham Islands Area of Restricted Access**

Preamble

This Direction is issued pursuant to section 33F(c) of the Maritime Transport Act 1994. The direction establishes an area of restricted access around the Chatham Islands, and regulates which vessels may enter that area and the manner in which they must navigate.

This Direction replaces Chatham Islands Council Harbourmaster's Direction 1-15.

Definitions

automatic identification system or AIS - means an operational transceiver of class A or class B that complies with the requirements of the International Maritime Organisation.

gross tonnage or GRT - means the gross tonnage of a ship determined under Maritime Rules Part 48.6 or the tonnage measurement rules contained in Annex 1 of the International Convention on Tonnage Measurements of Ships 1969, as the case may be

Harbourmaster - means a person appointed Harbourmaster by the Chatham Islands Council under section 33D of the Maritime Transport Act 1994.

vessel - means any description of craft used in navigation

large vessel - means a vessel that is

- (a) 500 GRT or greater; or
- (b) 40 metres length overall or greater

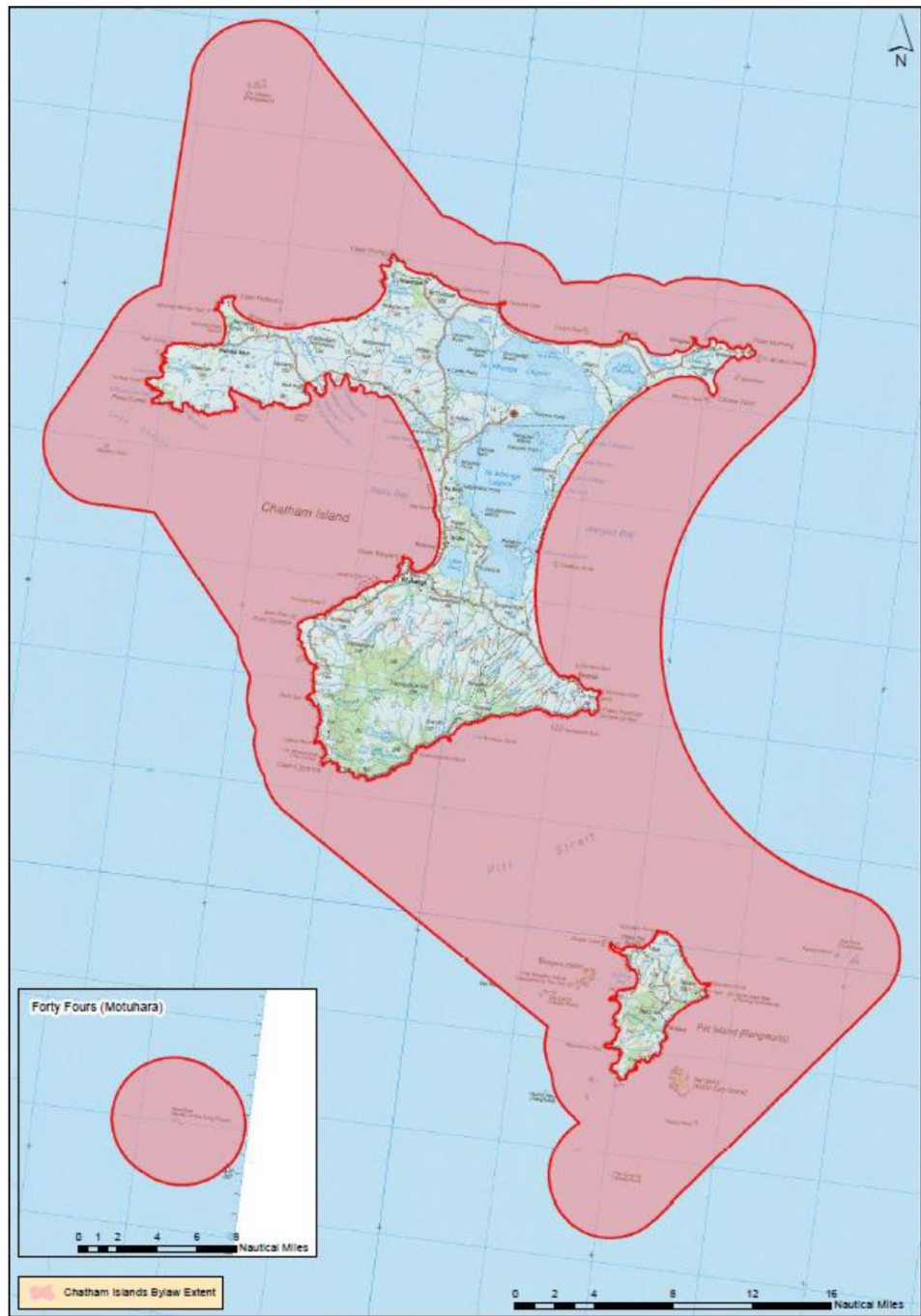
length overall - shall be as defined in Maritime Rules Part 40A

Requirement

No large vessel shall enter into, or remain within, the Chatham Islands Area of Restricted Access without the prior approval of the Harbourmaster.

Area

The Chatham Islands Area of Restricted Access (the Area) is all the sea area surrounding the Chatham Islands and off lying islands as shown below, and is the same area as that to which the Chatham Islands Navigation Safety Bylaw 2013 applies.



Automatic Identification System (AIS)

Every large vessel that enters into the Area must be fitted with an operational AIS that remains switched on and transmitting at all times.

Fees

A fee set by the Chatham Islands Council may be payable by large vessels entering into the Area. Details of the fee are available in the Chatham Islands Navigation Safety Bylaw.

Liability

The Chatham Islands Council shall not, in any case, be responsible for any loss or damage arising from the negligence of the master or crew of any vessel to which this direction applies, or for any loss, damage or incident involving the vessel.

A handwritten signature in blue ink, appearing to read 'Joshua Thomas', with a long horizontal flourish extending to the right.

Joshua Thomas
Harbourmaster
Chatham Islands Council
August 2013

Amended October 2015

Appendix 6

Extract Maritime Rules Part:90 Pilotage

Appendix 1: Pilotage areas and limits

Pilotage area	Area description	Limits
Nelson	The area bounded by the seaward arc of a circle, radius 3 miles, centred on Boulder Bank Old Lighthouse (41°15.3'S, 173°15.9'E).	40 metres length overall
Napier	The area comprising all port waters between latitudes 39°25'S and 39°29'S, to west of longitude 176°59'E.	500 gross tonnage or 40 metres length overall
Westport	The area within the Buller River and a circle centred on the signal station light on the west breakwater with a radius of 1.5 miles extending from Carters Beach at mean high water springs around to North Beach at mean high water springs.	100 gross tonnage or 3 metres draught
Lyttelton	The area having a seaward limit east of a line joining Awaroa / Godley Head and Adderley Head.	500 gross tonnage or 40 metres length overall
Timaru	The area within an arc of a circle radius 2.5 miles centred on a light exhibited from Eastern Extension Mole Spur Breakwater Head (44°23.2'S, 171°16.0'E).	500 gross tonnage or 40 metres length overall
Akaroa	The area of Akaroa Harbour North of a line drawn between Akaroa Head and Timutimu Head.	500 gross tonnage or 40 metres length overall