

IHO Hydrographic Commission on Antarctica (HCA)

National Report by
New Zealand



International Hydrographic Organization
Organisation Hydrographique Internationale

HCA-16, Prague, Czech Republic, 3-5 July 2019

Survey and charting progress in Antarctica since HCA-14 (June 2016)

- June 2017: 3 ENCs produced incorporating new survey data for Auckland Islands (2015)
- June 2017: New Editions of paper charts NZ 286 Auckland Islands and NZ 2862 Plans in the Auckland Islands incorporating new survey data (2015)
- Risk assessment for NZ Sub-Antarctic Islands completed Jan 2019

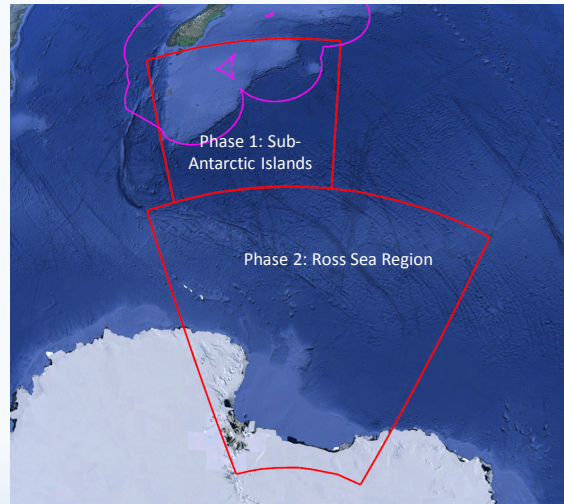


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Hydrographic Risk Assessment

- Phase 1: Sub-Antarctic Islands (Auckland, Campbell, Bounty, Antipodes and Snares Islands)
- Phase 2: Ross Sea Region
- Risk model covers both regions
- Phase 1 completed Jan 2019
- Phase 2 to be confirmed
- Risk criteria, ratings and weightings agreed with Department of Conservation and Maritime NZ

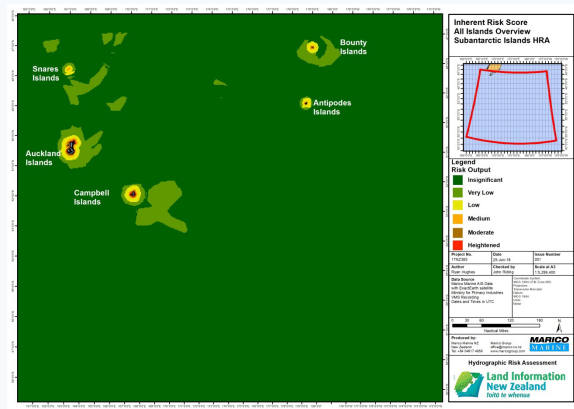


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Hydrographic Risk Assessment

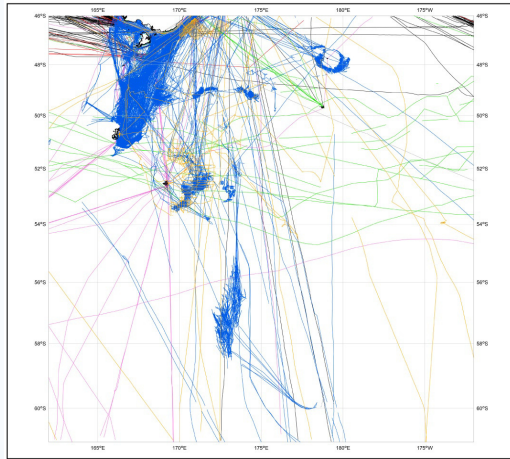
- Inherent Risk introduced – causation & consequence without traffic
- Recognising the pristine environment of the region, Environmental & Ecological criteria were included in the model
- Many areas with rare and unique ecology and endemic species
- Very little traffic in the region
- Hydrographic Risk = Traffic x Inherent Risk



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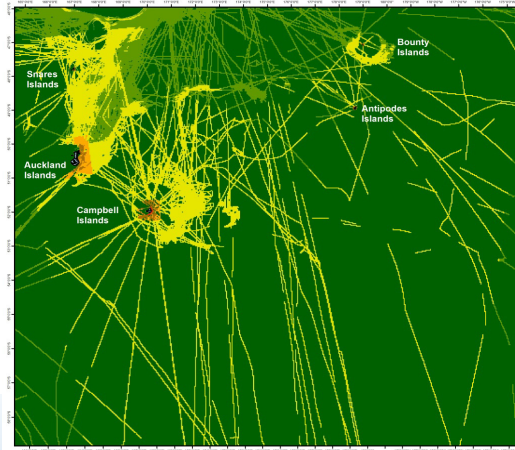
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Hydrographic Risk Assessment



Vessel traffic

LINZ Sub-Antarctic Islands HRA Vessel Tracks by Type, Full Region



Total Risk result

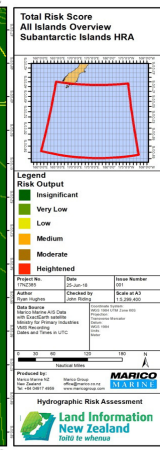


Figure Reference: 17N2385_RMC_Total_Risk_Full_v7



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Hydrographic Risk Assessment

Risk Criteria Matrix - Sub-Antarctic Islands and Antarctica		0	1	2	3	4	5	Rating	Category Weighting	Model Weighting	Overall Weighting	
CONTINUOUS SCALES												
Traffic	Potential Loss of Life		Insignificant	Low	Moderate	High	Catastrophic		42%		25%	
	Potential Oil Outflow		Insignificant	Low	Moderate	High	Catastrophic		38%			
	Economic		Insignificant	Low	Moderate	High	Catastrophic		15%			
	Salvage		Insignificant	Low	Moderate	High	Catastrophic		5%			
LIKELIHOOD SCALES												
Causation Risk Criteria	Charting	Chart Quality	A	B	C	D	U	3		25.00%	25%	
		Survey Age	<5 years	5-10 years	10-20 years	20-30 years	>30 years	1	50.0%	8.33%		
		Chart Adequacy	None	Excellent	Good	Moderate	Poor	2		16.67%		
	Route Characteristics	Navigational Complexity	Open Sea >10nm	Offshore Navigation (5-10nm)	Coastal Navigation (1-5nm)	Port Approaches	Constrained Navigation (<1nm)	3	20.0%	12.00%		
		Depth of Water 15m Contour	>10nm	5-10nm	2.5-5nm	1.5-2.5nm	1-1.5nm	Within 1nm	2			8.00%
	MetOcean	Prevailing Wave/Wind	Sheltered at Most Times	Mainly Sheltered	Moderate Exposure	Mainly Exposed	Exposed on Most Days	3	10.0%	5.00%		
		Tides/Current	Open Sea	1-2kts	2-3kts	3-4kts	4-5kts	>5kts	3			5.00%
	Navigational Hazards	Known Sea Mounts	>10nm	5-10nm	2.5-5nm	1.5-2.5nm	1-1.5nm	Within 1nm	1			2.86%
		Ice	None	Insignificant	Minor	Moderate	Major	Significant	2	20.0%		5.71%
		Isolated Dangers - Rocks/Wrecks/etc.	>2.5nm	2.5-2nm	1.5-2	1-1.5nm	500m-1nm	<500m	2			5.71%
	Charted Tidal Hazards	>2.5nm	2.5-2nm	1.5-2	1-1.5nm	500m-1nm	<500m	2		5.71%		



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Hydrographic Risk Assessment

			CONSEQUENCE SCALES								
Environmentally Sensitive Criteria (Pollution Impact Only)											
9/10 ESV	Antipodean Albatross	>20nm	Within 20nm	Within 5nm	Within 2nm of Habitat	Habitat for Single Species	Habitat for Multiple Species		25%	25%	
	Salvin's Mollymawk Campbell Island Snipe NZ Sealion										
7/8 ESV	Yellow-eyed Penguin	>20nm	Within 20nm	Within 5nm	Within 2nm of Habitat	Habitat for Single Species	Habitat for Multiple Species		20%	20%	
	Recovering Blue Whales										
Habitats	Proximity to Large Reef (High quality / or isolated shoreline)	>20nm	10-20nm	5-10nm	2.5-5nm	1-2.5nm	Within 1nm	2	5%	2.50%	
	Proximity to Rare Corals / Bottom Substrate Compositions										
Environmental Protection	World Heritage Site	>20nm	10-20nm	5-10nm	2.5-5nm	1-2.5nm	Within 1nm	3		4.62%	
	Vessel Access Restrictions	>12nm	12nm	6nm	1000m	600m	300m	1		1.54%	
	Proximity to Marine Protected Area	>20nm	10-20nm	5-10nm	2.5-5nm	1-2.5nm	Within 1nm	3		4.62%	
	Proximity to Antarctic Treaty Specially Managed Areas	>20nm	10-20nm	5-10nm	2.5-5nm	1-2.5nm	Within 1nm	2	20%	3.08%	
	Proximity to Antarctic Treaty Specially Protected Areas	>20nm	10-20nm	5-10nm	2.5-5nm	1-2.5nm	Within 1nm	3		4.62%	
	Proximity to Important Bird Areas	>20nm	10-20nm	5-10nm	2.5-5nm	1-2.5nm	Within 1nm	1		1.54%	
Economically Sensitive Areas (Economic Impact Only)											
Economical	Fishing Grounds	>20nm	10-20nm	5-10nm	2.5-5nm	1-2.5nm	Within 1nm	2		50.00%	
	Tourist Sites	>20nm	10-20nm	5-10nm	2.5-5nm	1-2.5nm	Within 1nm	2		50.00%	



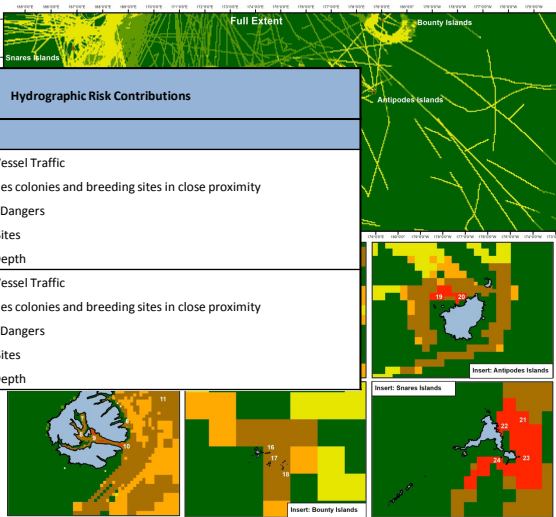
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Hydrographic Risk Assessment

Example of contributing factors

Site #	Location	Comparative Risk Level		Hydrographic Risk Contributions
		Moderate	Heightened	
Auckland Islands				
1	Port Ross		✓	<ul style="list-style-type: none"> Fishing + Passenger Vessel Traffic High number of species colonies and breeding sites in close proximity Proximity to Isolated Dangers Proximity to Tourist Sites Shallow/Uncharted Depth
2	Enderby Island		✓	<ul style="list-style-type: none"> Fishing + Passenger Vessel Traffic High number of species colonies and breeding sites in close proximity Proximity to Isolated Dangers Proximity to Tourist Sites Shallow/Uncharted Depth



Total Hydrographic Risk All Islands Overview Subantarctic Islands HRA

Legend Risk Output

- Insignificant
- Very Low
- Low
- Medium
- Moderate
- Heightened

Project No. 170205 Date 25-09-18 Issue Number 001
 Author M. G. G. Checked by S. G. at 01
 Reviewer(s) S. G. at 01
 Data Source Marine Information Data Centre
 All data is the property of the Ministry for Primary Industries
 Data Recipient(s) M. G. G.
 Date and Time in UTC 2018-09-18 14:00:00

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Hydrographic Risk Assessment
Land Information New Zealand
kōwhiri te ahumaru

Next steps: review and prioritise survey areas



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Status of Relations with Other Organizations

- Hydrographic data to be provided to Seabed 2030, Southern Ocean Regional Center



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Planned Activities for 2018-19

- No new charts planned
- Prioritisation of surveys following risk assessment

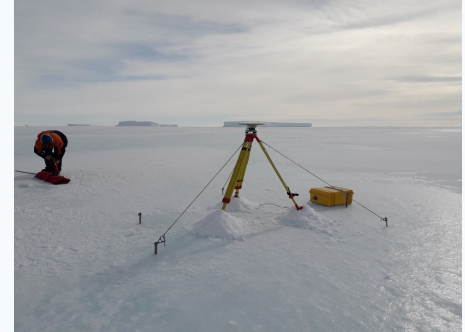


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Any other matters of relevance to HCA

- Tide gauge calibrations at Cape Roberts and Scott Base
- Gravity observations at Scott Base, McMurdo Station and Crater Hill in collaboration with Finnish Geospatial Research Institute (FGI)
- Deformation surveys of historic huts at Scott Base, Hut Point, Cape Evans and Cape Royds
- Monitoring surveys of wind turbines at Crater Hill
- NZ Geographic Board (NZGB) Antarctic Names Committee – correcting names and improving coordinates

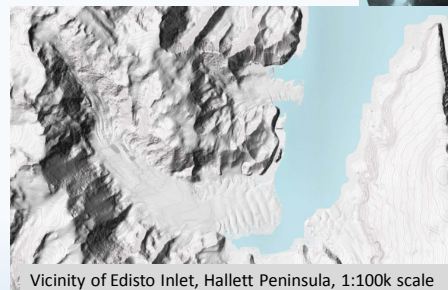
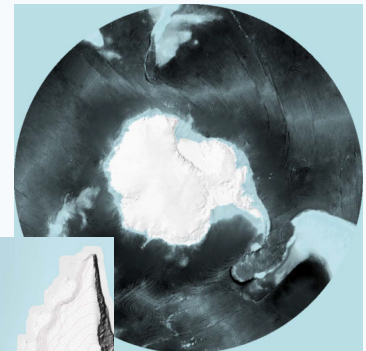


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Any other matters of relevance to HCA

- Antarctic basemap – developed for the NZGB to provide context for names in the NZ Gazetteer



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