CSP Research Advisory Group

13 Dec 2016

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Today's Agenda

Intro

Overview of CSP Strategic Statement and timeline for 2016-17

Update on MPI Aquatic Environment planning process

CSP Research Advisory Group

- Overview of Strategic Statement
- Overview on CSP medium-term research planning
- Interaction projects
- Population projects
  - Seabirds, mammals, sharks, reptiles, corals
- Mitigation projects
- Other relevant research and activities

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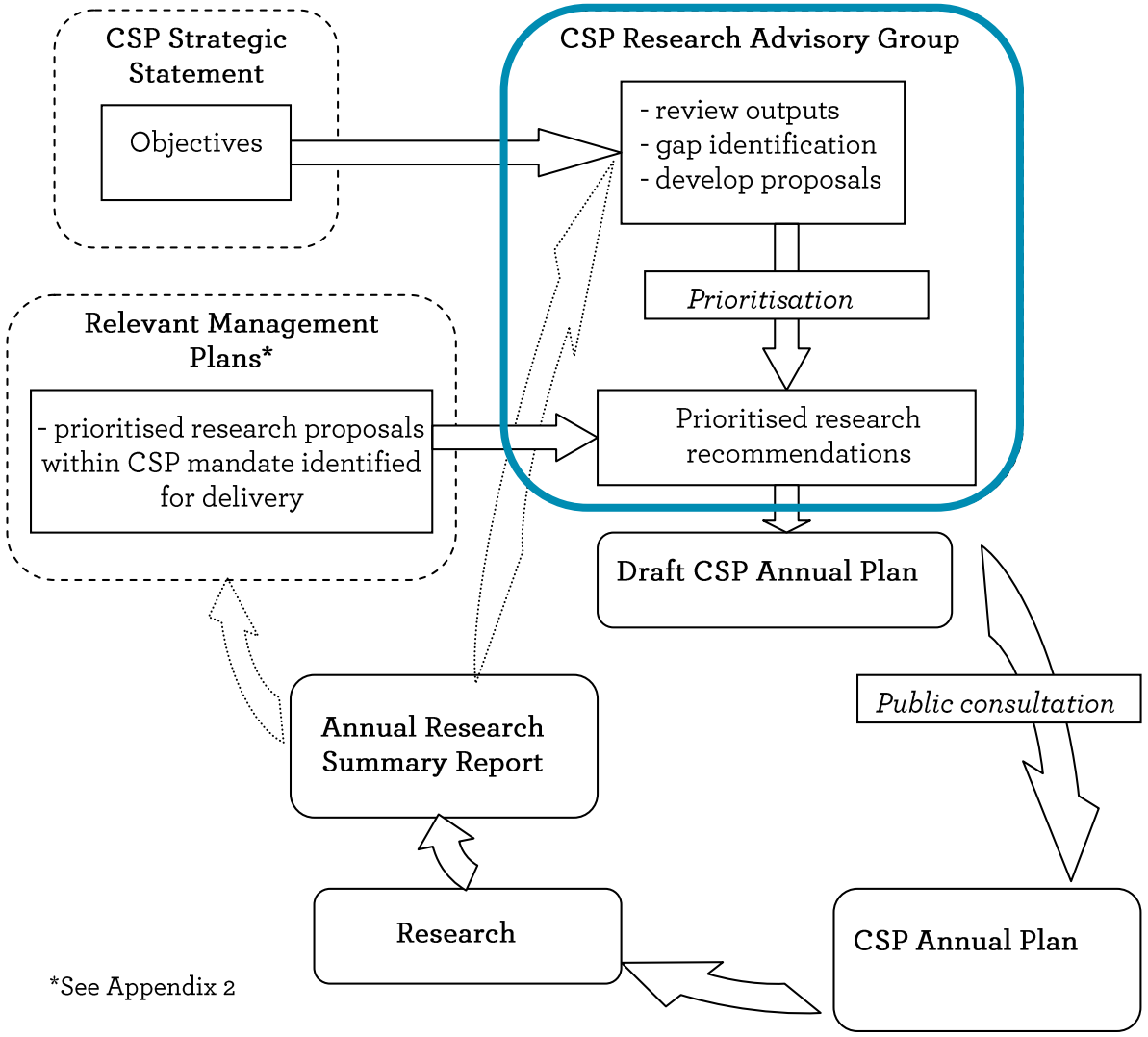
Purpose and Scope of CSP RAG



*See Appendix 2

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Purpose and Scope of CSP RAG

December

- Review of progress in relevant research and other activities
- Identify research gaps within the CSP mandate

February

- *Prioritise research gaps*
- *Recommend to DOC prioritised research projects for the inclusion in the CSP Annual Plan*

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Update on CSP Strategic Statement

- Revised Dec 2015
- Appendices will be updated once current round of risk assessments are complete and NZSL TMP finalized

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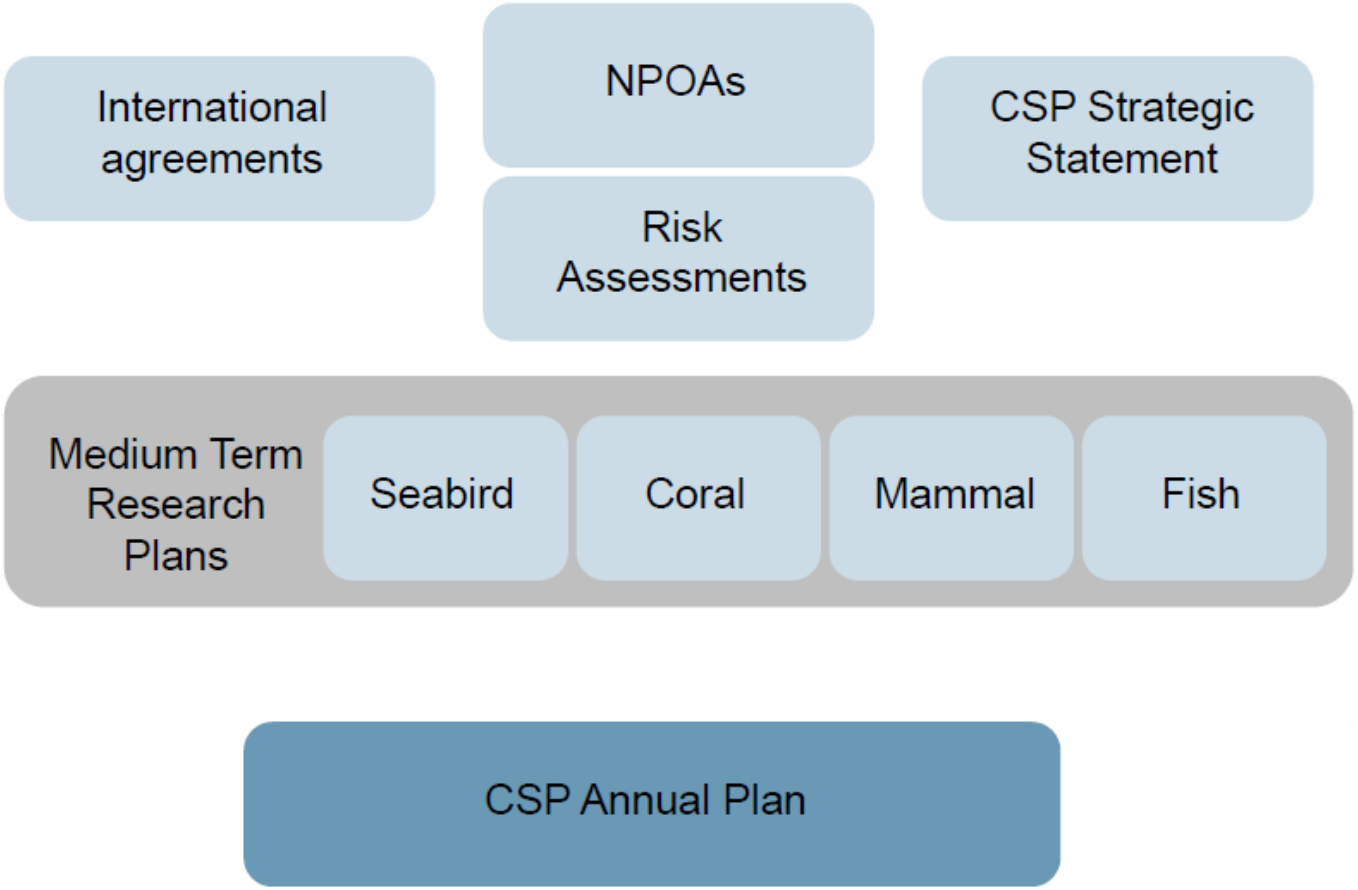
CSP Objectives

- A: Proven mitigation strategies are in place to avoid or minimise the adverse effects of commercial fishing on protected species across the range of fisheries with known interactions.
- B: The nature of direct adverse effects of commercial fishing on protected species is described.
- C: The extent of known direct adverse effects of commercial fishing on protected species is adequately understood.
- D: The nature and extent of indirect adverse effects of commercial fishing are identified and described for protected species that are at particular risk to such effects.
- E: Adequate information on population level and susceptibility to fisheries effects for protected species populations identified as at medium or higher risk from fisheries.

Medium Term Research plans



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Seabird 5 year plan: development process

Common name	RiskCV	Risk parameter									CSP research response				
		TWL	BLL	SLL	SN	CM	A	S_A	N_{BP}	P_B	M-R	Pop Est	Monitor	Track	Taxonomy
Black petrel	0.29	2	14	1	0	3	1	15	25	2	Y	Y	Y		
Salvin's albatross	0.35	28	1	0	0	19	1	32	0	2	Y		Y	Y	
Southern Buller's albatross	0.39	19	0	0	0	15	1	43	3	2	Y		Y		
Flesh-footed shearwater	0.53	2	6	0	0	3	1	52	1	0	Y		Y	Y	
Gibson's albatross	0.37	2	0	10	0	2	0	47	1	0	Y		Y	Y	
New Zealand white-capped albatross	0.32	30	0	0	0	22	0	24	2	1	Y		Y		
Northern Buller's albatross	0.36	4	1	6	0	4	0	51	0	1	I		Y		Y
Chatham Island albatross	0.41	8	29	1	0	3	0	18	2	1			Y		
Antipodean albatross	0.26	13	7	16	0	7	0	17	3	7	P		Y	Y	
Westland petrel	0.53	13	17	7	0	2	0	17	0	0	Y		Y		
Campbell black-browed albatross	0.37	5	28	4	0	3	0	4	13	0			Y		
Stewart Island shag	0.25	57	0	0	1	13	1	5	0	2			Y		
White-chinned petrel	0.46	26	0	1	0	26	1	24	7	1	Y		Y		Y
Yellow-eyed penguin (mainland)*	0.49	0	28	0	16	0	0	7	0	2			Y		
Northern giant petrel	1.04	37	1	0	0	2	0	34	0	0	I		Y		
Northern royal albatross	0.66	35	9	3	1	4	0	18	10	0			Y		
Spotted shag	0.33	26	1	0	1	8	20	3	5	2			Y		Y
Chatham petrel	1.00	0	57	0	0	0	0	15	0	0			Y		
Chatham Island taiko	5.64	0	93	0	0	0	0	0	0	0			Y		
Southern royal albatross	0.41	38	8	8	1	10	0	9	3	3					
Snares Cape petrel	0.62	2	7	3	7	1	0	36	7	0	I			Y	
Grey petrel	0.39	5	14	7	0	4	0	33	2	0	I				
Yellow-eyed penguin	0.48	0	28	0	16	0	0	7	0	2					
Little black shag	0.78	2	5	1	50	0	5	1	4	0					
Light-mantled sooty albatross	0.94	40	23	2	1	2	1	3	0	0				Y	
Fiordland crested penguin	1.59	0	84	0	1	0	0	0	0	0				Y	
Grey-headed albatross	1.40	12	41	6	1	2	0	1	4	0					
New Zealand king shag	1.34	13	38	0	10	2	0	4	0	2			Y	Y	
New Zealand storm petrel	2.69	6	3	6	31	6	1	10	18	0		Y	Y	Y	
Pitt Island shag		0	92	0	0	5	0	3	4	0			Y	Y	
Chatham Island shag		0	95	0	0	0	1	2	4	2			Y	Y	
Pycroft's petrel		0	40	9	1	2	0	15	0	0					
North Island little shearwater*		2	61	3	0	0	0	3	0	0					
New Zealand white-faced storm petrel		4	64	0	0	0	0	0	0	0					

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Seabird plan: population progress & gaps

Common name	2016/17	2017/18
Black petrel	Review M-R response	
Salvin's albatross	Pop est & Track Bounty, Review M-R feasibility	Pop est Snares
Southern Buller's albatross	M-R study Snares	M-R study Snares Pop est Snares
Flesh-footed shearwater	M-R study	M-R study
Gibson's albatross	M-R study Auck Is Pop est Auck Is	M-R study Auck Is
New Zealand white-capped albatross	M-R study Auk Is	M-R study Auk Is
Chatham Island albatross	Pop est Chat	
Antipodean albatross	M-R study*	M-R study*
Westland petrel		
Northern Buller's albatross	Pop est & Invest M-R study Chatham	
Campbell black-browed albatross		Pop est Campbell
Stewart Island shag		Pop est mainland
White-chinned petrel	M-R study Auck Is	M-R study Auck Is Pop est Campbell Pop est Antip
Yellow-eyed penguin (mainland)		
Northern giant petrel	Pop est Chat	Pop est Campbell Pop est Antip
Spotted shag		
Northern royal albatross	Pop est Chat	
Chatham petrel	Pop est Chat	
Chatham Island taiko	Pop est Chat	
Snares Cape petrel		Pop est Snares Investigate M-R study
Grey petrel	Investigate M-R study	
Light-mantled sooty albatross		Trial tracking Campbell
Fiordland crested penguin		Tracking mainland
New Zealand king shag		
New Zealand storm petrel		
Pitt Island shag	Pop est & track Chat	
Chatham Island shag	Pop est & track Chat	

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Seabird plan: mitigation

Common Name	Deepwater trawl	Flatfish trawl	Hake trawl	Hoki trawl	Inshore trawl	Jack mackerel trawl	Ling trawl	Middle depth trawl	SBW trawl	Scampi trawl	Squid trawl
Black petrel	0.0078	0.0044	0.0001	0.0148	0.3798	0.0016	0.0016	0.0136	0.0000	0.0493	0.0015
Salvin's albatross	0.0348	0.1208	0.0279	0.3425	1.8139	0.0024	0.0474	0.3927	0.0223	0.3322	0.0259
Southern Buller's albatross	0.0020	0.0984	0.0212	0.6633	0.1115	0.0133	0.0198	0.1675	0.0014	0.0413	0.4348
Flesh-footed shearwater	0.0015	0.0071	0.0001	0.0104	0.1331	0.0010	0.0004	0.0083	0.0000	0.2368	0.0005
Gibson's albatross	0.0045	0.0207	0.0046	0.0401	0.0318	0.0019	0.0027	0.0139	0.0042	0.0142	0.0123
New Zealand white-capped albatross	0.0027	0.0623	0.0142	0.0956	0.5480	0.0058	0.0173	0.1052	0.0007	0.0387	0.1902
Northern Buller's albatross	0.0056	0.0050	0.0008	0.1473	0.0487	0.0004	0.0004	0.0466	0.0000	0.1162	0.0020
Chatham Island albatross	0.0913	0.0141	0.0002	0.0380	0.0261	0.0011	0.0011	0.0259	0.0011	0.0372	0.0039
Antipodean albatross	0.0071	0.0217	0.0017	0.0421	0.0294	0.0010	0.0016	0.0164	0.0089	0.0143	0.0063
Westland petrel	0.0015	0.0305	0.0121	0.0972	0.0409	0.0040	0.0014	0.0117	0.0000	0.0073	0.0008
Campbell black-browed albatross	0.0006	0.0089	0.0014	0.0258	0.0091	0.0005	0.0017	0.0078	0.0082	0.0154	0.0027
Stewart Island shag	0.0000	0.2976	0.0000	0.0000	0.0012	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000
White-chinned petrel	0.0001	0.0020	0.0021	0.0260	0.0025	0.0054	0.0026	0.0133	0.0001	0.0719	0.1223
Yellow-eyed penguin	0.0000	0.0012	0.0000	0.0000	0.0006	0.0000	0.0000	0.0003	0.0000	0.0000	0.0001
Northern giant petrel	0.0123	0.0230	0.0056	0.0698	0.0432	0.0026	0.0034	0.0211	0.0054	0.0824	0.0078
Northern royal albatross	0.0034	0.0257	0.0006	0.0225	0.0309	0.0018	0.0013	0.0123	0.0012	0.0135	0.0276
Spotted shag	0.0000	0.1602	0.0000	0.0007	0.0027	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000
Chatham petrel	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Chatham Island taiko	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Southern royal albatross	0.0025	0.0056	0.0007	0.0071	0.0086	0.0004	0.0007	0.0036	0.0057	0.0048	0.0249
Snares Cape petrel	0.0001	0.0013	0.0005	0.0058	0.0020	0.0001	0.0018	0.0026	0.0002	0.0008	0.0009
Grey petrel	0.0003	0.0016	0.0001	0.0013	0.0023	0.0001	0.0001	0.0005	0.0136	0.0008	0.0005
Yellow-eyed penguin	0.0000	0.0012	0.0000	0.0000	0.0006	0.0000	0.0000	0.0003	0.0000	0.0000	0.0001
Little black shag	0.0000	0.0010	0.0000	0.0001	0.0013	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
Light-mantled sooty albatross	0.0005	0.0036	0.0003	0.0037	0.0062	0.0005	0.0005	0.0019	0.0008	0.0038	0.0077
Fiordland crested penguin	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Grey-headed albatross	0.0002	0.0011	0.0001	0.0014	0.0020	0.0002	0.0002	0.0007	0.0004	0.0012	0.0009
New Zealand king shag	0.0000	0.0017	0.0000	0.0004	0.0015	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000
New Zealand storm petrel	0.0000	0.0002	0.0000	0.0001	0.0049	0.0003	0.0000	0.0000	0.0000	0.0003	0.0000

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Seabird plan: mitigation

Common Name	Bluenose BLL	Hapuka BLL	Large ling BLL	Minor BLL	Small ling BLL	Snapper BLL	Large SLL	Small SLL	Swordfish SLL	Setnet
Black petrel	4.5505	1.6407	0.0056	0.8799	0.0876	3.3417	0.0002	0.7675	0.0844	0.0061
Salvin's albatross	0.0066	0.0065	0.0057	0.0048	0.3881	0.0039	0.0004	0.0279	0.0036	0.0007
Southern Buller's albatross	0.0195	0.0064	0.0114	0.0039	0.0975	0.0000	0.0593	0.1439	0.0066	0.0025
Flesh-footed shearwater	0.0170	0.0771	0.0022	0.1021	0.0126	0.8561	0.0000	0.1185	0.0096	0.0009
Gibson's albatross	0.0372	0.0083	0.0010	0.0053	0.0064	0.0033	0.0064	0.6375	0.4782	0.0046
New Zealand white-capped albatross	0.0006	0.0008	0.0001	0.0006	0.0075	0.0003	0.0019	0.0495	0.0034	0.0006
Northern Buller's albatross	0.0588	0.0254	0.0058	0.0051	0.0369	0.0058	0.0000	0.5883	0.0117	0.0010
Chatham Island albatross	0.0144	0.0768	0.0222	0.0163	0.5866	0.0076	0.0000	0.0079	0.0009	0.0004
Antipodean albatross	0.0389	0.0126	0.0014	0.0048	0.0068	0.0014	0.0026	0.4567	0.2398	0.0038
Westland petrel	0.0135	0.0592	0.0024	0.0630	0.0177	0.0078	0.0015	0.1593	0.0514	0.0186
Campbell black-browed albatross	0.0599	0.0296	0.0019	0.0218	0.0099	0.0034	0.0010	0.1066	0.0111	0.0006
Stewart Island shag	0.0000	0.0001	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0069
White-chinned petrel	0.0074	0.0008	0.0120	0.0011	0.0109	0.0003	0.0004	0.0144	0.0043	0.0043
Yellow-eyed penguin	0.0000	0.0047	0.0002	0.0097	0.0033	0.0000	0.0000	0.0000	0.0000	0.0777
Northern giant petrel	0.0016	0.0061	0.0009	0.0017	0.0026	0.0012	0.0001	0.0033	0.0007	0.0002
Northern royal albatross	0.0054	0.0129	0.0160	0.0054	0.0069	0.0014	0.0002	0.0221	0.0017	0.0089
Spotted shag	0.0002	0.0005	0.0000	0.0007	0.0009	0.0007	0.0000	0.0003	0.0000	0.0204
Chatham petrel	0.0005	0.0837	0.0000	0.0110	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
Chatham Island taiko	0.0001	0.0158	0.0000	0.0029	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
Southern royal albatross	0.0017	0.0019	0.0031	0.0015	0.0014	0.0014	0.0002	0.0190	0.0015	0.0030
Snares Cape petrel	0.0023	0.0031	0.0024	0.0022	0.0029	0.0014	0.0002	0.0147	0.0013	0.0601
Grey petrel	0.0019	0.0019	0.0021	0.0014	0.0188	0.0011	0.0010	0.0307	0.0059	0.0024
Yellow-eyed penguin	0.0000	0.0047	0.0002	0.0097	0.0033	0.0000	0.0000	0.0000	0.0000	0.0777
Little black shag	0.0002	0.0004	0.0000	0.0009	0.0002	0.0018	0.0000	0.0007	0.0000	0.0366
Light-mantled sooty albatross	0.0017	0.0027	0.0004	0.0018	0.0028	0.0009	0.0001	0.0025	0.0005	0.0046
Fiordland crested penguin	0.0016	0.0149	0.0001	0.0022	0.0124	0.0000	0.0000	0.0011	0.0003	0.0059
Grey-headed albatross	0.0020	0.0025	0.0005	0.0018	0.0030	0.0011	0.0001	0.0031	0.0006	0.0008
New Zealand king shag	0.0000	0.0033	0.0000	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000	0.0077
New Zealand storm petrel	0.0001	0.0004	0.0000	0.0000	0.0004	0.0007	0.0000	0.0032	0.0004	0.0204

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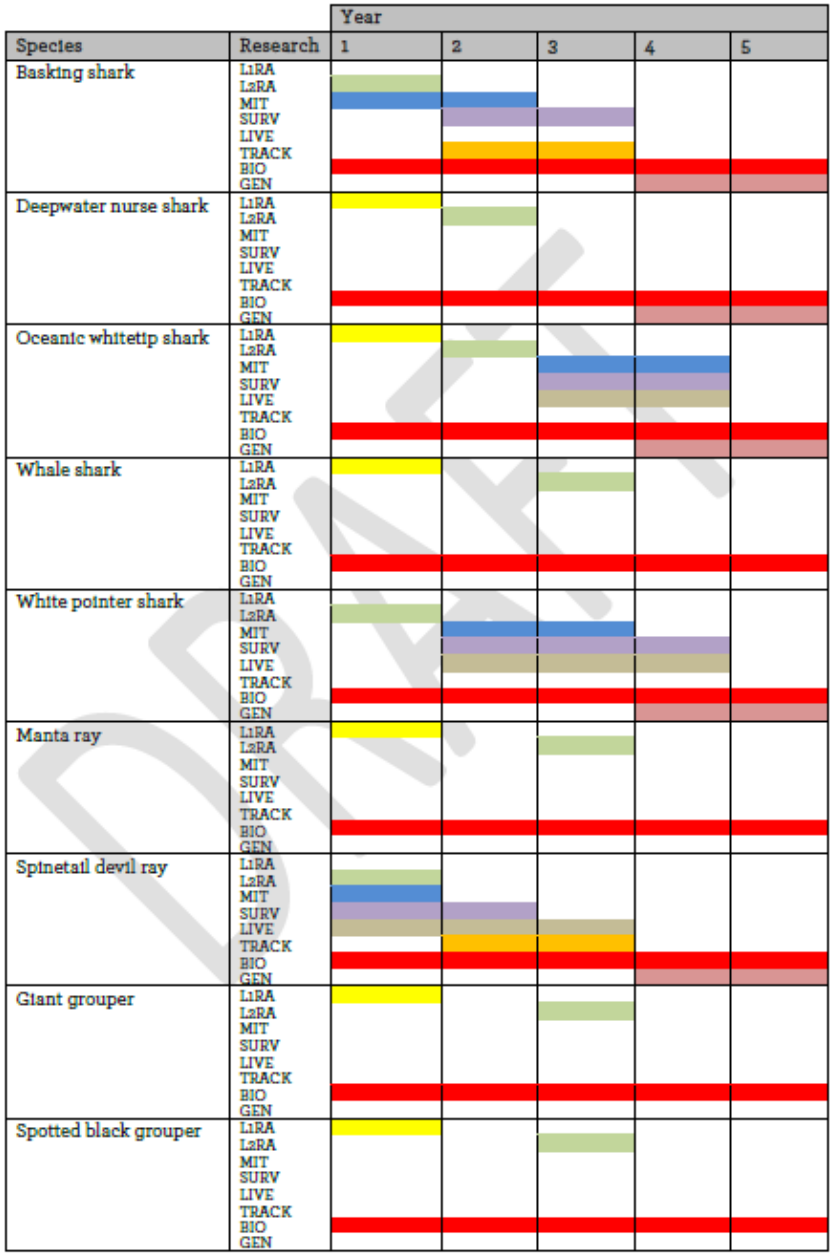
Fish 5 year plan



Species	Research	Year 1	2	3	4	5
Basking shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Deepwater nurse shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Oceanic whitetip shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Whale shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
White pointer shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Manta ray	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Spinetail devil ray	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Giant grouper	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Spotted black grouper	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					

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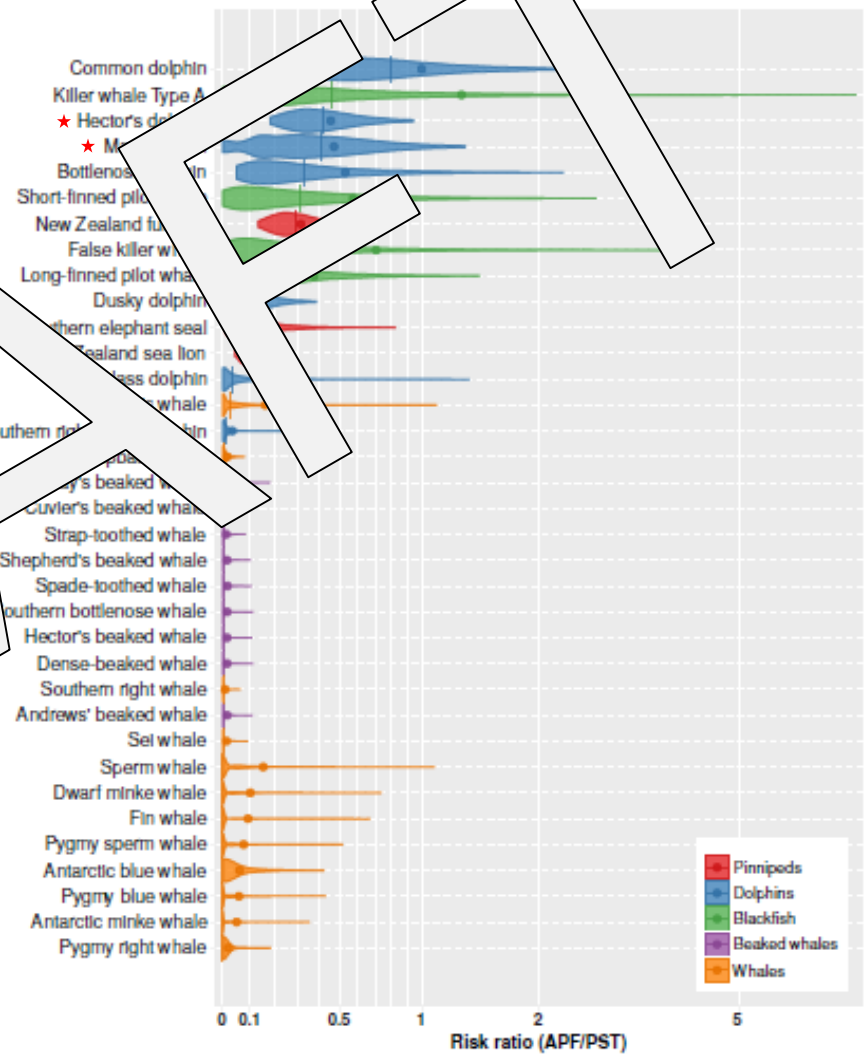
Marine Mammal 5 year plan

Marine Mammal Risk Assessment (MPI/Dragonfly) (not finalised)

- Common dolphin – T, SN
- Pilot whale – T, PS
- Bottlenose dolphi… T, SL…
- NZ fur seal – T, S…
- …sky dolphi… T, …
- Issu…:
  - U…ertainty/…o gaps → Killer whale Typ… …ackfish
  - Skewed risk for some whales (incl beaked whales)



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DRAGONFLY Data Science

Conservation Services Programme Annual Research Summary

Background

- Stakeholder desire for rationalized and timely reporting
- Better integration with CSP's new strategic direction

Aim

- A single and concise summary of the year's research and outputs
- Integrating the results of observer coverage with other CSP funded research
- Updates of the status of multiyear projects
- Ties back to each years annual plan
- Helps feed in to each years planning processes eg. CSP RAG

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Interaction Research

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2015-2016 Summary

- Interaction projects
  - Observing commercial fisheries

Objectives:

1. To identify, describe and, where possible, quantify protected species interactions with commercial fisheries;
2. To identify, describe and, where possible, quantify measures for mitigating protected species interactions;
3. To collect information relevant to identifying levels of cryptic mortality of protected species resulting from interactions with commercial fisheries.
4. To collect other relevant information on protected species interactions that will assist in assessing, developing and improving mitigation measures

Status:

Ongoing – Delivery complete, awaiting final data set

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2015-2016 Summary

- Interaction projects
  - Identification of seabirds captured in New Zealand fisheries

  Objectives:

  1. To determine, through examination of returned seabird specimens, the taxon, sex, and where possible age-class and provenance of seabirds killed in New Zealand fisheries (for returned dead specimens).
  2. To detail the injuries, body condition and stomach contents and, where possible, the likely cause of mortality (for returned dead specimens).
  3. To report any changes in the protocol used for the necropsy of seabirds (for returned dead specimens).
  4. To determine, through examination of photographs, the taxon and, where possible, sex, age-class and provenance of seabirds captured in New Zealand fisheries (for live captures or dead specimens discarded at sea).

  Status:

  Completion date June 2016

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2015-2016 Summary

- Interaction projects
  - Identification of marine mammals, turtles and protected fish captured in New Zealand fisheries

Objectives:

1. To determine, primarily through examination of photographs, the taxon and, where possible, sex, age-class and provenance of marine mammals, turtles and protected fish captured in New Zealand fisheries (for live captures and dead specimens discarded at sea).

Status:

In progress – resolving data issues

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2015-2016 Summary

- Interaction projects
  - Identification and storage of cold-water coral bycatch specimens

Objectives:

1. To determine through expert examination, the taxa of unidentified cold water corals returned by fisheries observers.
2. Record all identified coral specimens and make them available for appropriate taxonomic collections.
3. Ensure preparation of genetic samples of selected octocoral specimens (Thouarella sp. Specifically Thouarella crenlata) is undertaken by taxonomic collection technicians during identification, in order to feed into planned coral connectivity work.
4. Formalise Fisheries Observer briefings with updated coral identification information.

Status:

In progress – 3 year term

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2015-2016 Summary

- Interaction projects
  - Black petrel and flesh-footed shearwater foraging behaviour around fishing vessels

Objectives:

1. To determine, through specific experimental trials, the diving capabilities and behaviour of black petrels and flesh-footed shearwaters in response to available baits.
2. To document the environmental and operational factors which effect this behaviour.
3. To provide recommendations on methods for reducing bycatch risk based on seabird diving behaviour.

Status:

In progress – 2 year term

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Recommendations

- Identification of seabirds, marine mammals, turtles and protected fish
- Autopsy work
  - ensuring adequate data collection and linking for any returned specimens
- Photo ID work
  - Interactions photographed and recorded with trip number and haul/sample information included in the image.
  - Images (with scale if possible) include the all diagnostic features including head and bill from the side and above, body (full body and side shots), wings (above and below) and shots of the feet.
  - Photo logs completed for all images (which can be correlated to camera date and time stamps) with descriptions to help with the identification and matching of images.

Conservation Services Programme 2016-17 Research Projects

- Interaction projects
  - Observing commercial fisheries
  - Identification of seabirds captured in New Zealand fisheries
  - Identification of marine mammals, turtles and protected fish captured in New Zealand fisheries
  - Identification and storage of cold-water coral bycatch specimens
  - Black petrel and flesh-footed shearwater foraging behaviour around fishing vessels
  - Post release survival of white sharks in New Zealand setnet fisheries
  - Indirect effects of commercial fishing on Buller's shearwater and red-billed gulls

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Population Research

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Population research: seabirds

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2015-16 CSP Annual Research Summary

- Population projects
  - Black petrel: Aotea/Great Barrier Island & Hauturu/Little Barrier Island population project

Objectives:

1. To estimate the population trend, fecundity and age-class survival of black petrels on Great Barrier Island/Aotea.
2. To estimate the populations size, trend, fecundity and age-class survival of black petrel at Little Barrier Island.
3. To identify the presence of black petrels (or other seabirds) on the Moehau range, Coromandel, using automated acoustic recorders.

Status:

Completed

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Black petrel 2015/16 recommendations:

- Continue monitoring of the black petrel population using the study burrows up to the 2024/25 season on GBI, up to the 2019/20 season on LBI.
- TDR & GPS devices deployed on 30 adults to obtain foraging information in NZ waters. GLS devices deployed on 30 adults to obtain information on migration to South America. Satellite devices deployed on juveniles to obtain information on migration to South America.
- Random transects and ground surveys throughout the 35-ha study area around Mount Hobson for adult and juvenile recaptures (to improve survival and immigration estimates) and to compare with earlier transect surveys to determine population trends. Further random transects, acoustic survey and seabird detector dog work on LBI. Further acoustic survey on Moehau and repeat every 5-10 to monitor effects of predator control.
- Future analysis of the resighting data is completed.

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2015-16 CSP Annual Research Summary

- Population projects
  - Flesh-footed shearwater: Various locations populations project

Objectives:

1. To estimate the population size of flesh-footed shearwater at Middle Island (Mercury Islands).
2. To estimate key demographic parameters of flesh-footed shearwater at Lady Alice Island/Mauimua and Ohinau Islands.
3. To describe the at-sea distribution of flesh-footed shearwater breeding at Northland breeding sites.

Status:

Ongoing – 2 year project

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2015-16 CSP Annual Research Summary

- Population projects
  - Seabird population research: Auckland Islands 2015-16

Objectives:

To collect information on key aspects of the biology of selected at-risk seabird species in order to reduce uncertainty or bias in estimates of risk from commercial fishing.

Objective	Species	Target biological information
1	Gibson's albatross	A - Population size
		B - Adult survival and other demographic parameters (Adams Island)
2	White-capped albatross	A - Population size
		Ground truth aerial survey methods (Disappointment Island)
		Adult survival and other demographic parameters (Disappointment Island)
3	White-chinned petrel	A - Population size (Adams Island)
4	Northern giant petrel	A - Population size

Note: target information in italics are those identified in the CSP seabird plan 2015 that have not been costed in this proposal, for reasons of prioritisation, but are possible extensions

Status:

Complete

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2015-16 recommendations

Gibson's albatross:

- Population size and trend and adult survival should continue to be estimated at regular intervals until the population substantially increases.
- A detailed modelling exercise such as the one carried out by Francis et al in 2012 would give a better indication of the trajectory of the whole population and should be undertaken within the next five years.
- Recent estimates of the size of the population are sufficiently accurate that a wole-island census is probably unnecessary.

White-capped albatross:

- [aerial photographs need to be counted]

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White-chinned petrel

- Resight data have been collected annually at the Auckland Islands since 2013 and monitoring should continue for the project to yield useful demographic data.

Northern giant petrel

- We recommend future monitoring of the Auckland Island Northern giant petrel breeding population. Ideally island-wide surveys would be repeated every three to five years. Enderby Island would be the ideal location for regular, annual counts of breeding birds. Disturbance from tourism may negatively impact upon breeding Northern giant petrels on Enderby Island, and should be monitored given that the island supports such a large proportion of the Auckland Island breeding population.
- Because there are no trend data for Northern giant petrels anywhere in the NZ region, we strongly advise that the Antipodes and Campbell Islands populations are re-counted in the near future and the results related to previous counts (Wiltshire and Scofield 2000; Wiltshire and Hamilton 2000)

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2015-16 CSP Annual Research Summary

- Population projects
  - Northern Buller's albatross: review taxonomy

Objectives:

1. To reassess the taxonomic status of breeding populations of northern Buller's albatross.
2. To identify genetic markers to allow routine genetic assessment of bycaught Buller's albatross to determine their population of origin.

Status:

Awaiting final report

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Northern Buller's taxonomy recommendations:

- The mtDNA assay appears to be able to determine whether a Buller's Albatross is from the Northern or Southern group. However, the level of certainty for this mtDNA-based identification approach does need to be tested further. It can be gradually phased in as apotential stand-alone method for assigning individuals to their population of origin as the level of certainty improves. **It is recommended that more samples of known Northern and Southern Buller's albatross are collected and DNA-typed to increase the sample sizes and help improve the statistical power of the method**. Increasing the number of samples of known provenance should enable the ambiguity of the haplotype shared by 2 Thalassarche bulleri platei individuals sampled from Motuhara to be resolved. This will also enable a better assessment of the diversity within the observed haplogroups and precisely define all of the haplogroups.

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CSP 2016-17 seabird research projects

- Population projects
  - Flesh-footed shearwater: Various locations population project
  - Seabird population research: Chatham Islands 2016-2017
  - Seabird population research: Auckland Islands 2016-2017
  - Yellow-eyed penguin foraging and indirect effects
  - Salvin's albatross: Bounty Islands population project

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Other seabird activity (2016/17) delivering on CSP priorities

Southern Buller's albatross: monitoring planned at Snares (DWG/NIWA)

Antipodean albatross: monitoring planned (Albatross Research)

Chatham Island albatross: ongoing translocation (Chatham Islands Taiko Trust)

Northern royal albatross – ongoing management and monitoring at Taiaroa Head (DOC)

Yellow-eyed penguin: breeding counts mainland (DOC/YEPT)
stocktake review of recovery plan (Collaborative)

Chatham petrel & taiko – ongoing management at Rangatira and Tuku/Sweetwater (DOC/ Chatham Islands Taiko Trust)

New Zealand storm petrel – ongoing monitoring at Little Barrier Island and at-sea (collaborative programme)

King shag: aerial survey (OSNZ/DOC)

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Seabird plan: population progress & gaps

Common name	2016/17	2017/18
Black petrel	Review M-R response	
Salvin's albatross	Pop est & Track Bounty, Review M-R feasibility	Pop est Snares
Southern Buller's albatross	M-R study Snares	M-R study Snares Pop est Snares
Flesh-footed shearwater	M-R study	M-R study
Gibson's albatross	M-R study Auck Is Pop est Auck Is	M-R study Auck Is
New Zealand white-capped albatross	M-R study Auk Is	M-R study Auk Is
Chatham Island albatross	Pop est Chat	
Antipodean albatross	M-R study*	M-R study*
Westland petrel		
Northern Buller's albatross	Pop est & Invest M-R study Chatham	
Campbell black-browed albatross		Pop est Campbell
Stewart Island shag		Pop est mainland
White-chinned petrel	M-R study Auck Is	M-R study Auck Is Pop est Campbell Pop est Antip
Yellow-eyed penguin (mainland)		
Northern giant petrel	Pop est Chat	Pop est Campbell Pop est Antip
Spotted shag		
Northern royal albatross	Pop est Chat	
Chatham petrel	Pop est Chat	
Chatham Island taiko	Pop est Chat	
Snares Cape petrel		Pop est Snares Investigate M-R study
Grey petrel	Investigate M-R study	
Light-mantled sooty albatross		Trial tracking Campbell
Fiordland crested penguin		Tracking mainland
New Zealand king shag		
New Zealand storm petrel		
Pitt Island shag	Pop est & track Chat	
Chatham Island shag	Pop est & track Chat	

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Population Research
Protected Fish

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2015-2016 Summary

- Population projects
  - Supporting genetic analysis of protected fish species

Objectives:

1. 1. To establish a repository for genetic samples of protected fish species.
2. To conduct a stock take of complete, current and planned genetic analyses internationally, in relation to New Zealand's nine protected fish species.
3. To provide recommendations on the most appropriate methods of furthering genetic analyses in order to inform management of New Zealand's protected fish species in relation to fisheries bycatch.

Status:

Complete

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Protected fish recommendations (2011-12 & 2015-16)

- Increase the availability for research of specimens of protected fish species by:
  - making it legal for fishers to land dead specimens;
  - encouraging and educating fishers about the value of specimens for research; and
  - providing the specimens to a research organisation
- Genetic analyses and electronic tagging
- More detailed information collected on manta and devil ray encounters
- Observations of devils rays and other protected sharks by spotter planes
  - Information on spatial & temporal patterns of occurrence
- Development of methods for improved live release of captured sharks and ray

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Protected fish recommendations (2015-16)

- Continuation of tissue sampling
- Increased genetic resolution
  - Building of reference gnomes
- Investigate differentiation in white shark populations
  - between NZ and Eastern Australian
  - between Stewart Island and Chatham Islands
- Feed basking shark samples into global-level studies
- Conduct regional population genetic studies on spine-tailed devil ray samples to ascertain the degree of population structuring

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Conservation Services Programme 2016-17 Research Projects

Basking shark bycatch review

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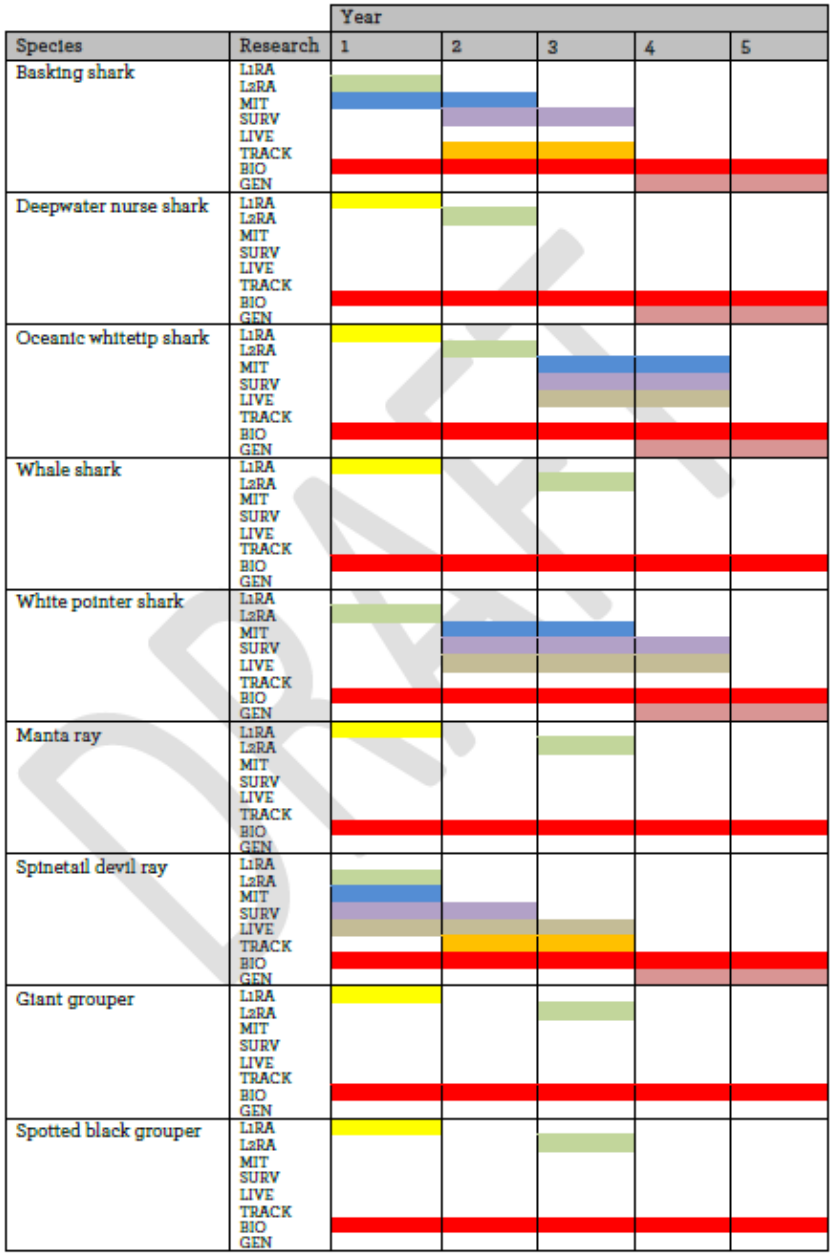
Fish 5 year plan



Species	Research	Year 1	2	3	4	5
Basking shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Deepwater nurse shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Oceanic whitetip shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Whale shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
White pointer shark	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Manta ray	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Spinetail devil ray	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Giant grouper	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					
Spotted black grouper	L1RA, L2RA, MIT, SURV, LIVE, TRACK, BIO, GEN					

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Population Research
Marine mammals

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2015-2016 Summary

- Population projects
  - New Zealand Sea Lion: Auckland Islands Population Project

Objectives:

1. To estimate New Zealand sea lion pup production at Enderby, Figure of 8 and Dundas Islands.
2. To mark New Zealand sea lion pups at Enderby and Dundas Islands following established techniques.
3. To conduct a five week period of resighting previously marked animals at Enderby Island.
4. To update the New Zealand sea lion database.
5. To collect data on pup weight, to contribute towards time series data on population dynamics.

Status:

Complete

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Recommendations (2015-16)

- Future teams allocate more time and training to microchipping to reduce this loss rate
- Restart microchipping and tagging of all pups at Sandy Bay, at least until microchip retention rates can be minimised
- Investigation of an additional electronic tagging/tracking method to identify individuals at a distance
- Increased monitoring effort and a review of existing pup ramps at Dundas Island.
- Review of tagging and microchipping methods to consider new methods & approaches
- Surveys of other Islands to search of sea lions breeding away from the main colonies
- Consideration of increase in the active management of pup mortality
- Collection of body condition information on adult females

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CSP 2016-17 marine mammal research projects

- Population project
  - New Zealand Sea Lion: Auckland Islands pup count

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Other marine mammal research (2016/17) delivering on CSP priorities

- Māui dolphins
  - Abundance estimate (Boat-based survey work & photo ID) (Oregon State & Auckland Uni)
  - Array of C-PODs being established → offshore distribution (work planned for 2017-18)
- Hector's dolphins surveys & photo ID – Kaikoura & Banks Peninsula
- MPI-funded Hector's dolphin aerial surveys – Farewell Spit/Doubtful Sound
- Fiordland Bottlenose Dolphin Population Monitoring
- Southern right whale population monitoring – subantarctic (Otago Uni)
- NZ fur seals
  - West Coast pup mark-recapture monitoring on hold, NIWA analysing data/reporting back
- NZ sea lions
  - Ongoing (population) monitoring work in Otago, Stewart Island & Subantartic Islands
  - Disease research on Enderby Island
  - Threat Management Plan awaiting approval

Population Research
Marine reptiles

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2015-2016 Summary

- Population projects
  - Marine reptiles – review of interactions and populations

Objectives:

1. To review existing information to describe the nature and extent of interactions between commercial fishing and marine reptiles.
2. To review existing information to describe population information relevant to assessing risk from commercial fishing to marine reptiles.
3. To review existing information on possible mitigation options relevant to New Zealand fisheries to minimize marine reptile bycatch.
4. To identify information gaps in the understanding of the nature and extent of interactions between commercial fishing and marine reptiles, population information and mitigation options, and provide recommendations for further research to address any gaps identified.

Status:

Complete

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Recommendations (2015-16)

- Review the allocation of observer coverage to more appropriately monitor high risk areas and time periods.
- Improve resolution of data collection and reporting of turtle captures.
- Actively feed into regional and global research and population studies

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Mitigation Research

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2015-2016 Summary

- Mitigation projects
  - Protected species bycatch newsletter

Objectives:

1. To produce a newsletter to communicate protected species-related information to trawl and longline fishermen.

Status:

Complete

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2015-2016 Summary

- Mitigation projects
  - Seabird bycatch reduction (small vessel longline fisheries)

Objectives:

1. To provide one or more liaison officers to the inshore bottom longline and small vessel surface longline fishing fleets, with a focus on northern North Island, to assist those fleets reduce their seabird bycatch.
2. To coordinate the seabird liaison officer roles with wider efforts targeted at seabird bycatch reduction in relevant fisheries to achieve the greatest possible reduction in bycatch.

Status:

Complete

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2015-2016 Summary

- Mitigation projects
  - Small vessel seabird mitigation project

Objectives:

1. To test the efficacy of mitigation strategies or devices identified by the work of the seabird liaison officers operating in the small vessel bottom longline fleets.
2. To support efficacy testing of the improved tori line designs produced as an output of project MIT2014-02.

Status:

Implementation planned for 2016/17

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Recommendations (2015-16)

Media / publication

- Expand mitigation outreach materials beyond newsletter format to also include topical articles in industry media and presentations at industry meetings and conferences.

Liaison

- A more closely located liaison resource for the west coast of the South Island,
- Prioritising a small group of higher risk vessels for dedicated liaison activities in 2016/17
- Providing regular online updates for stakeholders interested in the activities of liaison team.

Mitigation development

- Rationalised prioritisation of which devices should undergo further development

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Conservation Services Programme 2016-17 Research Projects

- Mitigation projects
  - Seabird bycatch reduction (small vessel longline fisheries)
  - Small vessel seabird mitigation project
  - Protected species bycatch media
  - Entanglement of whales in pot/trap lines and setnets and a review of potential mitigation methods

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