

A large white albatross with dark wings is the central focus, flying towards the right. Below it, a smaller albatross is seen in flight, and in the bottom left corner, another albatross is flying away. The background is a solid, clear blue sky.

# Inshore Mitigation

# Team

**Dave Goad**

**Jamie Williamson**

**Steve Temple**

**Leigh Bull**

# Objectives of the project

1. To work with inshore fishers to improve awareness and understanding of protected species interactions with inshore fisheries
2. To identify characteristics of inshore fishing practices that may influence the likelihood of protected species interactions
3. To assess current use of mitigation measures, and work with fishers to develop, test, and implement measures for mitigating protected species interactions

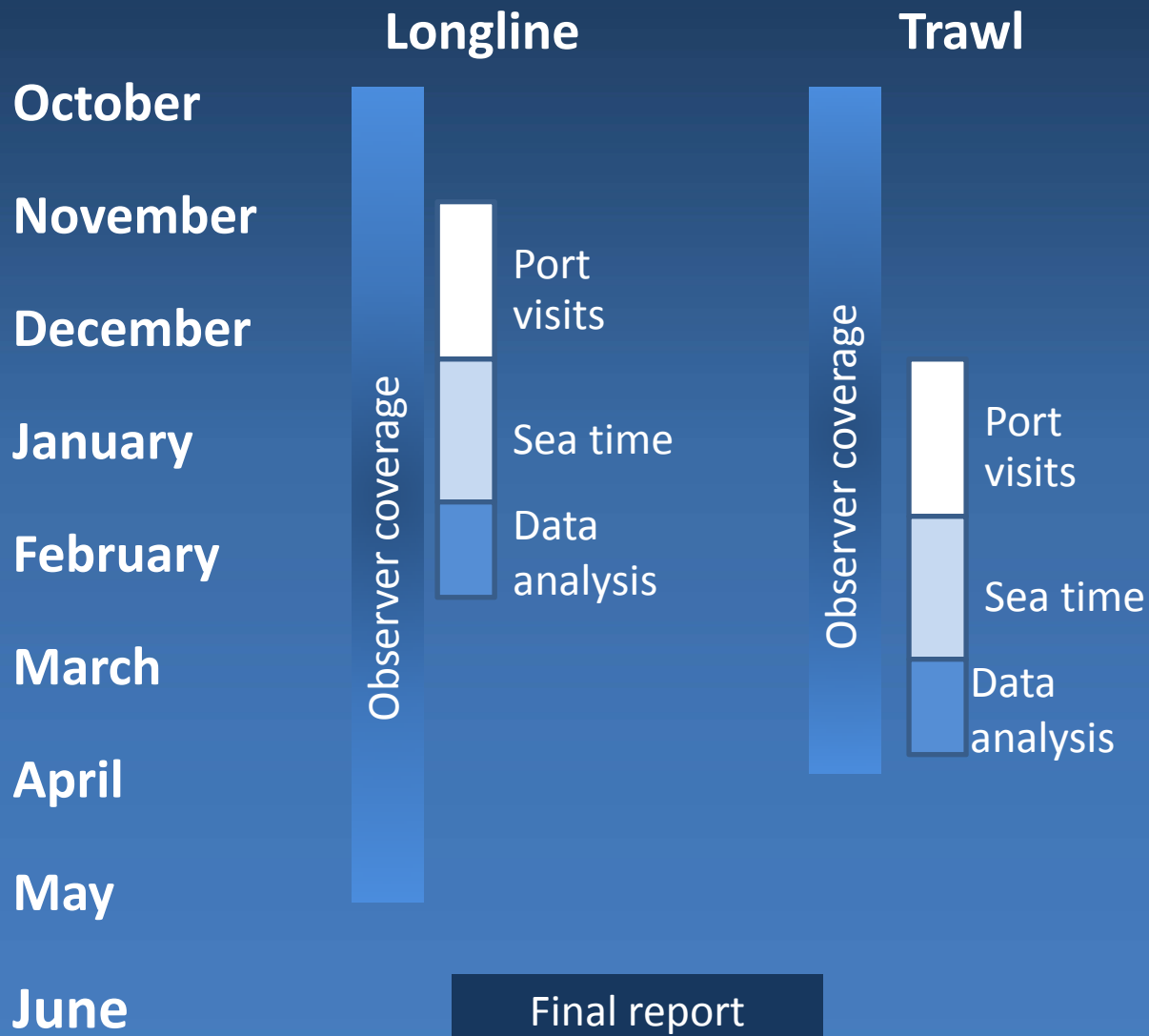
# Review conclusions

- There is currently a lack of knowledge on mitigation measures used in inshore fisheries
- Fishermen are employing various mitigation devices
- Many variables influence protected species interactions
- Protected species captures are rare and often clumped
- Whilst inshore fisheries share some similarities with deep sea vessels and operations a different approach to mitigation measures is required
- Confidentiality of information is crucial to collecting representative data

# Where and why

- Longline North East Coast of North Island
- Trawling East and West Coasts of South Island
- Highest risk areas
- Tie in with observer coverage

# Timeline



## Distribute information

- Birds: ID sheets, species summary
- Mitigation: options available

## Record fisher's views and experience

- Mitigation use
- Potential development / new ideas
- Usability of current regulations
- Birds
- Offal
- Gear

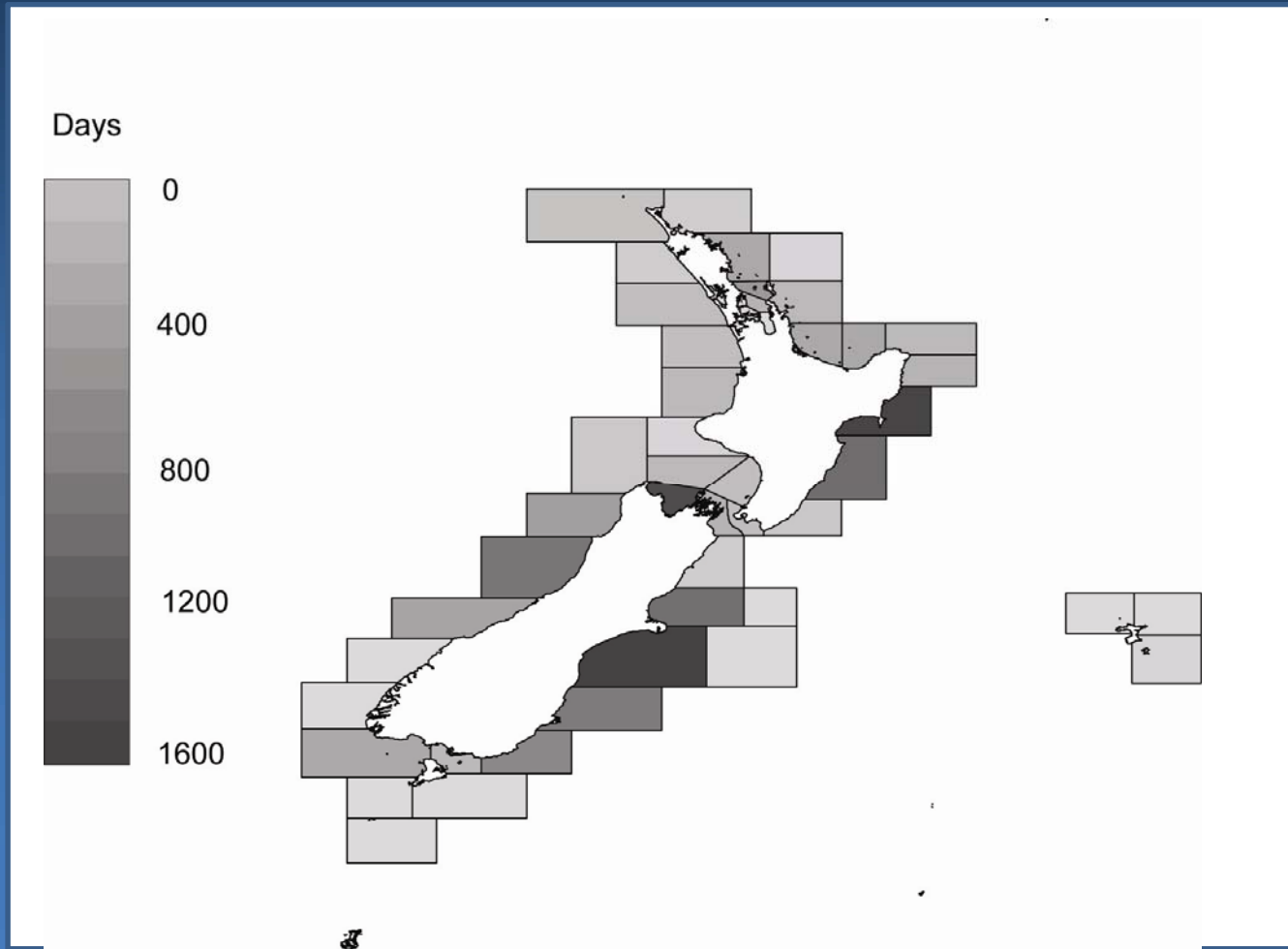
# Sea time

- Rigorous collection of gear variables, environmental conditions , bird abundance and behaviour.
- Testing of mitigation devices / practices

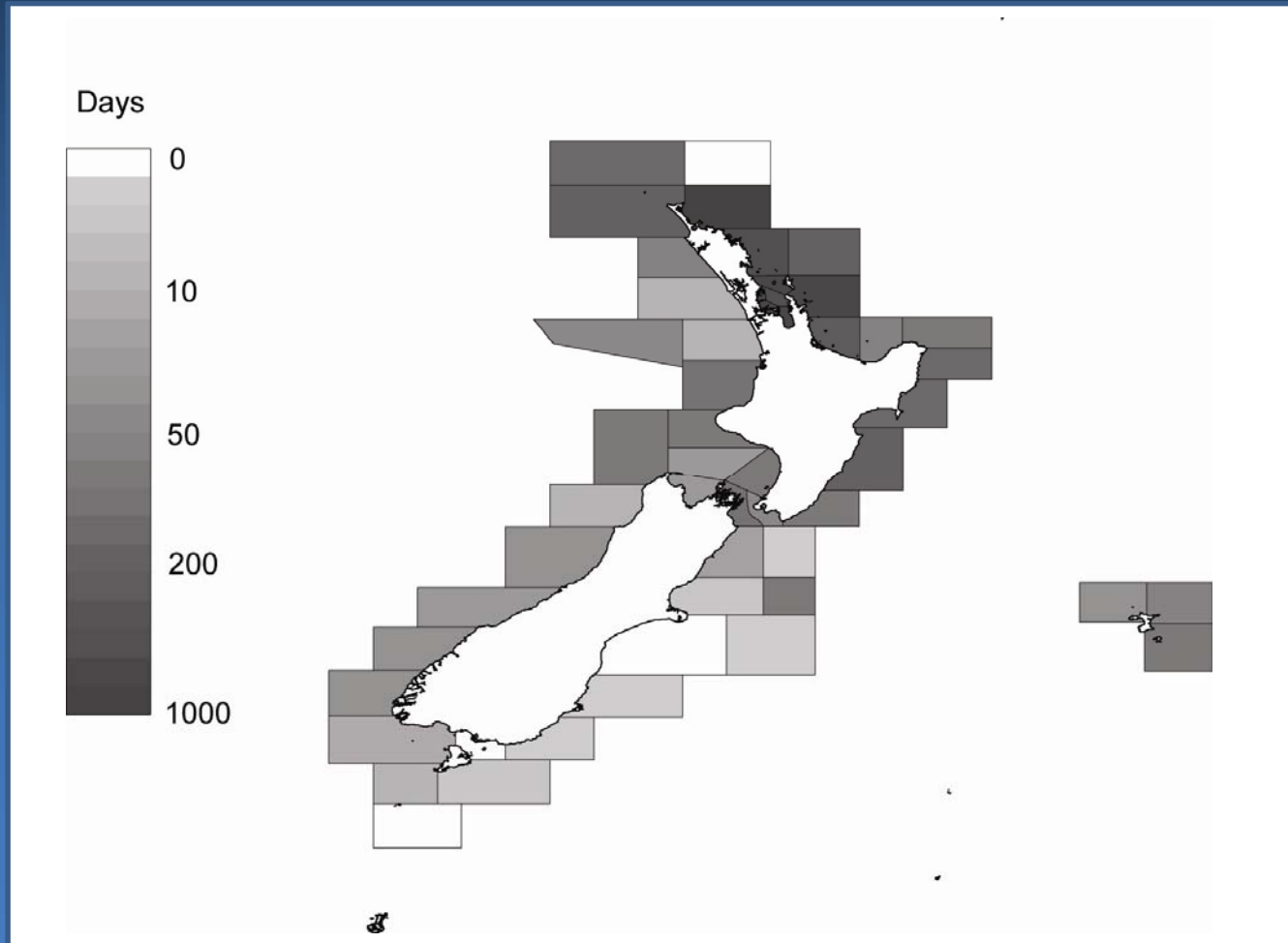




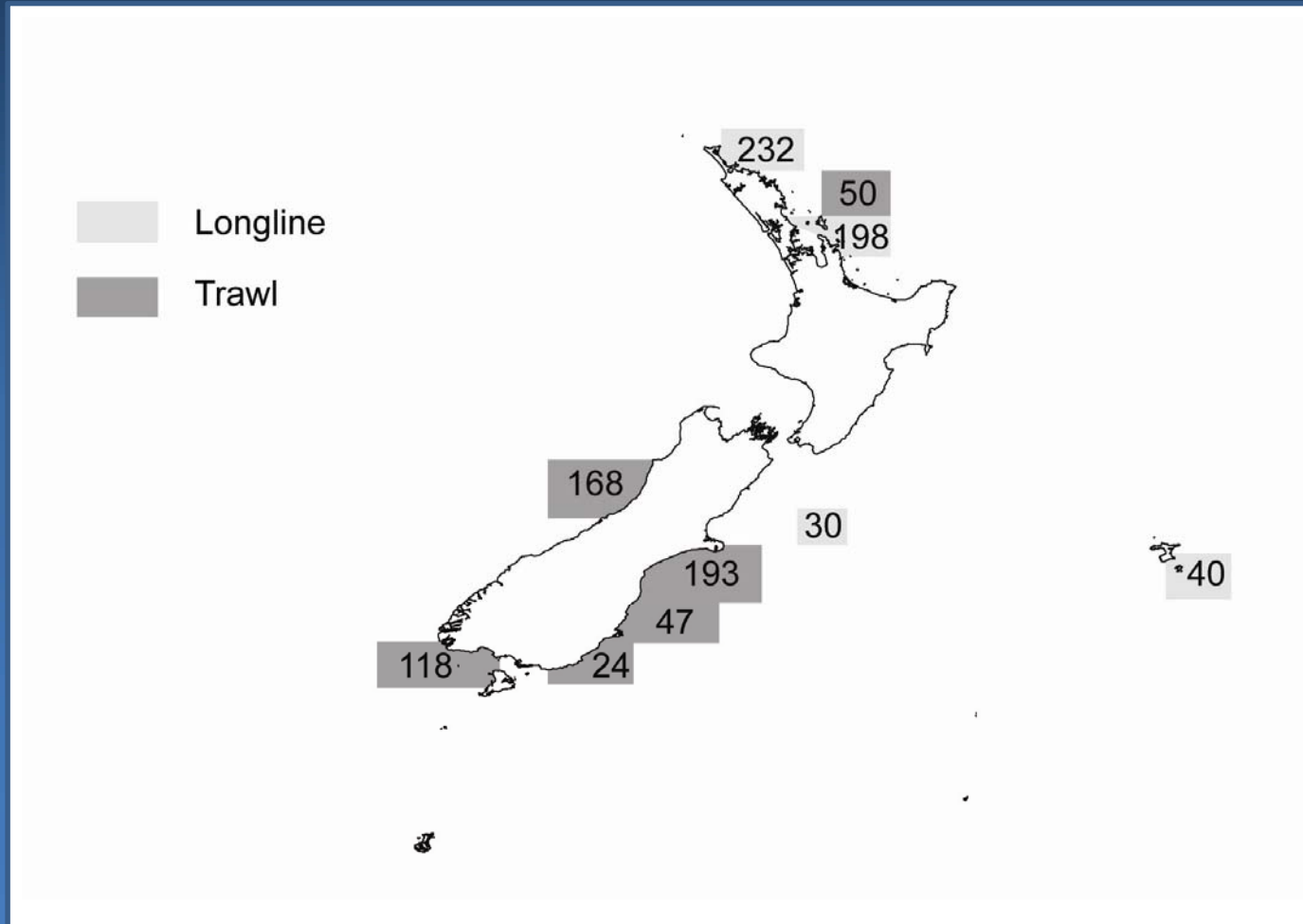
# Inshore Bottom Trawl Effort 08-09



# Inshore Demersal Longline Effort 08-09



# Observer Days Planned 09-10



# Trawl mitigation

Mitigation Measure	Cost	Problems	Hassle factor	Safety Risk	Comments	Potential for inclusion in project
Shooting practice avoid tight – slack – tight net	L		H	L		
Net binding	L	Doesn't always release	H	L	Limited use with small bottom trawls.	
Clean stickers	L		H	L	Should be a given	Yes
Turn to haul?	L		M / L	L		
Warp scarers	M		M	M	Try rigid pipe and float	Yes, document whats in use. Develop this.
Offal mincing	H		H	L	Not practical on small vessel	No space, too expensive
Light levels	L		L	M		Yes, document whats happening.
Offal retention / discarding practice	M	Deck space	H	L	What do inshore trawlers discard or process with offal left - not a lot??	Yes, document whats happening.
Mending with net on board	L	Deck space	H	L		
Smooth warps	M	Change warps more regularly, less sprags	L	L		

# Demersal longline mitigation 1

Mitigation Measure	Cost	Problems	Hassle factor	Safety Risk	Comments	Potential for inclusion in project
Tori line	M-H	Wind / swell reduces effectiveness	M	L	Lot of work been done / modifications. Not used regularly by inshore fleet due to perception not necessary, and tangle problems. May not be particularly effective for diving birds.	Paired lines? Monofilament tori line
Night setting		May not allow for best fishing opportunities. May reduce cpue	H	L	Difficult to observe interactions at night.	Night vision goggles! - No data on this.
Line weighting	M-H	more strain on gear safety issue. Weighting regime not practical for all vessels / types of fishing.	H	H	Issue is really sink rate and how best to achieve a high sink rate. Problems when hauling heavy gear. Not always compatible with floats / lines off the bottom.	Sink rates, TDR s required. No data from inshore vessels at present
Offal management	L	Storage of offal	H	L	Strategic discharge?? Bait management, scupper screens,	Yes
Low / reduced light levels	L	illuminating working area sufficiently without 'overspill' of light	L	M		Yes - information / help with shielding lights
Dyed baits	M	Reduction in catch?	M	L		Yes potentially test if catch rate similar
Thawed baits	L	Increased bait loss		L		
Avoiding lots of birds	U	Assumes fisher has to move to less preferred grounds	L-H	N		Interview
Fish oil	M	Introducing oil to environment - detrimental effects on environment, birds (feathers)	L	L	Observed to work on flesh footed and short tailed shearwaters	Yes

# Demersal longline mitigation 2

Mitigation Measure	Cost	Problems	Hassle factor	Safety Risk	Comments	Potential for inclusion in project
Underwater setting devices	H	Bait loss, not practical for small vessels	H	L		Too costly / impractical
Close to watersetting	M		M	L	Vessel design	Too costly / impractical
Line shooter	M	not nec effective, didn't appreciably increase IW line sink rates.	M	M	Need tension to clip snoods on	Only if already on boat.
Side setting	L	Pre-determined by vessel set up, line in prop?	L	L	Vessel design	No, Vessel design issue.
Minimise bait loss	L	Autobaiters need constant tuning / maintenance	L	L	Win-win situation	Yes
Brickle curtain	L	Wind, tangles	M	L		Yes
Tori pendula	L	Wind, tangles	M	L		Yes
Acoustic cannons	M	Habituation, hearing protection	L	M		Yes
Water cannons	L-H	Wet crew, reduced effectiveness in wind	M	M	Deck hose at haul may be useful	Yes
Bait retention / discarding practice	L	Old habits die hard	M	L		Yes
Offal retention / discarding practice	L		M	L		Yes
Scupper screens	L	Stability	M	M		Yes

# Demersal longline mitigation 3

Mitigation Measure	Cost	Problems	Hassle factor	Safety Risk	Comments	Potential for inclusion in project
Bird release gear	M		M	L	Look into what is available should be able to release majority of birds caught at haul alive	Yes - see whats on the market
Make bait unattractive to birds		May not fish as well	H	L	Spiky bait, dissolvable covering	Too high-tech?
Change bait types	L	How easy is it to get off hook. Lots theories on what catches / doesn't catch and what birds do and don't like	M	L		Difficult to test without huge samples. Gather information / theories from skippers
Visual deterrents	L		M	L	Shiny crinkly paper / cds	Yes
Ariel discouragement	L	Remote e.g. kite and tail	M	L	Ariel equivalent of a tori line = no tangles	Yes
Berley bomb	M		M	L	Make birds feed away from boat - fill them up	Questionable as to whether this is a good idea
Hook design	M		M	L	Dissolving bar , metal bit sticking out, toothpick	Document different hook use and investigate other options.
Laser	H	Marinising existing designs	M	L	Used in agriculture sucessfully	
Audio scaring	M		M	L	Distress calls / predator calls	Yes if we can find some suitable sounds
Calendar of vulnerable times / areas	M	Time consuming tracking down data	M	L	Relate large capture events to moon phase etc.	Yes
Plastic baits	M	May require movement	L	L		
Deter birds - don't give them a reason to stay.	L		L	L	Combination of above	Yes, knowledge will help