Ecosystem Approach to Fisheries Management in New Zealand Deepwater Fisheries

Presentation to the 2023 Seafood Production Symposium
16 February 2023

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COMMITTED TO
HEALTHY OCEANS
SUSTAINABLE FISHERIES

Annually, deepwater fisheries provide the world with an estimated

700 million

servings of natural nutritious seafood

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Annually, deepwater fisheries contribute $2.7 billion to New Zealand's economy

Up from $1.8 billion in 2015

and employ around 8,500 people

Up from around 6,000 people in 2015

Source: BERL (2022) The economic contribution of commercial fishing to the New Zealand economy

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Deepwater catch in New Zealand

290,000 GWT annual catch volume of deepwater fisheries

81% of total EEZ catch

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Environmental Effects

All food production (including the taking of fish) requires some degree of environmental change and /or effect.

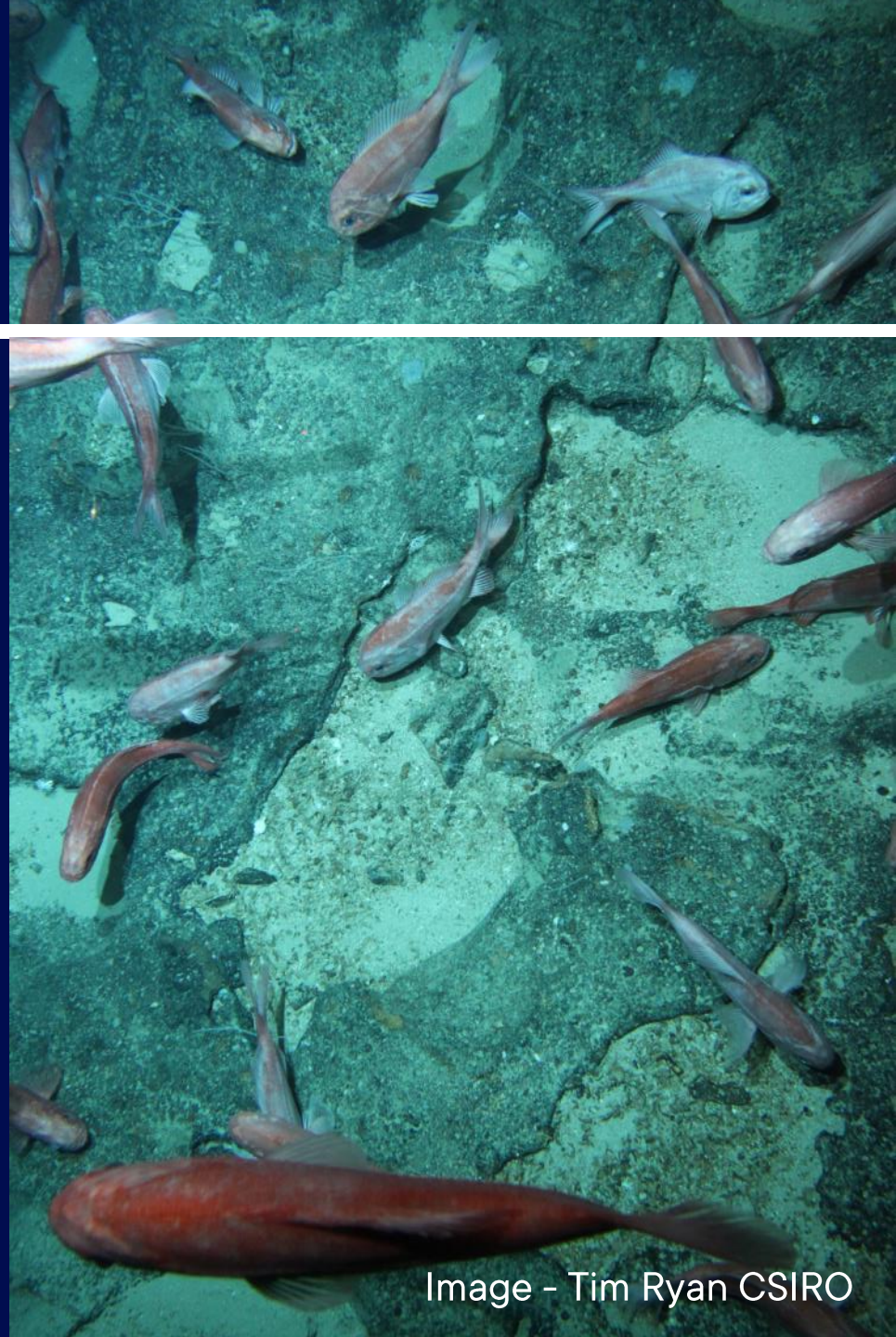

Image - Tim Ryan CSIRO

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Fisheries Act 1996

- The Fisheries Act 1996 provides for fishing
- The Act is the principal legislation for managing fishing in New Zealand's Territorial Sea and Exclusive Economic Zone (EEZ)
- The Fisheries Act 1996 is also the primary statute for prescribing obligations in relation to the effects of bottom trawling on the aquatic environment in New Zealand waters.

The Fisheries Act 1996: Purpose (s 8)

(1) The purpose of this Act is to provide for the utilisation of fisheries resources while ensuring sustainability.

(2) In this Act, —

- **ensuring sustainability** means—
- (a) maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and
- (b) avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment.
- **utilisation** means conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural well-being.

Fisheries Act 1996: Clarification

In 2009 the New Zealand Supreme Court clarified this duality in the *New Zealand Recreational Fishing Council v Sanford* case finding:

> "**Fisheries are to be utilised, but sustainability (of the fisheries) is to be ensured**"

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Fisheries Act 1996: Clarification

- *[…] The Fisheries Act pursues **sustainable utilisation**; it exploits the potential of fisheries resources to meet human needs over time, and it interests itself in the aquatic environment because that sustains fisheries resources. So, its objectives include avoiding or mitigating the adverse effects of fishing on the aquatic environment and it pursues protection of habitat where that is of particular significance for fisheries management. Although it recognises that biological diversity should be maintained, it allows that principle to be weighed against other considerations, notably that of setting total allowable catches at levels that can produce the maximum sustainable yield*

Fisheries Act 1996: Principles (ss 9-10)

- The environmental principles are derived from New Zealand's international obligations under the United Nations Convention on the Law of the Sea (UNCLOS) and the Convention on Biological Diversity (CBD).
- The principles are wide in scope and require decision-makers to **take into account** species viability, biodiversity maintenance of the aquatic environment, and habitat protection of areas of particular significance for fisheries management.

Fisheries Act 1996: Principles

- While the Fisheries Act provides for stock management-based approach that necessitates management on a species-by-species basis,
- The purpose, the environmental and information principles, together enable management within an “aquatic environment” broadly, recognising the interdependence of stocks, providing for an ecosystem approach to fisheries management (EAFM).

Fisheries Act 1996: Effects

- Interestingly while the Fisheries Act establishes an Ecosystem Approach to Fisheries Management (EAFM) - **EAFM itself is not in the Fisheries Act**
- It follows that the *effects* driven sustainability and utilisation components of the Fisheries Act 1996 work together ensure that the it is underpinned by EAFM.
- EAFM is clear in the s8 purpose – and its requirement for actors to act when *effects* on the aquatic environment are found to be adverse.

Fisheries Act 1996: Risk and Effects

The act anticipates the implementation of a risk-based framework which enables managers to qualify management decisions in terms identifying effects or potential effects, determining whether these effects adverse and providing requisite qualification to support the avoidance, remedying, or mitigation of these adverse effects.

Fisheries Act 1996: Effects

- When providing for the utilisation of fisheries resources while ensuring sustainability, the Act recognises that fishing may have a range of effects on the environment but the obligation, in order to ensure sustainability, is to avoid, remedy or mitigate only adverse effects.
- While "*effect*" is defined in the Act broadly and includes effects that are positive and adverse,
- *Adverse Effects* are not defined in the Act, but the common meaning is "having a negative or harmful effect on something".

Fisheries Act 1996: Innovation

- The Fisheries Act 1996 is innovative,
- The Act provides for the majority of commercially fished stocks to be managed under the Quota Management System (QMS) putting the fisher formally within the management framework,
- It also requires fisheries management decisions to be based on the best available information.

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EAFM in Action

Implementing EAFM?

Reduce incidental interactions with epibenthic biota

Seabirds

Further reduce incidental interactions with marine mammals and seabirds

Quantitative surveys of benthic biodiversity

Sharks

Onboard information portal

Further enhance acoustic biomass capabilities

Monitor areas under trawl path

Marine Stewardship Council **(MSC) Certification**

Verify our performance against world's **best practice**

Environmental risk management programme

Marine Mammals

Sustainable fisheries and oceans management

Operational Procedures

AEEF Assessment of Environmental Effects of Fishing

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Implementing EAFM

MSC certification placing New Zealand deepwater fisheries in the top 5% of best-managed fisheries in the World

Monitor areas under trawl path to better understand benthic effects

Reduce incidental interactions with epibenthic biota

Quantitative surveys of benthic biodiversity

Further and ongoing reduction of incidental interactions with marine mammals and seabirds

Marine Stewardship Council (MSC) Certification

- 19 New Zealand hake, hoki, ling, orange roughy and southern blue whiting fisheries are certified sustainable in conformance with the MSC Fisheries Standard.
- Save orange roughy, New Zealand's certified fisheries are certified without any conditions of certification, which puts them in the top 5% of the world's best-managed independently assessed fisheries.

MSC Certification: The Fisheries Standard

- The MSC Fisheries Standard is a robust global science-based normative standard - considered to be the global gold marine environmental sustainability standard.
- Fisheries that meet the science-based MSC standard as assessed by a team of fishery and marine environmental experts who are independent of both the fishery and the MSC are certified as sustainable.
- The recent report from the Office of the Prime Minister's Chief Science Advisor noted that a "*strength of the MSC standards is that fisheries have to maintain certification, not just achieve it once*."

MSC Certification

The New Zealand fisheries management system is renowned as one of the best in the world, being comprehensive, integrated, and supporting sustainable deepwater fisheries using a balanced ecosystem management approach.

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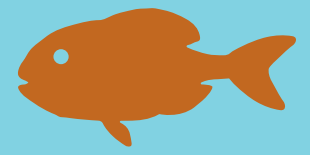
Certified as Ecologically Sustainable

19
deepwater fisheries certified by MSC

~63%
of the 2021-22 deepwater catch

CERTIFIED SUSTAINABLE SEAFOOD MSC www.msc.org


3 orange roughy fisheries


2 hoki fisheries


2 hake fisheries


10 ling fisheries


2 southern blue whiting fisheries

- Hoki, hake, ling, & southern blue whiting fisheries to commence reassessment This year (2023) for certification in 2024
- First surveillance audit for orange roughy this year (2023)

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Monitor areas under trawl path

Routinely monitor benthic habitats we trawl.

To do this, in partnership with CSIRO:

- Develop headline camera systems
- Deploy these on commercial tows
- Quantitatively analyse footage using CSIRO's advanced AI capabilities
- Determine trawl overlap with mud, sand, and biogenic benthic environments

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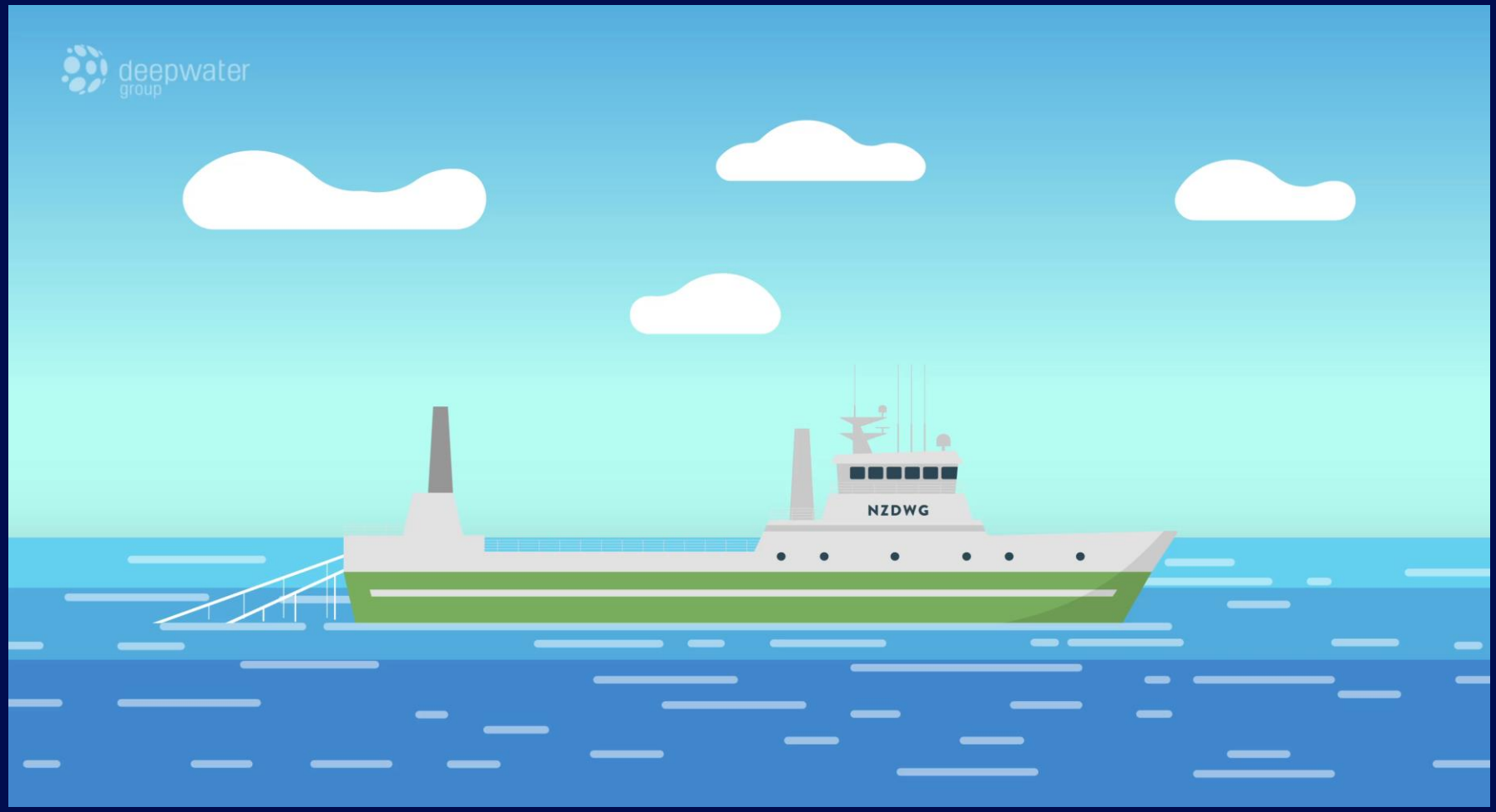
Reduce incidental interactions with epibenthic biota



deepwater
group

Surveys of benthic biodiversity

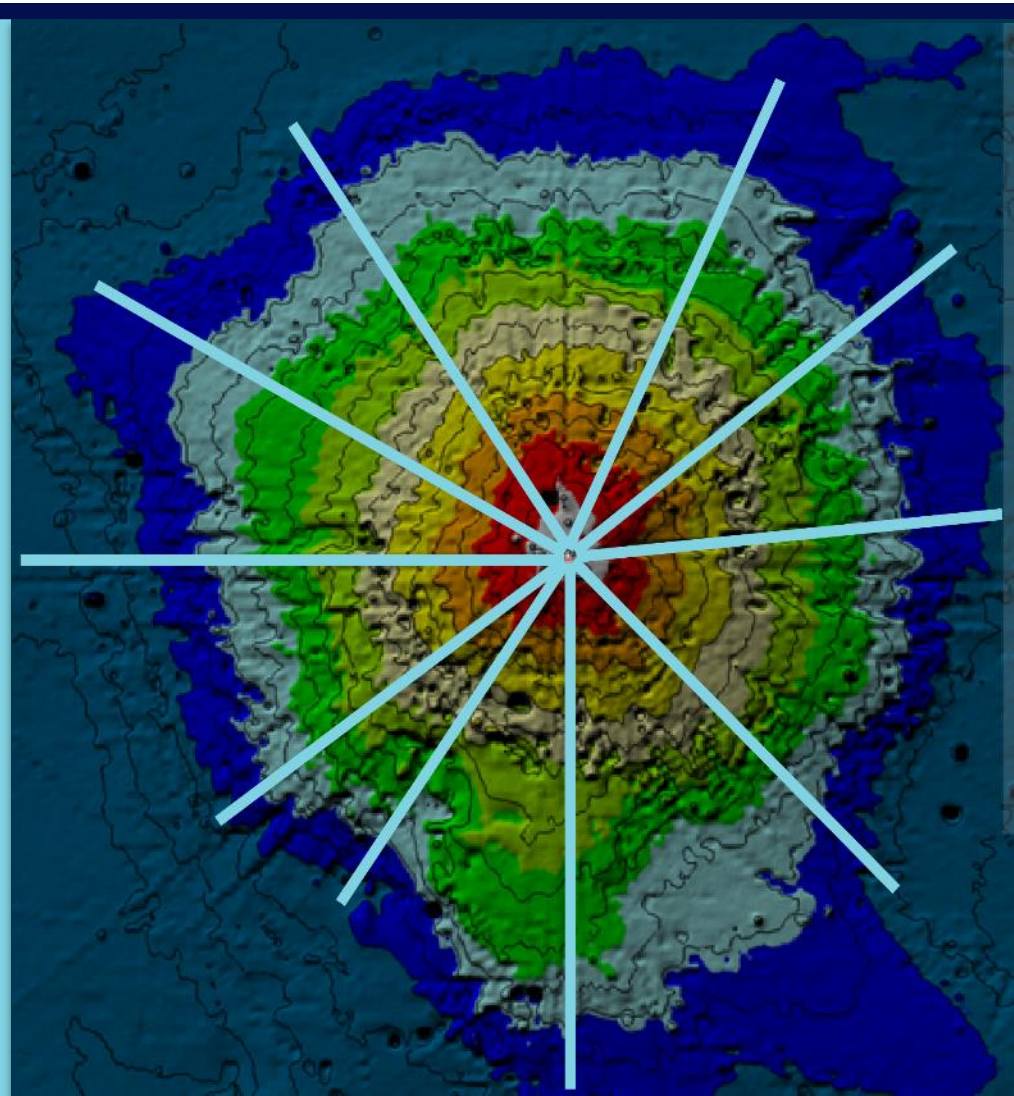
Identify UTFs where coral incidence reported

Undertake benthic biodiversity surveys

Quantitatively analyse biodiversity using CSIRO's advanced AI capabilities

Ground-truth to determine trawl overlap with mud, sand, and biogenic benthic environments

Use these scientific data to determine **best management response**



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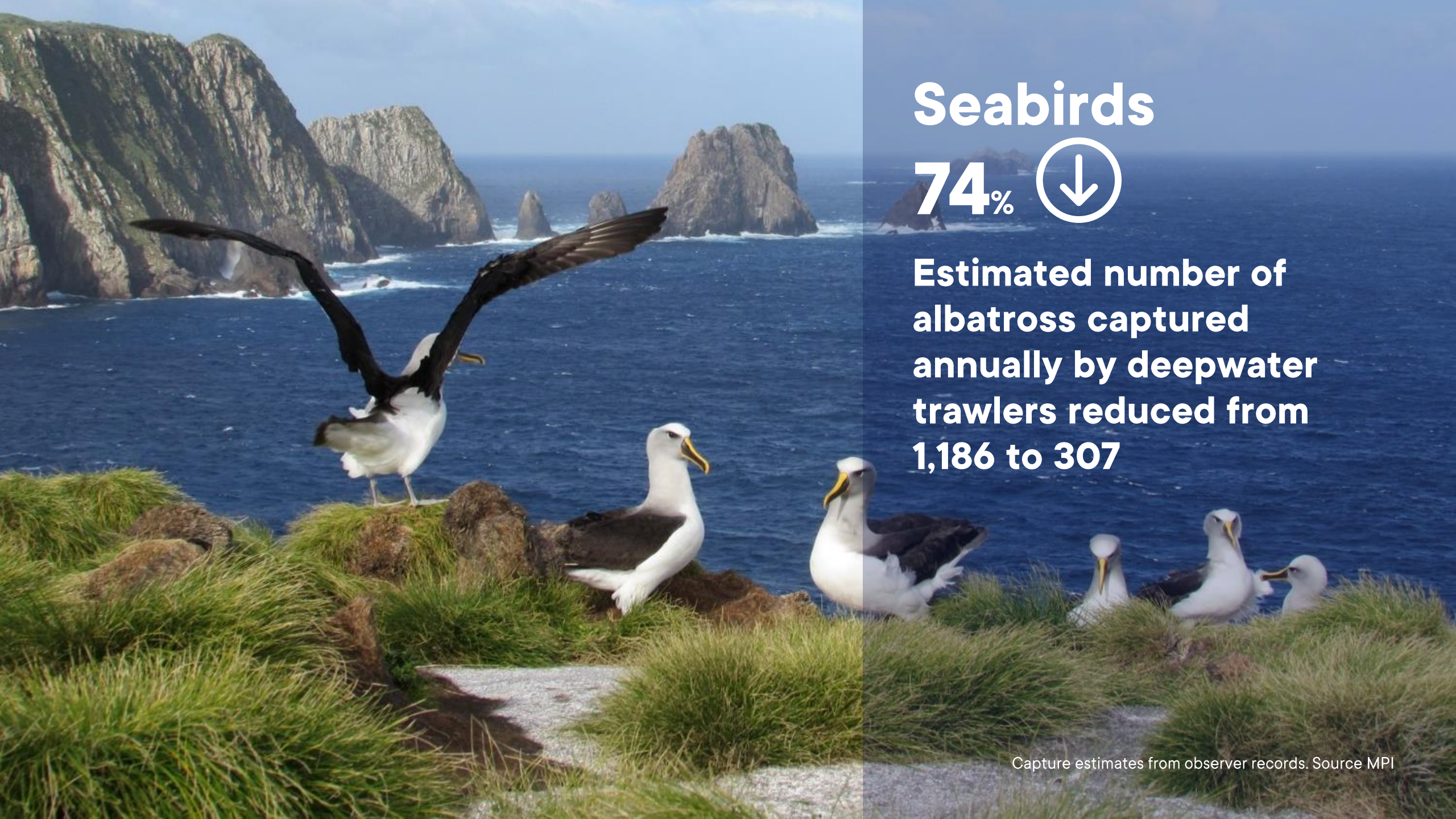
Further reduce interactions with seabirds and Marine Mammals



Seabirds

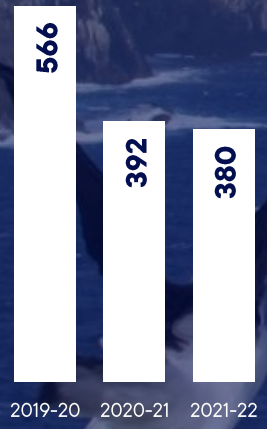
74%

Estimated number of albatross captured annually by deepwater trawlers reduced from 1,186 to 307

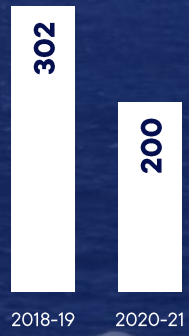
Capture estimates from observer records. Source MPI

Reducing harm to seabirds

The reported number of seabird captures since 2019-20 has been reduced by **30**% from 566 to 380 birds



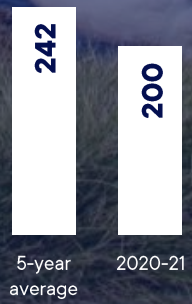
The reported number of albatross captures since 2018-19 has been reduced by **30**% from 302 to 200 birds



The average estimated number of seabirds captured in the squid fishery since 2013-14 has been reduced by **55**% from 18 to fewer than 8 per 100 tows

The reported number of seabird captures in 2020-21 was **18**% below the 5-year average

The reported number of albatross captures in 2020-21 was **17**% below the 5-year average



Rollout of ER across the fleet was not completed until the first quarter of the 2019-20 fishing year.

Fur seals

>90% ↓

Estimated number of fur seals captured annually by deepwater trawlers reduced from 1,010 to ~100

Capture estimates from observer records. Source MPI

Sea lions

~80%

Estimated number of sea lions captured annually by deepwater trawlers reduced from 45 to 9

Capture estimates from observer records. Source MPI

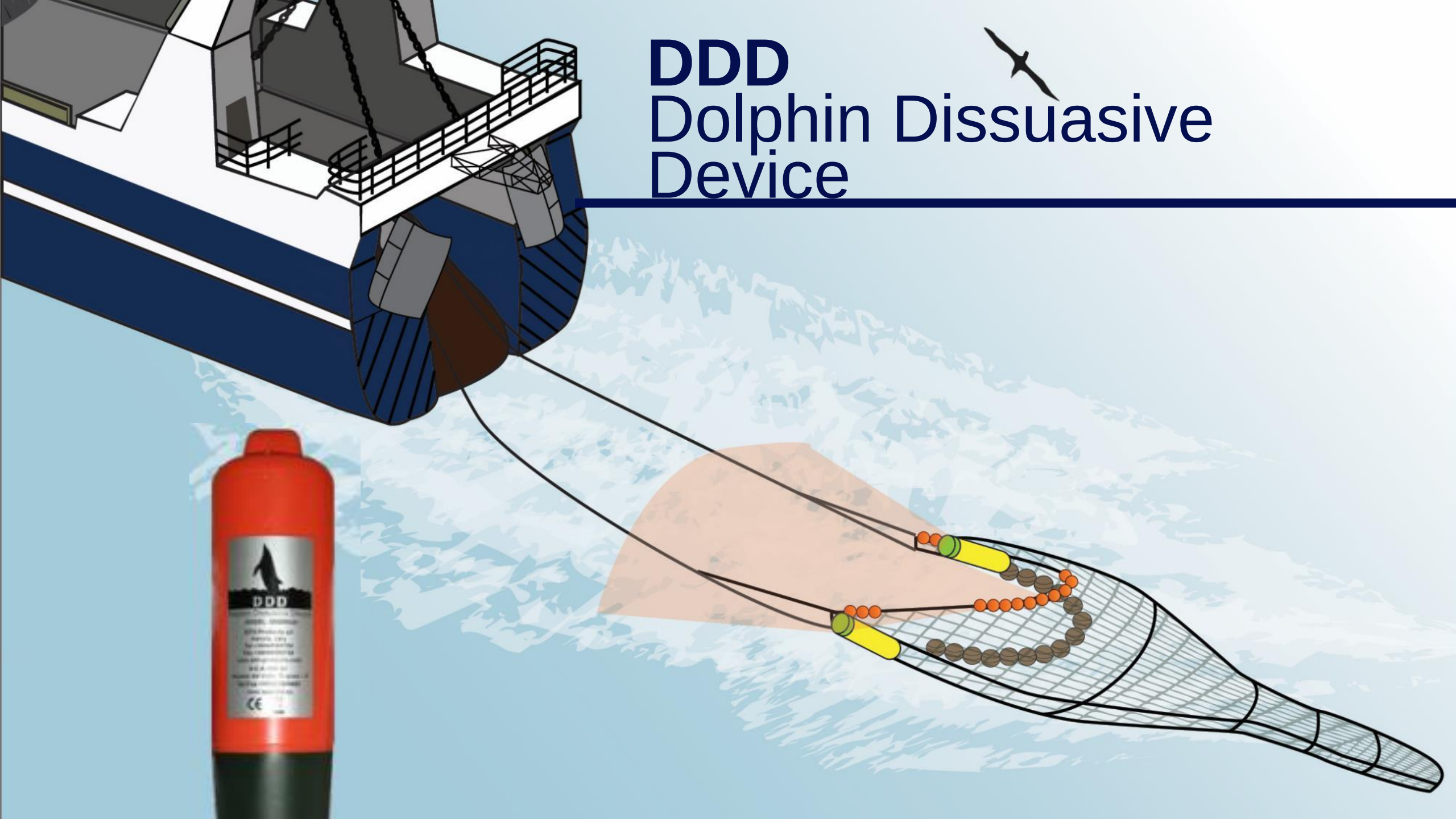
Common dolphins

>99 ↓

Estimated number of common dolphins captured annually by deepwater trawlers reduced from 85 to close to 0

Capture estimates from observer records. Source MPI

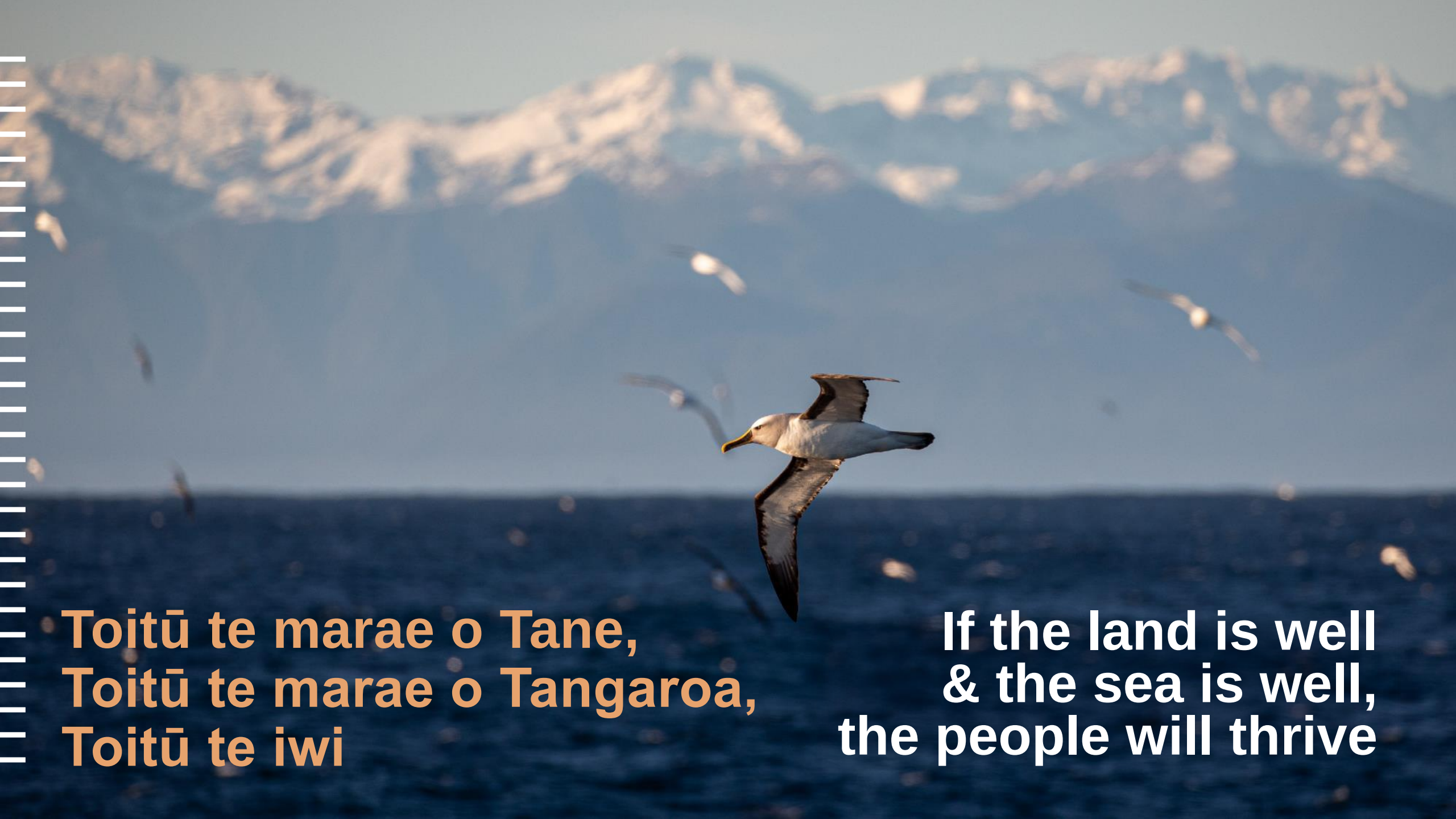
DDD
Dolphin Dissuasive Device



Our Carbon Footprint

Assessment of carbon footprint in deepwater trawl fisheries

- Have undertaken preliminary analysis on fuel use and efficiency in the deepwater fishing fleet, and preliminary results indicated low and declining carbon emissions over past 30 years for the same catch volumes.
- AgResearch has undertaken a carbon life cycle assessment of harvesting by New Zealand deepwater trawlers in the EEZ.


Toitū te marae o Tane,
Toitū te marae o Tangaroa,
Toitū te iwi
If the land is well
& the sea is well,
the people will thrive


Thank you
www.deepwatergroup.org
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