



2020-21

Annual report

Deepwater Group Ltd



deepwater
group

Committed to
Healthy Oceans
Sustainable Fisheries

Annual report 2020-21

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FV *Mainstream*. Independent
Image: Jared Waddams

Report from the Chairman

CHAIRMAN'S REPORT TO SHAREHOLDERS 10 FEBRUARY 2022

I commend all Shareholders for the way that you have tackled the considerable challenges due to Covid-19 for a second year. These challenges have obliged you to keep your work spaces safe, to access skilled and experienced workers despite the onerous border restrictions, and to achieve sales despite the disruptions to international markets and to distribution logistics. Notwithstanding these additional hurdles, Shareholders have continued to catch, process and maintain a semblance of normal trading and to fund and support collective improvements to fisheries management outcomes. Doubtless these matters will continue to consume a lot of your executive time during 2021-22.

2020-21 was another successful year for the Shareholders of DWG. The Board continues to function very well, thanks to the active and engaged participation by Directors, who continue to be united and aligned towards long term conservative

sustainability outcomes. An express thank you to all Shareholders for your continued support and for again funding DWG's work programme which was again completed within the agreed budget. A particular thanks to the small team at DWG for their continued dedication, perseverance and delivery of another year of successful outcomes. Of note was their efforts in preparing a clear and comprehensive public report, "*Towards a Deeper Understanding*", summarising your collective achievements as Shareholders through DWG since 2006 – all in some 15 successful years.

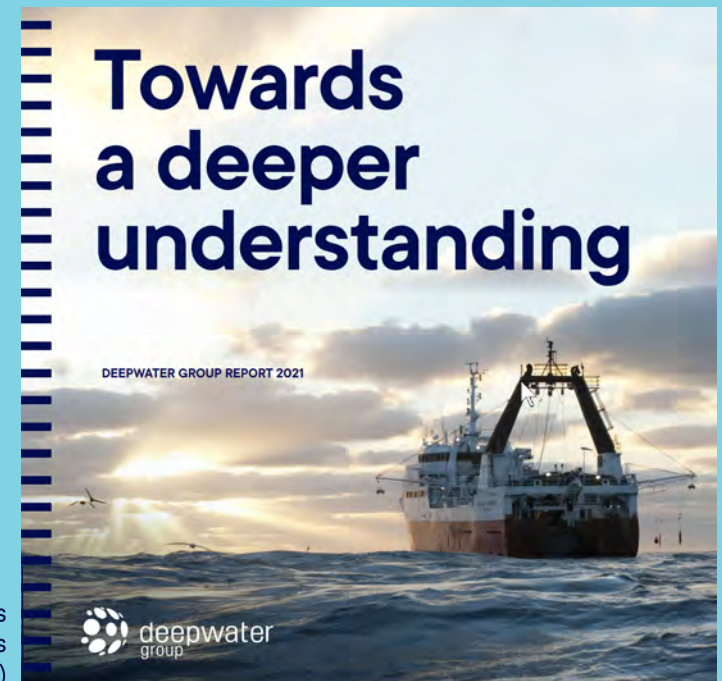
During 2021 hoki quota owners reached agreement for a fourth consecutive year to continue with conservative, industry-led management of these fisheries. I wish to acknowledge the range of views held and the concerted effort by all to reach an effective and agreed outcome.

Orange roughly quota owners deserve recognition for their unstinting support for the direct purchase of further science – biomass surveys, benthic habitat

DWG's report, *Towards a Deeper Understanding*, celebrates the sustainability of New Zealand's deepwater fisheries (Go to tiny.one/DWG2021 to access the full report)

surveys and the development of headline camera systems over the next five years. This work, co-funded by CSIRO and quota owners, will be material in bringing real-world information to the debate on bottom trawling within the EEZ.

Your continued support for MSC certification is appreciated and acknowledged, in particular all of the efforts by DWG and vessel operators to meet the ever changing requirements





Marlborough Sounds. Image: Tamzin Henderson

and to continue to deliver operational outcomes that meet or exceed the MSC's changing standards. These will continue to oblige Shareholders to make further operational changes to maintain certification. We should embrace these matters where they improve sustainable outcomes so long as they are soundly based on science, and we can continue to produce sustainable seafood.

We all recognise that this Government is developing policies that may serve to have adverse impacts on seafood businesses, without any consequent improvement to the sustainable utilisation of deepwater fisheries resources. I have watched with concern MPI's attitude changing from 'co-management' to distant 'regulator,' exacerbated by reduced levels of fisheries expertise and knowledge within MPI.

DWG will continue to actively engage with MPI, FNZ and others to do all that we can to ensure that any changes are fit for purpose and improve management outcomes, with as little disruption to

commercial activities in our deepwater fisheries. This will be challenging.

I express appreciation to all of those in industry who assisted Dame Juliet Gerrard with her review leading to her understanding and support for the QMS, along with the strengths and weaknesses of management systems. This could have gone the other way, but instead was more like a rebuke in the margins.

There are concerns with the lack of performance by Seafood New Zealand (SNZ) to date. The industry-wide strategic issues that they have initiated, such as working directly with Ray Smith and his staff to build an 'Accord' on key matters, have not to date produced improved outcomes for commercial fishing.

My focus as Chairman is to ensure that the benefits delivered to you by DWG over these past 15 years are both retained and enhanced. With changes come both opportunities and threats. Please carefully consider the proposals from SNZ to re-order industry representation during 2022 and be aware of what may result from the different options in front of you.

Lastly, I also wish to personally acknowledge and thank both George Clement and Richard Wells, who have been unrelenting driving forces of DWG since 2006. George and Richard are both moving on from DWG at the end of the 2021-22 year. I wish them well and welcome Aaron Irving who will take on the CEO role from that time.

Once again, I thank all of you for your continued support for DWG and for the collaborative programmes that we have successfully implemented together. Despite the considerable challenges faced within New Zealand and in your markets, I hope that all of you had a successful 2021 and I wish all of you a very prosperous 2022.



Tom Birdsall

Report from the CEO

FV *Otākou*. Sealord. Image: Tamzin Henderson

CEO'S REPORT TO SHAREHOLDERS 10 FEBRUARY 2022

Despite another very difficult year in so many respects, we do have much to celebrate. I'd like to thank all shareholders for your continued and unwavering support over these past 15 years.

During this time, deepwater quota owners have collectively made excellent progress: improved fish stocks, improved science, reduced environmental interactions, MSC certification, and an effective operational working relationship with Fisheries New Zealand.

Delivery of these has not been without challenges and we can expect these challenges to continue.

I would like to briefly recap on our progress during 2020-21 and to provide you with a heads-up on what we face in 2021-22.

DWG has commenced our fourth five-year strategic plan. Our vision remains "*To be trusted as the best managed deepwater fisheries in the world.*" We have established the success of our ecosystem-based management through independent verification by MSC of around 60 percent of

our catch, by publicly-released reports (including "*Towards a Deeper Understanding*" of which some 900 copies were distributed), through press releases, and information on DWG's website. These will continue over 2021-22 and I encourage you to make full use of these resources and to advise DWG where additional information would serve to further support your businesses.

We are facing a new era – one where all too often the Government's fisheries policy is driven by ideology and sentiment rather than by the obligations of the Fisheries Act, the need for sustainable food production and for their decisions to be based on the best available information. This Government's propensity to be influenced by lobby groups will only serve to weaken our fisheries management systems. We must persist and prevail with rational logic and the facts, based upon science and real-world expertise. It was heartening to read Dame Juliet Gerrard's report which in large part stuck to the 'science,' endorsed the QMS and offered areas for improvement – most of which don't pertain to deepwater fisheries. DWG has since met with her and advised her of the remedial plans that we have in place.



Over the past five years (2016-17 to 2020-21) MPI has levied deepwater quota owners \$37.2m for science projects and \$11.9m for their Scientific Observer Programme. In addition to this, deepwater quota owners have directly invested an additional \$4.3m in the direct purchase of additional science

through DWG. With your support, we will continue to ensure these investments deliver value to the sustainable management of New Zealand's deepwater fisheries, noting that the science being purchased by FNZ has, all too often, been proven to be not fit for this purpose.

In 2021, orange roughy quota owners signed a new five-year contract with CSIRO for a co-funded research programme, valued at \$11m. The objectives are to improve our understanding of deepwater benthic biodiversity, of the impacts that we are having due to bottom trawling, and of our estimates of orange roughy biomass. DWG is aware that FNZ is not totally supportive of the industry's direct purchase of science, even though much of this should be funded by the Government as Public Good science. However, in the absence of Government actions in these areas, as the results are essential to establish the minimal effects bottom trawling is having in the EEZ, by default quota owners are funding this work directly. We will continue to work directly with FNZ to seek their support.

The Government has called for increased transparency of our activities at sea. The deepwater trawl fleet continues to lead the way with this, having long reported catches and catch locations electronically and having high at-sea observer coverage (over 40 percent in each of the past six years and up

to 100 percent for 'high risk' fisheries and vessels). This is a commendable performance by all. During 2021-22 the Government proposes extensive roll-out of onboard cameras including on many vessels fishing in deepwater fisheries. DWG is actively engaged with our main focus being to ensure that these costs fall where they lie and that MPI's cost impositions provide effective economic incentives for improved performances across the commercial fleet, and amongst those operating in the inshore fisheries, in particular.

On the matter of cost recovery, MPI has agreed to review their processes for fisheries with industry during 2022. This has been several years in gestation. Industry representation will be led by SNZ with DWG's active engagement. Of particular interest to DWG is the excessive costs MPI charges to quota owners for their 'Compliance' services. There is a need for transparency of these MPI internal costs (totalling \$62.6m in levies over the past 5 years) and for a review of the attribution of these charges. Given that most of these costs relate to surveillance and auditing of at-sea activities, DWG is of the view that these costs should be correctly attributed to vessels operators and not to quota owners. During the period 2016-17 to 2020-21 owners of deepwater quota were levied 42 percent of MPI's compliance costs while operating only 9 percent of the vessels. During this 5 year period, the estimated

average annual cost per vessel of MPI's compliance levies was \$58k for each deepwater vessel and \$13k for each 'inshore' vessel. This needs a re-balance, not only on the basis of equity, but also to set in place the right economic incentives for all to improve their performances – MPI as well as industry.

I am pleased to again report that we have successfully reduced our interactions with most protected species to now very low levels and that we are holding the line on these. These fleet-wide activities continue to be closely monitored both by FNZ at-sea observers and DWG. The improvements are a clear testimony of the ongoing care taken by all of those managing and onboard deepwater vessels and the commitment by Richard Wells and John Cleal to ensure the environmental training and liaison programmes remain effective. Our mitigation approaches and successes remain second to none in the world of fisheries management.

We will continue to face new challenges with meeting the revised MSC standards and we are presently working through the orange roughy re-certification. The main areas of change, both present and future, relate to increased requirements to both minimise any environmental impacts and to establish the efficacy of these, for bottom trawling in particular. I will remain actively engaged with the MSC processes and do all that we can to minimise adverse impacts on your businesses.



Entrance to the Tory Channel. Image: Tamzin Henderson

Bottom trawling is clearly under review by FNZ. This is largely being driven by NGO concerns, in particular their call for a ban on trawling on all UTFs (not just on true seamounts). FNZ has been directed to undertake a review of bottom trawling within the EEZ and the Minister has asked them to consider the matter of bottom trawling on 'seamounts.' DWG has made submissions to the Environment Select Committee, and we are awaiting their findings. FNZ has established a forum to consider the concerns and options, with three industry and three NGO representatives. It is evident that FNZ plans to close further areas to bottom trawling within the EEZ. DWG will remain actively engaged with you, the Minister and FNZ on this, which is possibly the largest threat to the exercising of your harvesting rights and your continued access to your fishing grounds within the EEZ.

Our support of bottom trawling will continue to be based on science and the facts, with a focus on the sustainable production of food from a comparative perspective - comparing the environmental impact of deepwater seafood production with alternatives from other sources, including land-based farming. DWG has undertaken a preliminary review on

greenhouse gas emissions by our trawl fleet over the past 30 years, which places food production by deepwater trawling very favourably in comparison with alternative sources of food production. DWG has contracted AgResearch to undertake a rigorous study on this during 2021-22 using a well-established life cycle analysis approach. The draft results are due in March.

DWG anticipates several further reviews by MPI and Government during 2022, the outcomes from which will undoubtedly have impacts on your future operations:

- A review of NPOA Sharks, based on a new risk assessment which DWG anticipates will lead to requirements for additional mitigation measures
- The Fisheries Amendment Bill, the details of which are as yet unknown. Given recent activities by MPI, industry will need to be very active in this space to ensure that the contribution to New Zealand's economy from fishing is not set aside in favour of unnecessary changes focussed on environmental protection or further unaffordable cost imposts.

Finally, I'd like to acknowledge the contributions of the Chairman, the Directors,

and the team at DWG who have worked collectively to achieve DWG's successes. This will be my last year as CEO and Aaron Irving is well placed to lead DWG over the coming years.

Having started the first industry body in 1992, representing orange roughy quota owners, I was subsequently prevailed upon by Eric Barratt in 2006 to take up the role as your CEO. While this term of 31 years may be longer than a life sentence, I have very much enjoyed being able to contribute to a wide range of activities. I will leave with the knowledge that the owners of New Zealand's deepwater quota are collectively engaged in ensuring these fisheries can now be recognised and trusted as being amongst the best managed in the world.

George Clement



Strategic plan and mission



Scampi vessel *Karearea*. Barine Developments.
Image: Alan Squires

Nobody has more to lose from low stock sizes or from any deterioration in the health of New Zealand's aquatic environment than those who rely on an ongoing commercial harvest.

The Deepwater Group Ltd (DWG) is a not-for-profit structured alliance of the owners of quota in New Zealand's deepwater fisheries. Our role is to provide a professional capacity to unite quota owners, to assist them to maintain sustainable harvest levels from New Zealand's deepwater fisheries, to manage any environmental effects of these fishing activities, and to facilitate further economic and social prosperity of our seafood sector. DWG has strong working relationships with the Ministry for Primary Industries (MPI), Fisheries New Zealand (FNZ), the Department of Conservation (DOC), scientists and others to optimise the sustainable harvests from New Zealand's deepwater fisheries resources.

DWG was established in 2006 by quota owners in recognition of the need for innovative, unified, professional and proactive approaches that underpin their businesses with effective and sustainable fisheries management practices and responsible marine environmental management. These approaches recognise the global and domestic challenges the seafood industry faces.

Oceans have recently become a focus for environmental concerns, increasing the public's interest in human activities that might affect oceanic health. Of all the world's environments, the oceans remain amongst the least understood. Better understanding the ecology of our oceans is scientifically and technologically challenging, given their ecological diversity and their

ever-changing oceanography and biodiversity. No one is more aware of this than the people in the seafood industry, who are at sea every day of the year, sustainably harvesting food from our waters.

In New Zealand, nobody has more to lose from low stock sizes or from any deterioration in the health of New Zealand's aquatic environment than those who rely on an ongoing commercial harvest.

As a consequence, quota owners are actively engaged in the science and management systems that underpin the sustainable management of New Zealand's deepwater fisheries and the oceanic environment that supports them to ensure there is a secure future for the next generations.

Ehara taku toa i te toa takitahi, engari he toa takitini.

Our success is not from the work of one,
but the work of many.

Buller's albatross.
Image: Tamzin Henderson

The policy environment within which fisheries management functions are being undertaken is increasingly moving away from being based on science and real-world knowledge. DWG will continue to work proactively and collaboratively to ensure that New Zealand's fisheries resources and the methods used to harvest these are based on the best available scientific and technical knowledge and on proven practices.

OUR VISION

To be trusted as the best-managed deepwater fisheries in the world.

When people buy seafood, we want them to think of New Zealand with confidence, knowing that our seafood is a proven, natural and sustainable food choice.

OUR MISSION

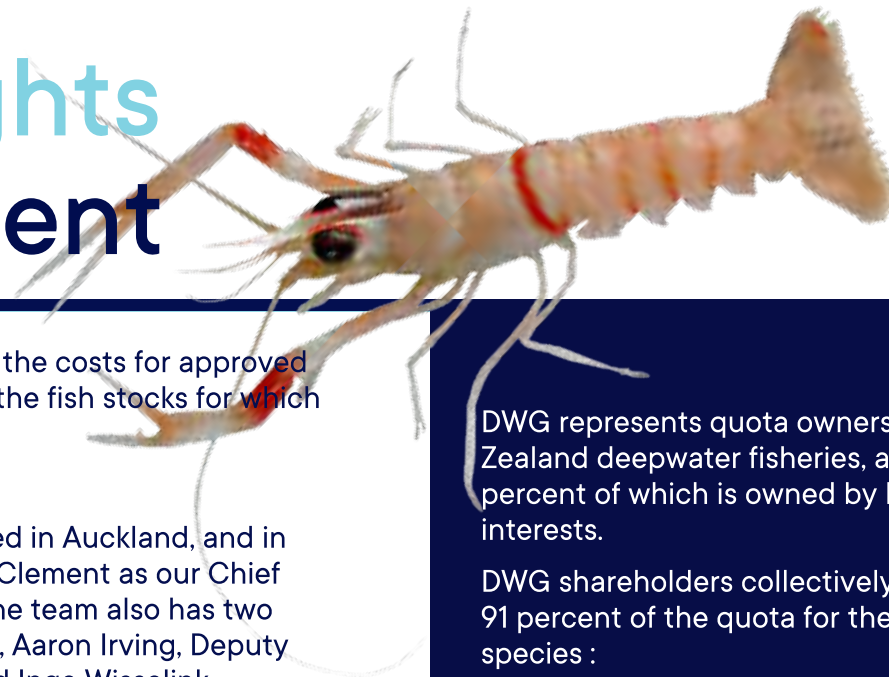
To ensure New Zealand's deepwater fisheries resources are managed to optimise their long-term sustainable yields.

OUR VALUES AND BELIEFS

- The food that we depend upon and the environment from which this is harvested requires our utmost care and respect
- The best foods are natural, sustainable, and responsibly produced
- Support our local communities and our workforce
- Committed to effective knowledge-based fisheries management, innovation and excellence
- Lead the way with inclusivity and collaboration
- Demonstrate integrity, accountability, and transparency in all that we do.

Performance highlights

Company management



Deepwater Group undertakes a range of activities and projects focused on adding value to its shareholders' businesses based on the least cost and maximum returns.

DWG is a not-for-profit organisation. We do not accumulate assets nor run a net surplus.

An annual work plan and budget is developed by the Board and Executive and provided to the AGM for consideration and approval by shareholders. There is no compulsion on deepwater quota owners to participate or to fund DWG activities.

Shareholders are invoiced for the provision of agreed services within the approved annual Business Plan. DWG costs are budgeted and managed on a project basis, attributed to the relevant fish stocks. The costs for each approved programme are apportioned amongst shareholders based on the tonnages of quota owned for each relevant fish stock. The balance of funds uncommitted at the end of the financial year is credited back to those quota owners who made the contributions.

Any owner of quota for deepwater species may become a shareholder of DWG. Each shareholder owns one share and is invited to contribute on a pro-rata basis to the

decisions on and to the costs for approved projects relating to the fish stocks for which they own quota.

Our offices

DWG's office is based in Auckland, and in addition to George Clement as our Chief Executive Officer, the team also has two full-time employees, Aaron Irving, Deputy Chief Executive, and Inge Wisselink, Business Manager. Dr. Rob Tilney, another member of our Auckland-based team, provides scientific and technical services on a contractual basis.

Aaron returned to DWG as the Deputy Chief Executive in 2021 and had previously been employed as our Senior Policy Advisor 2011-14 (during which time he was admitted as a Barrister and Solicitor of the High Court of New Zealand). Before returning home to New Zealand, and to DWG, Aaron was the Chief Executive of the Pearl Producers Association (of Western Australia and the Northern Territory) and the Executive Chair of the [Australian] National Aquaculture Council.

Richard Wells and John Cleal, both integral members of the DWG team are based in Nelson and provide important fisheries and

DWG represents quota owners of New Zealand deepwater fisheries, around 40 percent of which is owned by Māori interests.

DWG shareholders collectively own over 91 percent of the quota for the following species :

- barracouta
- black cardinal fish
- English mackerel
- frostfish
- hake
- hoki
- jack mackerel
- ling
- orange roughy
- oreo
- scampi
- silver warehou
- southern blue whiting
- sea perch
- squid
- white warehou

environmental specialist and liaison services on a contractual basis.

DWG continues to contract other services as required, including technical and scientific expertise sourced within New Zealand and abroad.

Performance highlights

Fisheries management



Image: Emma Barley

Hoki management

2021 was another busy year for the hoki fisheries.

Owners of hoki quota agreed that they would continue to take a conservative approach in their management of these fisheries. The Minister set the 2021-22 HOK 1 TACC at 110,000 tonnes (reduced from 115,000 tonnes).

Quota owners have agreed to again implement the following additional conservation measures:

- Set the HOK 1 2021-22 catch limit at 100,000 t by collectively shelving 10,000 t HOK 1 ACE
- Manage catches from HOK 1 East within a catch limit of 55,000 t
- Manage catches from HOK 1 West within a catch limit of 45,000 t
- Maintain current measures to reduce catches of small hoki
- Maintain seasonal closures to reduce fishing activity on spawning hoki
- Continue to support reviews of the science for hoki
- Undertake a Management Strategy Evaluation, based on optimising resource sustainability and the economic returns to New Zealand.

Over the past five or so years, many in the hoki fishery have expressed concerns with aspects of the performance of some of our four hoki fisheries. In 2018, quota owners agreed that there was a problem, particularly with the performance (lack of abundance) of hoki in the WCSI fishery outside on the 25 nm line, and that management intervention was urgently required.

In 2018-19, quota owners agreed to reduce their catches by 20,000 t and called for Fisheries New Zealand (FNZ) to undertake a fundamental review of the science underpinning the management of these important fisheries.

Given the continued concerns over the performance of some hoki fisheries in 2019, quota owners agreed to reduce the catch limit for 2019-20 by a further 15,000 t and in 2020 by 20,000 t for 2020-21. As a result, industry has by agreement, progressively reduced the hoki catch limit by 37 percent (from 150,000 to 95,000 t) over four years. During this period, the Minister reduced the TACC from 150,000 t to 115,000 t.

FNZ has agreed to review the science and this process is ongoing. Quota owners are supporting FNZ in these review processes and we have invested in additional science projects. These include a baseline genetics study using the best available techniques (to establish stock structure on hoki in New Zealand waters) and a detailed CPUE analysis of the Chatham Rise, Sub-Antarctic and northern WCSI. There is potential to monitor the recent recruits to the Sub-Antarctic and WCSI populations by monitoring the (standardised) CPUE in the areas where younger fish dominate the catches and comparing trends in CPUE and trawl survey abundance (by age) from the western Chatham Rise. The resulting CPUE indices might assist in the consideration of the influence of model specification in the attribution of recruitment between Eastern and Western components and could even be incorporated in the stock assessment model as additional sets of relative abundance indices.

There is still plenty of investigating to do, and DWG is working with quota owners, scientists and FNZ to ensure that this continues during 2022.

Orange roughy on Morgue, a Seamount Closure Area in ORH 3B NWCR, during the 2021 survey. Image: CSIRO

Orange roughy management

There were no ministerial changes to the 2020-21 orange roughy management settings with a TACC of 12,161 t for all ORH fisheries combined.

- ORH 3B 7,967 t
- ORH 7A 2,058 t

Owners of ORH 3B quota agreed to adhere to these sub-area catch limits:

- ORH 3B ES 5,970 t
- ORH 3B NW 1,150 t
- ORH 3B Puy 347 t
- ORH 3B SA 500 t

The 2021 year saw the commencement of the independent reassessment of the ORH 3B Northwest Chatham Rise, ORH 3B East & South Chatham Rise and ORH 7A Challenger (North) fisheries for certification against the Marine Stewardship Council's (MSC) Fisheries Standard. This assessment is being undertaken against version 2.0 of the MSC standard. (see Certification chapter for more).

These three orange roughy fisheries represent 82 percent of the orange roughy harvest.

ORH 3B surveys

Acoustic biomass surveys and stock assessment of ORH 3B NWCR and ORH 3B ESCR are scheduled to occur at 3-year intervals in terms of FNZ's Medium Term Research Plan for Deepwater Fisheries.

Surveys intended in 2020 were postponed due to Covid-related issues and DWG subsequently commissioned CSIRO scientists to undertake these surveys aboard *Amaltal Apollo* in June-July 2021 using Sealord's dual-frequency Acoustic Optical System (AOS). Snapshots of spawning aggregations on Morgue (NWCR) and at Rekohu (ESCR) were successfully undertaken before the survey was cut short due to main engine problems.

At short notice, *Amaltal Mariner* and *San Waitaki* agreed to support the survey by conducting acoustic snapshots on the Rekohu and Spawn Plume aggregations in ESCR.

The echosounders on both vessels were subsequently calibrated to allow their acoustic data to be used in biomass estimation alongside those from *Amaltal Apollo*.



However, coverage of the spawn season was incomplete and biomass estimates from the single-frequency echo-sounder surveys, while informative, are uncertain due to their inability to discriminate orange roughy from other species potentially within the surveyed aggregations and/or in their near vicinity.

In order to secure robust biomass information required for assessments of stock status it is proposed that these two surveys be repeated in 2022 pending support by ORH 3B shareholders.

Performance highlights

Fisheries research



CSIRO and DWG five-year research programme

Deepwater fisheries quota owners have committed to a five-year scientific research and monitoring programme.

In partnership with Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO), the programme aims to assess the biomass of selected deepwater fish stocks and to monitor and quantify fisheries interactions with deepwater benthic communities.

CSIRO and deepwater quota owners have collaborated over the past 22 years to research, develop and deploy science to better inform sustainable deepwater fisheries practices.

Working together over these years has

successfully combined the best available scientific research and fishing capabilities to develop and apply new acoustic techniques to survey orange roughy stock sizes in particular.

Since 1998, quota owners have directly invested \$17m into scientific research on orange roughy, delivering 37 biomass surveys and 11 stock assessments, in addition to those contracted by Government.

Without this work, the management of our orange roughy fisheries would not be so well-grounded scientifically and we would not have been able to meet the very high Marine Stewardship Council (MSC) science-based standards. Our three main orange roughy fisheries, which together produce 82 percent of the annual catch, are now certified under MSC's programme.

The latest programme, entered into earlier this year, involves a further \$11m of jointly funded investment by CSIRO and quota owners. This scientific research will develop further application of CSIRO's world-leading technologies and scientific expertise, complemented by Deepwater Group shareholders' knowledge, vessels and fishing capabilities in deepwater fisheries.

The programme will deliver in three key areas over the five years:

- further developments in multi-frequency acoustic biomass surveys;
- undertake surveys to quantify the benthic biodiversity of selected areas, and
- develop and deploy a robust underwater camera system that can be routinely deployed on commercial trawls to monitor the seabed habitats trawled across.



New Zealand orange roughy.
Image: Wreford Hann Photography Ltd

There are growing concerns about the impacts of bottom trawling on benthic ecosystems, most of which have been speculative, driven without context or information. Recently, these concerns have been focussed on corals and 'seamounts'

Assertions of the damage by bottom trawling on deepwater benthic biodiversity have been raised in prominence both globally and in New Zealand. For the most part, the impacts have been overstated. Fewer than 7 percent of observed orange roughy trawls have coral captures and less than 2 percent of the seabed between 800 m and 1,600 m, where orange roughy live, is trawled annually.

MPI and DOC have contracted modelling assessments to make best estimates of the benthic biodiversity across the EEZ. Results to date indicate that most epi-benthic species, including corals, are widespread in their distributions outside of our fishing grounds, across our EEZ and beyond.

This programme will assess in detail the habitat types and the benthic organisms that occur within the very small areas that we do trawl for orange roughy, that is the 2 percent.

Under the programme, CSIRO and DWG will develop an integrated Industry Trawl Camera/lighting system (ITC) for routine deployment on trawl nets during commercial

fishing activities, together with automated methods to analyse the photographic data using CSIRO's AI capabilities.

Initial development work will be focused on orange roughy fishing grounds on the Chatham Rise.

Once developed and proven, CSIRO will provide nine fit-for-purpose underwater camera systems to vessel operators for deployment during commercial orange roughy fishing operations to routinely record information on benthic biodiversity along trawl pathways.



New Zealand hoki.
Image: Wreford Hann Photography Ltd

Hoki and genomics technology

Scientists at Plant & Food Research have assembled the first genomic resources for hoki.

Plant & Food Research was contracted by owners of hoki quota, who wish to ensure the sustainable management of our hoki fisheries continues to be supported by the best available scientific information. Hoki, our largest commercial fishery, annually contributes over \$230 to the New Zealand economy and was the first New Zealand species to obtain Marine Stewardship Council certification.

Ensuring the security of seafood in our future diets requires the use of the best available scientific tools and knowledge. While the use of genomics technologies has advanced rapidly in many fields, the routine

uptake of these tools to inform management in fisheries and aquaculture has been relatively slow.

The new genome assembly results provide a valuable resource to manage hoki stocks in future, enabling essential insights into the stock structure in this large and valuable renewable resource. Data on fish stock structure are traditionally difficult to capture, particularly for species like hoki that are widely dispersed throughout New Zealand waters. Being able to identify separate fish stocks and to monitor their population diversity using genomics insights is critical for managing sustainable fisheries.

This research demonstrates that New Zealand hoki comprises a single endemic panmictic genetic population, distinct from the Australian population, which further

indicates that genetic exchange between the two populations is limited. The study noted that location differences within New Zealand samples were much more subtle. The study found that although small and significant differences could be detected between individuals, they did not conclusively identify additional substructures within the New Zealand hoki population. To fine-scale partition the hoki population further, more work will need to be undertaken.

This study is the first genomic resources study for hoki and provides detailed insights into the population genetic structure to inform management.

FV San Enterprise. Sanford



Performance highlights

Certification



Assessments against the MSC Fisheries Standard are made by independently accredited certification bodies, whose auditors have expertise in fisheries science, the interaction between fisheries and marine ecosystems, and fisheries governance. Each fishery's performance is scored against 28 indicators across three principles (see sidebar).

1. Sustainable fish stocks
2. Minimal impacts on the environment
3. Effective fisheries management

The MSC assessment process is comprehensive and rigorous with all determinations based on scientific and technical evidence.

MSC assessments are public, with the findings open to challenge. Several of the MSC assessments for New Zealand fisheries, including orange roughy, have been challenged, including by international conservation organisations such as WWF. All objections are given careful consideration by the independent certification bodies and then by an Independent Adjudicator.

MSC certification is not easy to achieve, it is hard-won.

Notably, the certification of our fisheries is achieved in partnership with Fisheries New Zealand, who along with DWG, has invested heavily over the past 20-plus years to rebuild the

Certified sustainable

19 deepwater fisheries certified as ecologically sustainable by MSC

~60% of the 2020-21 deepwater catch

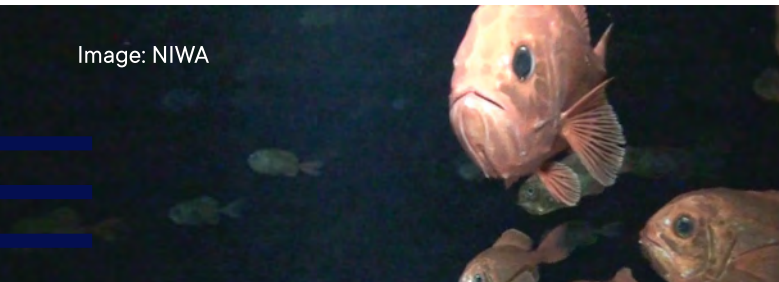
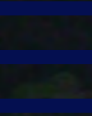


The UK-based Marine Stewardship Council sets the highest independent science-based international seafood sustainability standards covering three broad principles:

1. **Sustainable fish stocks** - fishing must be at a level that sustains the fish population indefinitely (P1)
2. **Minimal impacts on the environment** - fishing must have no adverse effects on the marine ecosystem (P2)
3. **Effective fisheries management** - fishing must be well managed and comply with relevant laws. (P3)

orange roughy fisheries through robust science, and the adoption of new scientific techniques to measure and assess stock sizes, and conservative harvest levels.

MSC holds the 'gold standard' for science-based eco-labels in fisheries management and is the internationally recognised standard for sustainable seafood, and as such demonstrates that New Zealand's ecosystem approach to fisheries management ranks amongst the top 5 percent of the best-managed fisheries in the world.



Orange roughy reassessment

During 2021 year DWG commenced the independent reassessment of three orange roughy fisheries for certification against the Marine Stewardship Council's (MSC) Fisheries Standard. This assessment is being undertaken against version 2.0 of the MSC Fisheries Certification Requirements.

The three orange roughy fisheries (ORH 3B Northwest Chatham Rise, ORH 3B East & South Chatham Rise and ORH 7A Challenger (North)) are New Zealand's largest, representing 82 percent of the orange roughy harvest. They were independently certified against the science-based MSC Fisheries Standard in 2016.

Upon re-certification, these three orange roughy fisheries will join 16 other New Zealand hake, hoki, ling, and southern blue whiting fisheries which are certified sustainable against the MSC science-based eco-label programme without any conditions of certification.

The co-management of fisheries within New Zealand's EEZ, by the Government and quota owners is not only effective and comprehensive, it is also recognised internationally as being second to none. The condition-free certification of 19 of our most important fisheries against the robust science-based MSC standards independently demonstrates the success of this management framework.



Hoki, hake, ling, southern blue whiting

The New Zealand Hoki, hake, ling and southern blue whiting were certified sustainable against the MSC standard in 2018, and in 2021 had their second annual surveillance.

The second annual surveillance audits for these fisheries, comprising 16 Units of Certification (UoC), (HAK 1, HAK 4, HOK 1W, HOK 1E, LIN 3-7 trawl, LIN 3-7 longline, SBW 6B & SBW 6I), were conducted remotely by Lloyd's Register in May 2021. All of the UoCs were assessed as continuing to meet the requirements of the MSC Standard (v.1.3) without any conditions. A single, non-binding recommendation remains, which is to report the annual quantities, types and sources of bait used by the ling longline fleet.

HAK 7 was voluntarily suspended from certification by DWG following the first annual audit when the stock was considered to be below the Point of Recruitment Impairment (PRI) of 20%B₀, thereby failing to meet Scoring Guideline 60 for PI 1.1.1 (Stock Status). Should the revised stock assessment being undertaken in 2022 indicate the spawning biomass has rebuilt above 20%B₀, this fishery will be able to be reassessed for certification via an expedited audit.

DWG notes that in the SBW 6B fishery, over the past 4 seasons, there have been no successful biomass surveys to support the harvest control rule, making this UoC at risk of becoming non-compliant with PI 1.1.1 (Stock Status) and PI 1.2.2 (Harvest Control Rules and Tools) at the next annual audit in May 2022. Revision of the HCR is currently underway as a basis for TACC-setting in the absence of biomass estimates, which may resolve this issue.



Squid Fisheries Improvement Plans (FIP)

Further to our commitment with Fisheries New Zealand (FNZ) and our joint Fisheries Certification Programme (FCP) with the objective of achieving independent certification of New Zealand's key deepwater fisheries, DWG has developed two formal Fishery Improvement Plans (FIPs) for our two key squid fisheries; the Auckland Island Squid Trawl Fishery (SQU 6T) and the EEZ Squid Trawl Fishery (SQU 1T).

1. GAP ANALYSIS

- Internal experts
- External experts
- Formal pre-assessment (confidential)
- Formal pre-assessment (public)

2. REMEDIAL ACTION PLAN

- To address gaps
- May be internal or take the form of a formal FIP

3. THIRD-PARTY ASSESSMENT

- Independent public assessment to determine if fishery meets the standards

These FIPs have been developed using tools and templates provided by MSC to establish a public, transparent, inclusive, and step-wise approach towards meeting the MSC Fisheries Standard and subsequently achieving MSC certification.

Further to these FIPs, DWG has undertaken confidential pre-assessments of the squid fisheries against the MSC Fisheries Standard, undertaken a squid fisheries gap analysis to identify potential non-conformities and information gaps, identified remedial actions to address these shortcomings against specific performance indicators, and formally incorporated these gaps and shortcomings into a remedial action plan.

4. MAINTAIN PERFORMANCE

- Including closing any conditions of certification

The illustrative stages, 1 to 4, of Deepwater Group's Fisheries Certification Programme



The remedial action plan for both SQU 1T and SQU 6T, indicates that the potential non-conformities with the MSC standard occur in with Principle 1 of the Standard:

MSC Principle 1: Stock Status	
1.2	Acceptance of stock assessment methods by MPI.
1.3	Develop and test near-real time abundance estimation methods.
1.4	Undertake annual in-season stock assessments.
1.5	Conduct and review MSE, HS, and HCR.
1.6	Implement HS and HCR.
1.7	Undertake near-real time stock assessments of the SQU 6T stock during an active fishery.
1.8	Review data provision, assessment and management processes.

This year saw the undertaking of biological characterisation work by FNZ on the New Zealand Squid fisheries, and the evaluation of stock assessment method/s currently under development within the FNZ science working process.

To these ends, in recognition of the complexity of this work, FNZ has assigned the development of squid research to multiple service providers, which has maximised innovation.

With respect to the development of a robust stock assessment methodology, it is understood that it is still early days, and there is still a significant amount of work to be completed, including:

With respect to the development of a robust stock assessment methodology, it is understood that it is still early days, and there is still a significant amount of work to be completed, including:

- Further biological characterisation work needs to be completed (we don't know the full spatial distribution of the different squid species, and we don't know where they spawn nor where they spend the early part of their life history)

- CPUE analyses need to be expanded and refined to include a spatial component that recognises the dynamism within the fishery
- A population model needs to be constructed from available CPUE and other data which will be the basis for the development of any management procedure
- Ageing work needs to be undertaken using statoliths to test the assumption that the maximum age for these species is one year

The completion of a robust stock assessment methodology, a stock assessment, the development of a harvest strategy and harvest control rule for the New Zealand squid fisheries, will complete the list of requisite remedial actions for Principle 1 in the FIPs and prepare the fishery for the next stage of the FIP. Stage 3 of the SQU 6T FCP requires the submission of this fishery for full MSC Assessment by an accredited MSC Conformity Assessment Body.

The FIPs are currently being updated accordingly, and once this is completed they will be reposted. In addition to the Deepwater Group website, we are looking at alternative B2B websites as possible FIP portals.

Table: SQU FIP remedial management actions for MSC Principle 1: Stock Status



Performance highlights

Environmental effects



Great white shark. Image: Clinton Duffy DOC

GUARDING PROTECTED SPECIES

Despite Covid interruptions, the DWG environmental risk management programme maintained its reach at both a policy and an operational level this year.

As usual, all DOC and Fisheries New Zealand technical working groups relevant to DWG fisheries were attended. MPI is undertaking a significant revamp of both the incidental capture estimation models as well as the associated risk assessment processes. Close oversight and engagement in these key models have occurred and will continue into the 2021-22 year.

ELO Programme

At the operational level John Cleal, our environmental liaison officer (ELO) continued to focus on the primary risks and basics to ensure excellent ongoing competence in those fisheries with well-established programmes to meet DWG protocols and government requirements as well as developing engagement on new requirements such as the revised bottom longline standards and associated regulations. Overall progress and outcomes have been satisfactory.

Our ELO engaged with a fleet of 87 vessels over the year (noting 2 bottom longliners and 6 ling hand baiters became inactive during this period). Effectively 90 percent of fully active vessels were visited (or briefed by phone when Covid travel restrictions were in place); 25 vessels had multiple visits as occasion allowed. (see table on the right).

There were 30 trigger points (an event that requires immediate reporting to DWG as outlined in our OPs). This figure has been declining over time. One third were seabird triggers and the rest were distributed amongst sea lions, basking sharks and fur seals.

While some improvement is still required in parts of the smaller vessel fleet, vessel reporting and engagement in much of the fleet is at a good standard.

Sharks

Protected shark (white pointer and basking) captures have been fewer this year than the previous year, but we still have no significant tools to manage interaction beyond rapid reporting of events and fleet advisory of risk areas. Crews are doing a good job of taking identification pictures. Handling of these animals is improving.

Vessel type	Fleet size	Number visited	Variance
Factory trawler	26	25	-1
Freshers >28 m	7	5	-2
Coastal freshers <28 m (hoki)	14	12	-2
Scampi	10	8	-2
Bottom longline (autoline)	6 (2)	5	-1
Ling hand baiters	24 (6)	17	-7
Total	87	72	-15

Table showing vessels visited by the ELO during 2020-21.



Seabirds

The National Plan of Action Seabirds (tinyurl.com/NPOAseabirds) which was released the previous year remains the key guiding document for DWG’s efforts.

DWG (Richard Wells) attended the virtual Agreement on the Conservation of Albatrosses and Petrels (ACAP) forums for bycatch and population research. An information paper was drafted by Richard for this forum on efforts to reduce seabird trawl net captures in the squid fishery (tinyurl.com/ACAPpaper).

Articles on the net capture programme were published in the Seafood New Zealand magazine and DWG also co-authored a presentation on reductions in albatross warp strikes in the squid fishery (paper due for publication in 2022) at the virtual Third World Seabird Conference.

Seabird captures by the trawl fleet, especially in the summer and autumn squid fishery continue to be higher than we are comfortable with although last year showed a lower rate in the face of high observer coverage and increased effort. Net captures

continue to be the main focus and whilst efforts to date have not shown great promise, work in this area continues in conjunction with and support from DOC, Fisheries New Zealand, vessel operators and Southern Seabirds.

The new seabird standards and revised regulations for bottom longline provide significant challenges for vessel operators and those supporting the fleet to “get it right”. At present all are in enabling mode to set vessels up to succeed, with many facing major rethinks in how they set up and deploy their gear to meet these new requirements. The DWG ELO will continue to be highly involved in this arena over the coming year.

Sea Lions

Performance against the Fisheries New Zealand Operational Plans to manage the incidental capture of New Zealand Sea Lions in the southern squid trawl fishery (SQU 6T) and Campbell Island southern blue whiting fishery (SBW 6I) has been exemplary.

The requirements to carry observers, deploy SLEDs to specification at all times, report

High-capacity water sprayer deployed from the fantail of FV Tokatu in trial to deter seabirds from the area during hauling of the trawl. Image: Sealord

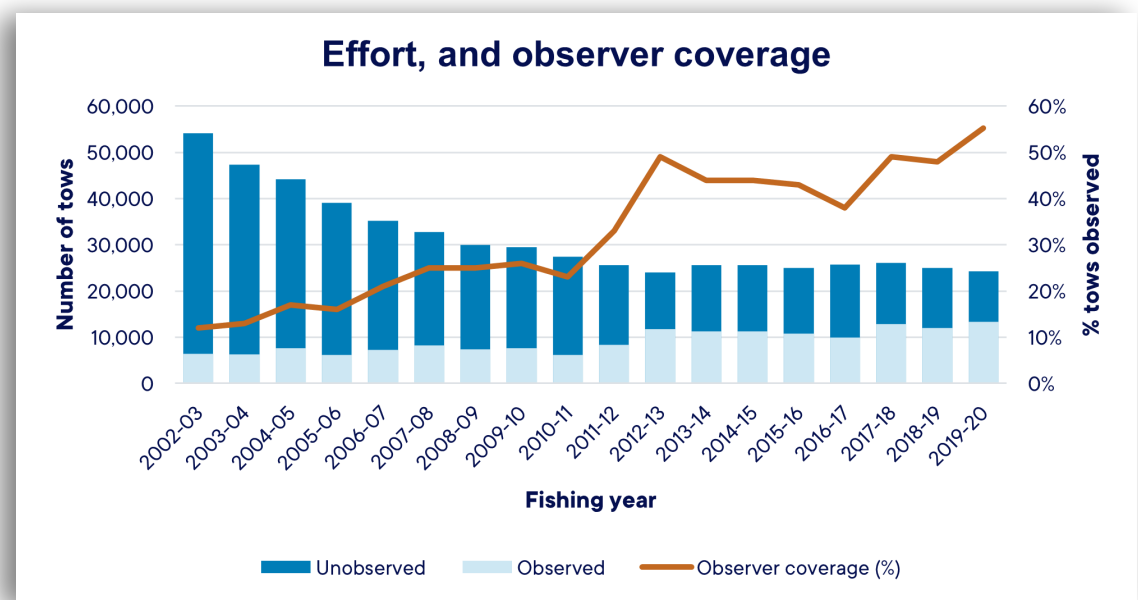


captures and notify MPI regarding voyage dates has been fantastic. Excellent performance in these fisheries, once so problematic in the public’s and government’s eye regarding protected species risk is indicative of what can be achieved.

Further progress has been achieved by the scampi fleet in reducing seabird captures, and the jack mackerel fleet reducing common dolphin interaction rates from above 1 capture per 100 tows (2003-2010) to fewer than 0.1 per 100 tows from 2016. (Source: MPI Protected Species Captures website).



New Zealand sea lion on Snares Island.
Image: Tamzin Henderson



Effort and Observer coverage for trawlers >28 metres length
(Source: MPI Protected Species Captures website tinyurl.com/PSCMPI)

Overall observer coverage in the large vessel trawl fleet (>28 m) is high as shown in the graph on the left. It is markedly less so in the coastal hoki (10-15 percent), scampi (10-15 percent) and smaller longline (5 percent) sectors.

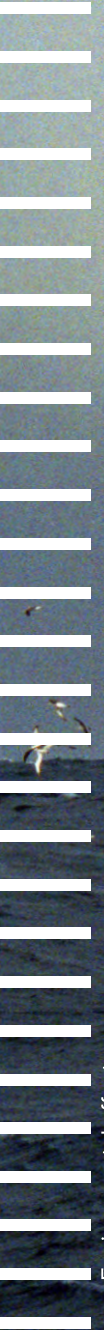
The fleet has become adept at seeking help and also providing information to support the continual improvement of the programme. Notably companies and vessels (crews):

- advise DWG of problems and seek support promptly
- report trigger events to DWG and provide pictures and information promptly
- respond to our questions
- attend briefings and workshops
- participate in trials of new procedures or mitigation methods.

In summary, we have a fleet conditioned to understand and respond to environmental risk management and are keen to engage. Some sectors of the fleet have room for improvement but these are known and part of our focus. We have “slain the ogres” of the sea lion, dolphin and albatross warp captures, but remain focused on seabird net captures, sharks, and bottom longline risk.

Observer Programme

The MPI Observer Programme audits our fleet’s performance to the OPs. We processed 150 individual trip audit forms, of which only 3 percent required significant follow-up and recommended remedial actions. This is an important component of our processes and those fisheries with specifically high risks are highly observed (squid, southern blue whiting, jack mackerel, hoki, hake, ling).



FV Amaltal Atlantis. Talley's



Gorgonian coral. Image: Peter Marriott NIWA

Benthic effects

To put more structure into fleet processes and enhance risk management regarding benthic organisms vulnerable to bottom trawling, a Benthic OP (tinyurl.com/BenthicOP) was drafted and approved. The OP focuses on avoiding known risks and improving focus on detailed reporting within the Fisheries New Zealand framework. As with other DWG OPs, we expect the Benthic OP will be further developed and refined over time.

Specific to the three MSC-certified orange roughy fisheries (ORH 3B ESCR, ORH 3B NWCR, and ORH 7A (excluding Westpac Bank), a set of operational measures has been developed which meet our objective to reduce catches of live epi-benthic organisms (e.g., corals) to as near to zero as practicable within these fisheries. These management procedures implement an MPSA (Monitor, Pause, Survey and Assess) management strategy:

Monitor: Regular reporting of non-fish bycatch by observers and industry, implement training for key crew members in epi-benthic species identification, trigger point reporting and annual towline to assessment

Pause: Fishing on a towline would be paused if a pre-set trigger point is met

Survey: The paused towline and the area adjacent to it are prioritised for a benthic biodiversity survey under the five-year research programme contracted to CSIRO.

Assess: Survey results are assessed to determine benthic characteristics in the vicinity of the paused towline, consider and implement appropriate management measures (e.g., reopening of the towline, or determining the level of protection including designation as a Benthic Management Area (BMA)).

This MPSA strategy, which is based on a specific set of operational procedures that use current information and infrastructure to manage interactions with epi-benthic habitat areas, not only meet the requirements of the New Zealand orange roughy fisheries, in terms of minimising gear interactions with benthic organisms, they also apply a clear spatial scale or area so that these organisms can be quantified and protected.

Meeting with the Office of the Prime Minister's Chief Science Advisor

In February 2021 the report on *The Future of Commercial Fishing in Aotearoa New Zealand* from the Office of the Prime Minister's Chief Science Advisor (PMCSA), Dame Juliet Gerrard was released. The lengthy report is comprehensive and covers the wide application of science to commercial fisheries.

Upon the release of the report, DWG undertook an analysis of key findings by the PMCSA for deepwater fisheries. Following this analysis, in June 2021, DWG met with Dame Juliet Gerrard to discuss these key deepwater fisheries' findings.

Outcomes of this meeting are outlined in the table on the next page and form the basis of a number of work streams that have been instigated (e.g. Deepwater Fisheries Carbon Life Cycle Assessment Project, habitats of particular significance to fisheries management (HPSFM) Policy Development, Assessment of Ecological Effects of Fishing Project (AEEF))

Table: Key findings by PMCSA for deepwater fisheries

PMCSA key findings for DW fisheries	Meeting: 28 June 2021	DWG already doing	DWG will undertake
Implement an ecosystem approach to fisheries management (EAFM)		MSC assessments confirm EAFM already in place for main fisheries. Risk Assessment of Ecological Effects of Fishing (AEEF) during 2020-21 will cover all deepwater fisheries	Deepwater Group is undertaking an AEEF and developing a remedial action plan (alongside FNZ) during 2021-22
Identify and protect habitats of particular significance to fisheries management (HPSFM)	J Gerrard: HPSFM should be readily used to protect areas of significance to fisheries management from the impacts of other non-fishing activities. Gerrard advised that Minister Parker also shared broader scope of HPSFM in terms of offering protection in other resource frameworks other than fishing.	Have closed BPAs for representative biodiversity protection, HMAs and seasonal spawning areas for hoki management	Develop policy for HPSFM under the Act. Work with FNZ and SREs to identify & agree which, if any, HPSFM's might exist with the EEZ. Continue implementation during 2021-22
Reduce the industry's carbon footprint and shifting to more sustainable plastic use	Metrics: Units (can be contentious) Stewart Ledgard (AgResearch) LCA work – bringing analysis away from the artificialness of kgCo2eq/kg protein to more usable units (e.g. per serve [g or kg])	Project to document decline in consumption of fuel underway – complete before 1 October 2021.	Explore options to assess carbon footprint and plastics usage and alternatives in 2021-22
Improve product traceability and consumer information	Closing the traceability gap all the way to customer (esp in a domestic context) acknowledging that from vessel to wholesaler the chain of custody still largely intact. Advocated for a common traceability policy and a country-of-origin labelling program (CoOL) in favour of NZ	QMS and MSC chain of custody in place covers two thirds of product. DWG has in place: website, OpenSeas, information directly to customers, and report "Towards a Deeper Understanding".	Identify additional traceability and consumer information as might be appropriate for domestic and international customers. Produce this during 2021-22 alongside shareholders
Fishing vessel data collection	Making better use of ER and GPR aggregated data for fisheries management. (examples are trawl footprint w/ GPR)	Deepwater fishing vessels already highly observed and providing real-time digital information (including on ETP species) enabling real time responses.	Review data collection and refine where necessary – including review of SOP deployment alongside industry catch sampling programme.
Spatially explicit management of protected species interactions		BPAs in place set aside 30% of EEZ from trawling – avoiding adverse effects to protected coral species. No spatially explicit management for mobile ETPs in place in EEZ	Review interactions with ETPs & re-assess options, including spatially explicit management, for deepwater fisheries alongside FNZ during 2021-22
Review the trawl gear innovation regulations		Work underway by partners in Precision Seafood Harvesting (PSH) programme	PSH partners are working with MPI to improve this

Assessment of carbon footprint of New Zealand's deepwater trawl fisheries

Deepwater Fisheries Carbon Life Cycle Assessment Project

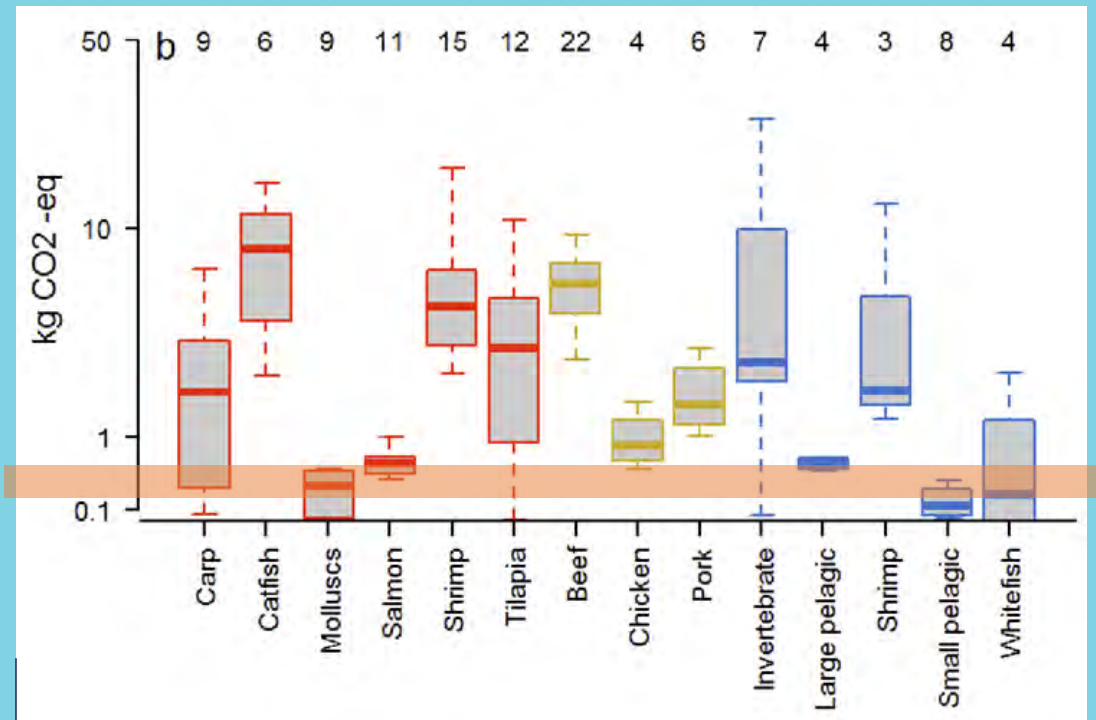
Quota owners are always mindful of their environmental footprint. One gauge of this is to undertake an environmental comparative assessment of Greenhouse Gas (GHG) emissions from deepwater trawling in comparison with those from other sources of food production. Deepwater Group's shareholders are committed to continue delivering high-quality seafood while minimising the environmental impacts of its production and to benchmark this performance against other forms of food production globally.

To this end, in May 2021 DWG undertook a preliminary analysis of the carbon emissions in the deepwater fleet over the past 30 years – not only to better understand changes in the fleet, but also to understand efficiencies and performance, and to benchmark the New Zealand deepwater fishing productivity against other primary industries globally (in terms of kg of CO₂ per kg of protein produced).

These preliminary results indicated:

- The annual number of large deepwater trawlers in the deepwater fishing fleet has decreased from 120 (during 1990–95) to 35 (in 2019–20)
- The annual number of deepwater trawl vessel days peaked at 41,640 days in 1997–98 and has halved to around 20,000 days since 2008–09 for the same level of catch in GWT
- Since 2010, estimated emissions from deepwater fishing vessels have been around 0.4 kg CO₂-eq/kg catch
- Estimates of CO₂ emissions from our deepwater trawl fleet were calculated from aggregated data on fuel usage in global fisheries and with actual data on our fuel usage.
- The latter series estimates our actual emissions to be between 0.4 - 0.7 kg CO₂-eq/kg catch (see orange line added to the graph on the right).

This is comparative with the results using global estimates of fuel usage indicated in a number of international studies. Ray Hilborn at the University of Washington found similar outcomes when he compared actual fuel usage in Alaskan fisheries with the global estimates.



Greenhouse gas produced by one serving of protein (40 g). (Source: Hilborn et al (2018) The environmental cost of animal source foods. *Frontiers in Ecology and the Environment*:16(6), 329–335)

The figure on the right illustrates that for GHG emissions:

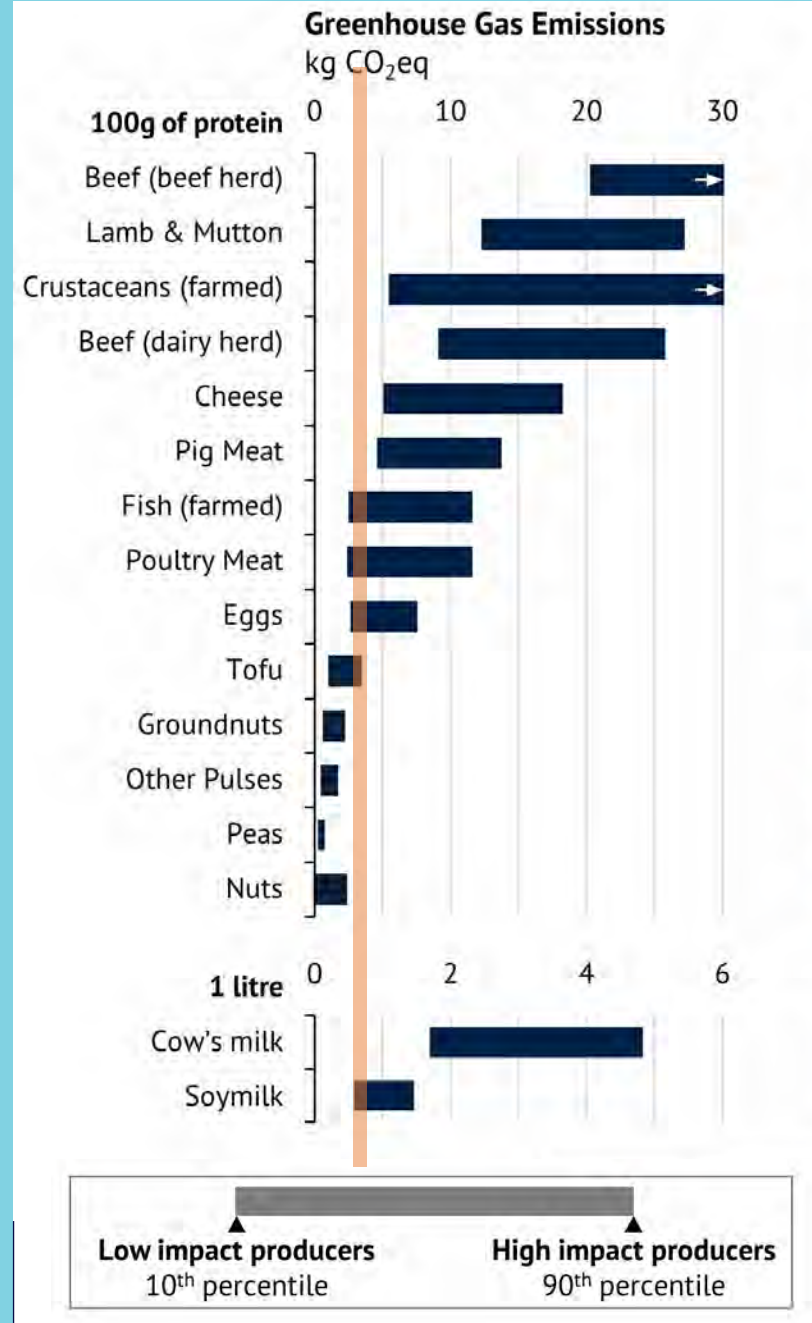
- Food products with low GHG emissions, such as beans, peas, and other plant-based proteins, are assessed to produce around 0.3 kg of CO₂ equivalents per 100 g protein produced (including all processing, packaging, and transport). This equates to ~3 kg CO₂-eq/kg of protein produced).
- Beef production is assessed to produce between 20-30 kg of CO₂ equivalents per 100 g protein produced. This equates to 200-300 kg CO₂-eq/kg of protein produced.

DWG's preliminary assessment of New Zealand's deepwater trawl vessels estimates they have very low GHG emissions – in the range of 0.4-0.7 kg CO₂-eq/kg catch (see orange line added to the graph on the right).

A comprehensive and detailed analysis of the environmental impacts of deepwater fishing in terms of both GHG emissions and overall energy usage has been contracted.

DWG has contracted AgResearch to undertake an assessment of GHG emissions by the New Zealand deepwater factory trawl fleet using well-proven Life Cycle Analysis (LCA) methodologies, and to benchmark the results against other sources of protein internationally.

Results, which are expected in May 2022 will be compared with that from published data for other food types, expressed using a common functional unit.

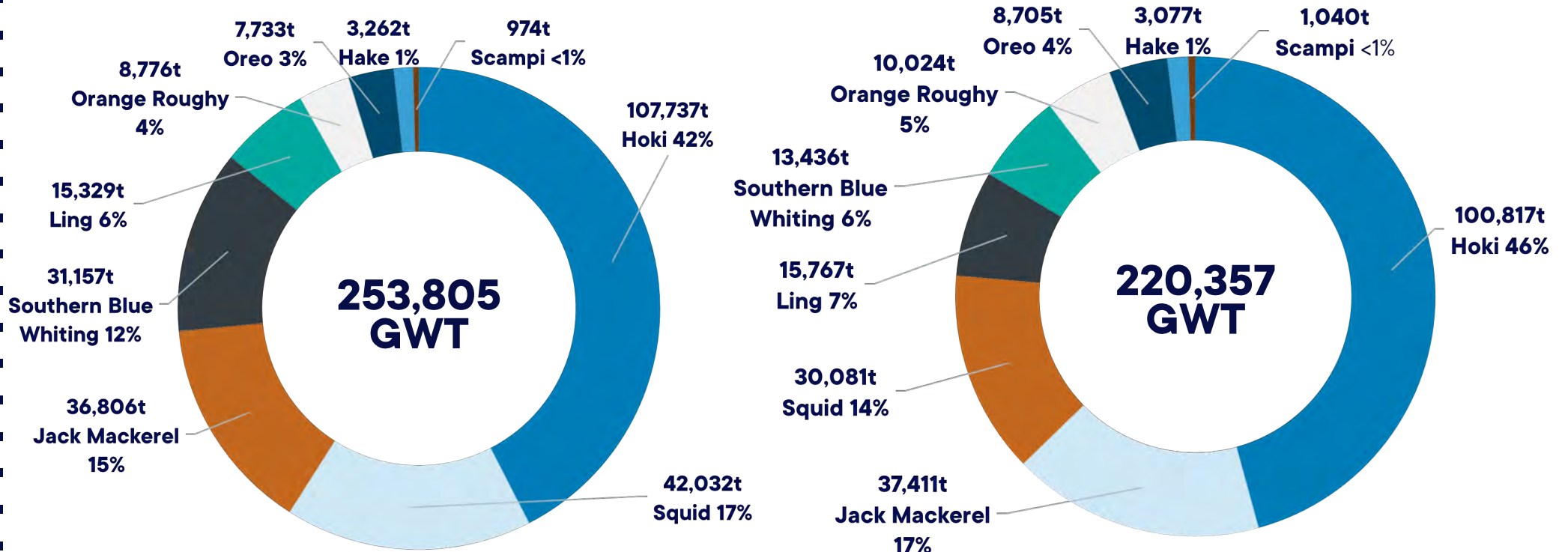


Emissions per 100 g of protein produced (Source: J. Poore and T. Nemecek (2018) Reducing food's environmental impacts through producers and consumers. Science: 360, 987-992)



Catches of deepwater species

Annual catch (GWT) of the 9 main deepwater species (2019-20 & 2020-21 fishing years)

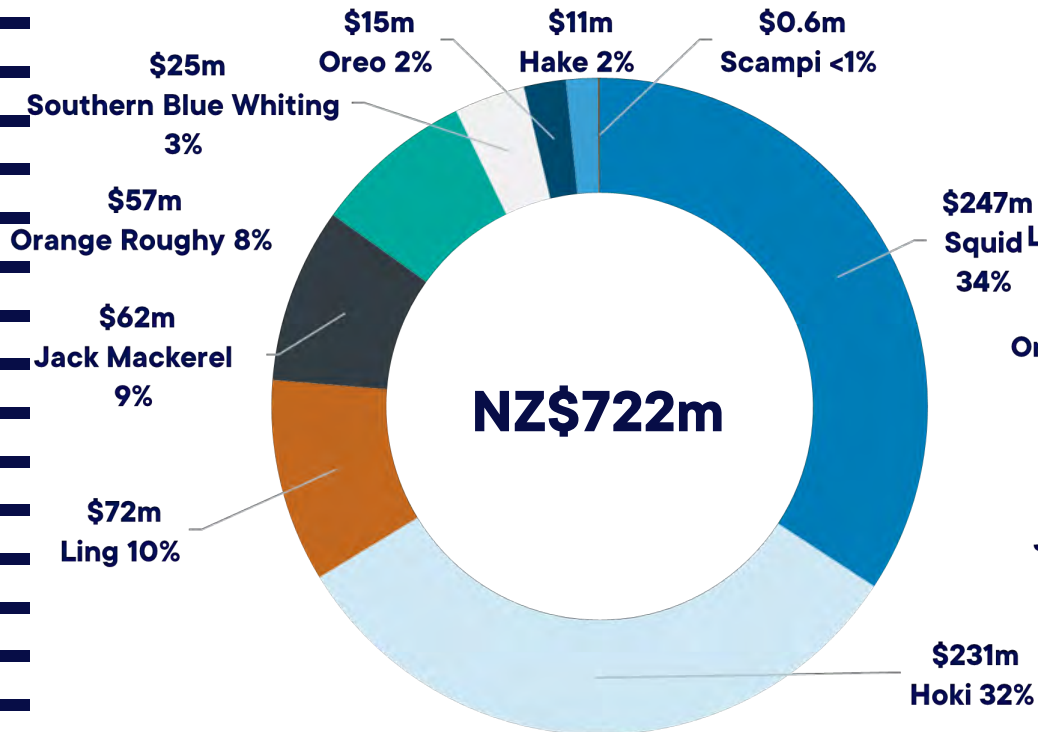


2019-20 TOTAL

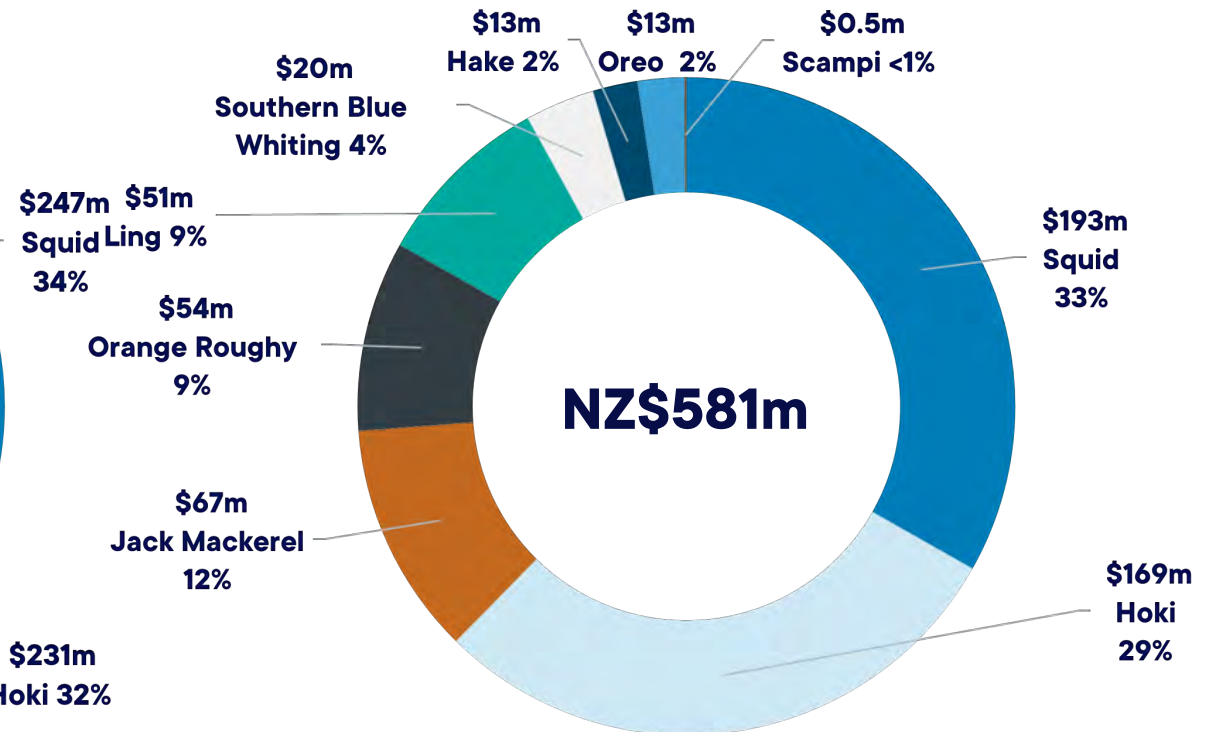
2020-21 TOTAL

Export values

Export values (FOB) of the 9 main deepwater species (2019 & 2020 calendar years)



2019 TOTAL



2020 TOTAL

Deepwater fleet

Increased efficiencies

Between 2004-05 and 2020-21

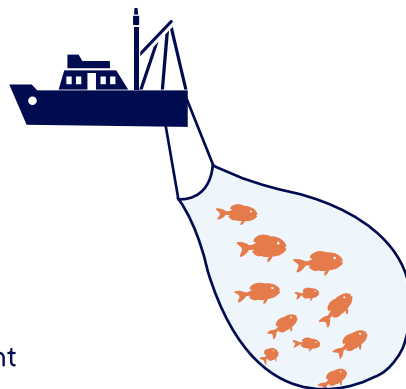
46%

reduction in the number of large trawlers*
from 63 to 34



45%

reduction in the number of tows by large trawlers
from 44,156 to 24,228 tows (in 2019-20)**



244%

increase in proportion of observed tows has more than tripled
from 16% to around 55% (in 2019-20)**



95%

More than 95% of our trawl catch is retained and utilised



* Trawlers >28 m LOA

** 2020-21 data not available at time of print

Environmental effects

Since 2006, reduced interactions with protected species



The estimated number of **albatross** captured by deepwater trawlers has been reduced by

74%

from 1,186 to 307



The estimated number of **fur seals** captured annually by deepwater trawlers has been reduced by more than

90%

from 1,010 to ~100



The estimated number of **sea lions** captured annually by deepwater trawlers has been reduced by around

80%

from 45 to 9



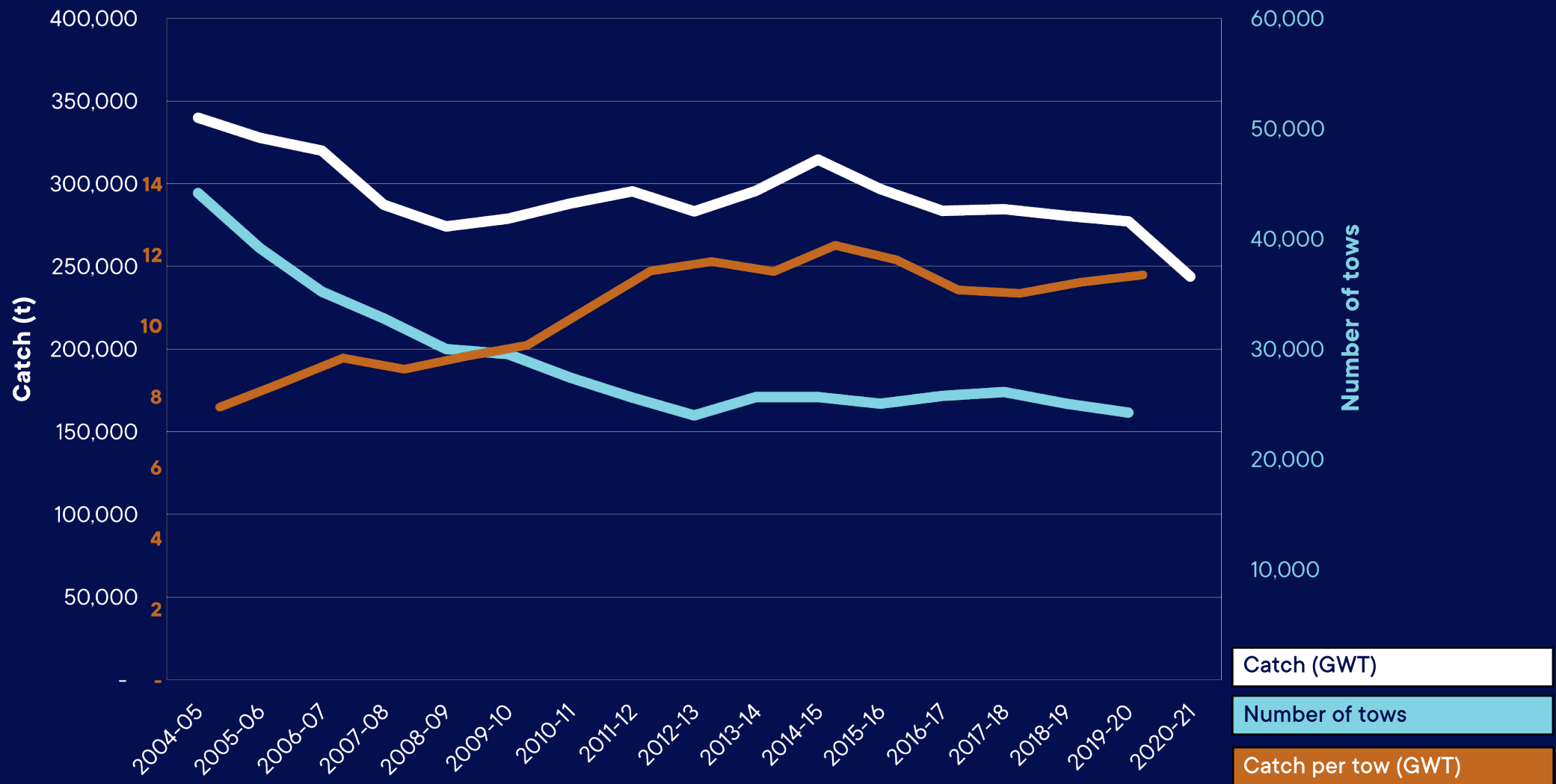
The estimated number of **common dolphins** captured annually by deepwater trawlers has been reduced by more than

99%

from 85 to close to 0

Deepwater catch and number of tows

The below graph shows the annual catch has been around 300,000 GWT, while the number of tows has reduced by 45 percent.



By the numbers

Performance of key deepwater fisheries



Hoki

To continue stock size rebuilding, quota owners again agreed to collectively reduce their catches to 100,000 t (the TACC was set at 115,000 t).

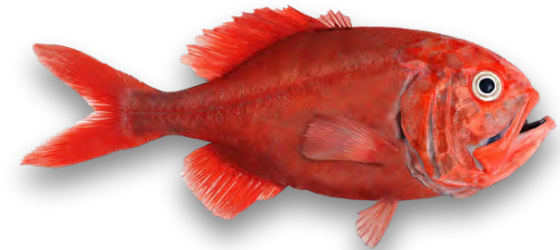
The catch level for 2021-22 has again been set by agreement at 100,000 t (the TACC was reduced to 110,000 t).



Ling

The TACCs remained at 24,247 t, catches steady at 16,730 t.

The TACCs for 2021-22 were increased to 24,752 t.



Orange roughy

The TACCs were increased by 1,195 t to 12,161 t with catches increasing by 1,248 t to 10,024 t.

The TACCs for 2021-22 remain at 12,161 t.

Performance of key deepwater fisheries



Hake

The TACCs remained at 7,783 t, catches declined to 3,077 t due to poor performance of HAK 7.

The TACCs for 2021-22 remain at 7,783 t.



Southern blue whiting

The TACCs set at 49,268 t with catches declining from 31,157 t in 2019-20 to 13,436 t.

The TACCs for 2021-22 remain at 49,268 t.



Squid

The TACCs remained at 81,120 t with catches declining from 42,032 t in 2019-20 to 30,081 t.

The TACCs for 2021-22 remain at 81,120 t.

The assessment of New Zealand's Ecosystem Approach to Fisheries Management against the MSC Fisheries Standard puts our deepwater fisheries in the **top 5%** of World's Sustainable Fisheries.

19
deepwater fisheries certified as ecologically sustainable by MSC

~**60%**
of the 2020-21 deepwater catch



DWG shareholders collectively own

91%

(349,703 t) of the 383,494 tonnes of quota for the deepwater species.

We are all guardians of our oceans.

We back ourselves, supported by New Zealanders, to maintain healthy marine ecosystems while continuing to deliver sustainable and healthy seafood to our customers, both here and overseas.

Ko tātou nga kaitiaki o te moana.



Company information

Board of directors

Companies

Aotearoa Fisheries Ltd
 Barine Developments Ltd
 Independent Fisheries Ltd
 Iwi Collective Partnership
 Johansson Seafood Consultancy
 KPF Investments Ltd
 Maruha (NZ) Corporation Ltd
 Ngāi Tahu Seafood Resources
 Ocean Products Ltd
 Sanford Ltd
 Sealord Group Ltd
 Solander Maritime Ltd
 Talley's Group Ltd
 Te Ohu Kai Moana Trustee Ltd
 Vela Fishing Ltd

Directors

Tom Birdsall, Chairman
 Nathan Reid
 Sam Penwarden
 Stephen Bishop
 Maru Samuels
 Greg Johansson
 Andre Kotzikas
 Tim Law
 Craig Ellison
 Doug Loder
 Colin Williams
 Rui Ventura
 Paul Hufflett
 Andrew Talley
 Kim Drummond
 Anita Vela

Alternate directors

Mark Ngata
 Kristie Penwarden
 Mark Allison
 Nathan Reid
 -
 -
 -
 -
 Darryn Shaw
 Geoff Clark
 James Hufflett
 Tony Hazlett, Dion Iorns
 -
 Geoff Burgess



FV Amatal Explorer. Talley's

Deepwater Group

Shareholders



FV *San Discovery*. Sanford

Aotearoa Fisheries Ltd
Ātiawa ki Whakarongotai Holdings Ltd
Barine Developments Ltd
Christopher John Robinson
Gisborne Fisheries 1955 Ltd
Independent Fisheries Holdings Ltd
Intersea Ltd
KPF Investments Ltd
Maruha (NZ) Corporation Ltd
McDonald & Brown Ltd
New Zealand Japan Tuna Co Ltd
Ngāi Tahu Fisheries Settlement Ltd
Ngāi Tahu Seafood Resources
Ngāi Te Rangī Fisheries AHC Ltd
Ngāti Manawa Tokowaru AHC Ltd

Ngāti Maru (Taranaki) Fishing Ltd
Ngāti Mutunga O Wharekauri AHC Ltd
Ngāti Porou Seafoods Ltd
Ngāti Ranginui Fisheries Holding Company Ltd
Ngāti Rarua AHC Ltd
Ngāti Tuwharetoa Fisheries Holdings Ltd
Ngāti Ruanui Fishing Ltd
Ngāti Whare Holdings Ltd
Northland Deepwater Ltd Partnership
NZLL Quota Company Ltd
Ocean Fisheries Quota Holding Company Ltd
Ocean Products Ltd
Petromont Holding Ltd
Pupuri Taonga Ltd, Sealord Group Ltd
Richard & Caroline Kibblewhite, Margaret Severinsen

Robert B. Odey, Thomas M. Simpson
Rongowhakaata Iwi AHC Ltd
Sanford Ltd, Sanford Investments Ltd
Seaford Holdings Ltd
Solander Maritime Ltd, Solander Developments Ltd
Southfish Ltd
Star Fish Supply Ltd
Talley's Group Management Ltd
Te Aitanga A Māhaki Trust AHC Ltd
Te Arawa Fisheries Holding Company Ltd
Te Ohu Kai Moana Trustee Ltd
Vela Quota Number One Ltd
Whaingaroa Fisheries Company Ltd
Whakatōhea Fisheries AHC Ltd



Level 12, 36 Kitchener Street, Auckland 1010
PO Box 5872, Victoria Street West, Auckland 1141
09 - 379 0556
office@deepwatergroup.org
deepwatergroup.org



March 2022

**Committed to
Healthy Oceans
Sustainable Fisheries**