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Research, Science and Innovation: Te Paerangi (Future Pathways) 2021

Deepwater Group Limited (DWG) appreciates this opportunity to provide a submission on the proposed technical amendments to fisheries regulations (Fisheries New Zealand Discussion Paper No: 2022/01).

DWG is a non-profit organisation that works in partnership with the Ministry for Primary Industries (MPI), the Department of Conservation (DOC) and others to enable New Zealand to gain the maximum benefits from our deepwater fisheries resources, managed within a long-term sustainable framework.

DWG represents the owners of quota in New Zealand's major deepwater commercial fisheries, including those for hake, hoki, jack mackerel, ling, orange roughy, oreos, scampi, southern blue whiting, and squid. Shareholders of DWG collectively own around 91% of the quota for deepwater fisheries in New Zealand.

World-leading science is pivotal to the Deepwater Group's ability to uphold the reputation of deepwater quota owners for sustainable fishing practices, with the science-based Marine Stewardship Council certification of 19 New Zealand deepwater fisheries demonstrating that New Zealand's ecosystem approach to fisheries management ranks amongst the top 5 percent of the best-managed fisheries in the world.

Our role is to act on behalf of deepwater quota owners to collaboratively realise the DWG vision which is *to be trusted as the best managed deepwater fisheries in the world*.

To deliver on this vision we rely upon the best available science to inform management decisions.

Deepwater Group has directly purchased around $20m in science over the last 24 years and will continue to do so over coming years. In addition to this direct investment in science, the Deepwater Group's members have contributed another $37.2m in levies that have been used for science and monitoring projects around fish stocks.

Deepwater Group Submissions

DWG supports and endorses the submission of Seafood New Zealand and makes the following submissions as they are relevant in a deepwater context and are of particular interest to deepwater quota owners

KEY QUESTION 1: What principles could be used to determine the scope and focus of research Priorities?

- It will be very important to consider industry needs when determining the scope and focus of research priorities

- Principles will need to be balanced between increasing capability of research organisations, environmental priorities, industry requirements and wider benefits to New Zealand
- Baseline and ongoing funding to help inform fisheries management is a priority as it will allow the fishing industry to fish sustainably and for the long term
- There should be a balance between economic and environmental needs in terms of prioritisation of research with regard to the fishing industry. Prioritising science in the aquatic environment (such as conducting an inventory of New Zealand's aquatic biodiversity or seabed mapping) will not only provide valuable information for New Zealand's scientific community but will also provide direct support for New Zealand primary industries and underpin New Zealand's delivery of an Ecosystem-Based Approach to Fisheries Management (EAFM). Such information will help industry improve its fishing practices, incentivise fishing innovations that reduce any negative impacts as well as create a better understanding of underwater habitats for all New Zealanders.
- A funding framework that supports an ability for science to be co-funded between industry and Government, not only creates efficiencies, it also creates common outcomes that result in real benefits for New Zealanders.
- We recommend prioritising research that will support New Zealand to be a high performing country and ideally world-leading. Primary sector research is something that New Zealand already does well, so should be further prioritised DWG agrees that there need to be clear fisheries management benefits that are proportional to the reporting requirements that are needed to provide for them.
- DWG recommends that it focuses on areas that will enable the primary industry to be highly innovative and to support New Zealand's reputation as a country that produces premium, safe food products,
- Potentially prioritise research that helps New Zealand weather future storms such as ones we have experienced recently (COVID and shipping challenges). This could include:
    - Research into shipping innovations to become more cost effective
    - Processing innovations
    - Automation for increased efficiency
    - Product innovations over and above fresh produce to limit exposure in markets

KEY QUESTION 2: A) What principles should guide a national research Priority-setting process?

- Deepwater quota owners are reliant upon the best available science being used to inform the sustainable management of New Zealand's deepwater fisheries. It is essential that all fisheries science purchased by either Government or industry is conducted in a manner so that the results are fit-for-purpose (i.e., are capable of being used to inform management advice and decisions)
- DWG suggests that MBIE incorporates a formalised strategic priority setting process, both on a medium-long term basis as well as on an annual basis with the development of annual priorities. This process could involve consultative rounds, not unlike those that occur within Research Development Corporations (RDCs) in Australia where research road maps are developed through stakeholder consultation,[1]
- Formalised research priority setting rounds and formalised benefit flows will help companies to engage with research organisations and vice versa, as the priorities will be established via dialogue and input from key stakeholders and end-users. Processes that formalise priority setting and demonstrate benefits will enable improved extension and adoption processes and in doing so will reflect *real* priorities for companies
- It will be important to keep front of mind priorities that have the best chance of providing genuine economic, environmental and social benefits for New Zealand

[1] See Fisheries Research and Development Corporation (2021) FRDC Strategic planning and priorities (https://www.frdc.com.au/strategic-planning-and-priorities) [accessed 12/03/2022]

- National research priorities need to factor in ways to support New Zealand companies to be productive, innovative and world-leading in order to compete internationally. DWG notes that linking support criteria to agreed national and sectoral priorities would greatly assist here. In the case of research funding for primary industries, funding criteria could contain explicit linkages to primary industries and demonstrable benefits as well as delivering a public good benefit to the New Zealand community.[2]
- Research priorities should enable research organisations to collaborate (where appropriate) in order to maximise the opportunity to have real impact for New Zealand. Collaboration across countries should be encouraged where there are benefits in doing so
- National priorities should (where relevant) be aligned with international priorities so that New Zealand keeps up with international best practice (such as environmental benefits, improved innovations, reduced waste, but also, in terms of quality, cost, reliability of supply etc.)
- Research priorities should also take into consideration future and emerging priority areas to enable New Zealand research organisations and researchers to front-foot world-leading science and for companies to leverage or even invest in this research, where appropriate
- It will be important to make sure that key areas of research are covered at all times so that New Zealand doesn't lose its ability to do world leading research in areas that may not *necessarily* be high priority from one year to the next but are nonetheless important themes. Maybe this type of research could be done with baseline funding
- Priorisation process also needs to provide consideration of scale, importance and urgency – as well as factors such as the probability of research success, extension success and risk/reward ratios.

KEY QUESTION 3: How should the strategy for each research priority be set and how do we operationalise and implement them?

- As mentioned above, a formalised medium-long term and annual research priority setting process that involves industry and other stakeholders in the development of strategies and pathways for each research priority, will markedly assist in both the direct relevance and the extension of research. This will help to get the balance right between research that is important yet less of a priority for industry with research that is high priority for industry and other vested parties
- DWG represents a large number of fishing companies. By engaging with representative organisations such as DWG, input for the setting of research priorities will be streamlined and disruption for individual businesses minimised
- Strategy-setting should not be done in silos, so providing opportunities for a range of stakeholders to work together on strategies will be important
- Research priorities should not simply reflect Government priorities. Government priorities should be *one* part of the strategy for setting research priorities, with industry and public priorities comprising the other.

KEY QUESTION 5: What are your thoughts on how to enable and protect mātauranga Māori in the research system?

- DWG shareholders include Te Ohu Kai Moana and most of the Iwi and Iwi enterprises who own quota for deepwater species. DWG shareholders collectively own 92% of all deepwater quota. Māori fishing interests are active in the governance of DWG. Across these shareholders a common expectation is the adoption of kaitiakitanga in how we operate and interact with the marine environment.
- Mātauranga Māori and kaitiakitanga are by dint of our membership integrated into every aspect of our decision-making.

[2] See Fisheries Research and Development Corporation (2021) About FRDC (https://www.frdc.com.au/about-frdc) [accessed 12/03/2022]

- However, the inclusion of mātauranga Māori in the research system recognises that there can be crossover between conventional approaches and Māori practices. Taking approaches that are consistent with a Māori world view will benefit our stakeholders. However, it has to be meaningful, and come from a consultative and engagement basis.

KEY QUESTION 7: How should we determine what constitutes a core function and how should core functions be funded?

- It would be of value to DWG if some core functions were not *necessarily* under the domain of only one research provider. This would keep New Zealand's expertise competitive (on the worldwide stage), would provide career pathways across multiple organisations for researchers and provide industry with choice in terms of who undertakes such important core research
- It would be worth periodically consulting with levied industries such as the Deepwater Group about whether expensive core services using levies are fit for purpose, value for money and providing impact for New Zealand and the industry
- Consider funding public good monitoring that the seafood industry should not be expected to fund by itself, but which nevertheless adds to better understanding of New Zealand's marine environment

KEY QUESTION 8: Do you think a base grant funding model will improve stability and resilience for research organisations and how should we go about designing and implementing such a funding model?

- For industry to use research organisations, it can be extremely costly. If there were ways for R&D costs incurred by industry to not be so great, this would enable their R&D funds to go further and would encourage *further* engagement between companies and research organisations
- It seems that on an annual basis (when MBIE's funding rounds are open), research organisations increase their interaction with industry in order to get company buy-in for research proposals the researchers are submitting to MBIE. This seems to be so that the research organisations can secure a large portion of funding for work spanning a long period of time. This annual practice can be frustrating for industry when multiple research organisations vie for industry involvement and possible co-funding and sometimes the inclusion of industry is more of an afterthought than as genuine project co-developers. It is noted that the current process has some advantages in accountability forced by contracting and contestability. If the research organisations had clear direction that the security of funding was linked to real industry-based outcomes, then more focus on more effective engagement with industry and ultimately, more successful uptake of project outcomes as work done will respond to *real* industry or science need would follow.
- Forcing research organisations to focus on obtaining contract research (fully paid for by industry) in order for the research organisations to survive can lead to perverse behaviour on the part of research organisations. With more stable funding from Government, the research organisations can focus on undertaking excellent research tailored to industry needs
- As outlined above, DWG proposes that explicit national and sector specific priority setting processes, compiled with explicit industry linkages, demonstrable primary industry benefits and demonstrable extension strategies, would profoundly improve the delivery of science away from science providers seeking support for their projects to science providers meeting industry and national needs and priorities through scientific collaboration.

KEY QUESTION 9: How do we design collaborative, adaptive and agile research institutions that will serve our current and future needs?

- From industry's perspective, encouraging research organisations to find ways to collaborate with others can be important as sometimes, research organisations can be blinkered in terms of their own capability and ignore the need to involve others outside their own organisations – noting that research

organisations are full of 'clever' people - setting up funding systems that enable cross group cooperation between service providers (not just industry) would enable collaboration.

- Encourage Crown Research Institutes (CRIs) to regularly review their research and their staff's expertise to ensure it is adding value to New Zealand
- Consider more opportunities for CRIs to co-fund work with industry if it adds value to both the research organisation and industry. The benefits for research organisations who co-fund work could include:
  - Publishing research findings (which enhances a research organisation's reputation)
  - Potentially sharing in any ownership of IP
  - Further R&D with the company
  - Extension reviews, where research relevance, fitness and adoption are considered for improvement
- We have benefited greatly from having researchers work alongside our member companies when undertaking research. This arrangement also benefits the researchers and their respective organisations as it provides opportunities for professional development, increases the likelihood of further collaboration and leads to a deeper understanding of industry needs. We would encourage more of this interaction
- Research organisations are not always ready and resourced in order to respond to research needs at a time that suits industry. This is a difficult situation to overcome but any consideration to providing additional flexibility to enable CRIs to take on valuable research at reasonably short notice would be welcome
- Encourage use of fishery dependent monitoring and research and use of industry platforms – these approaches are efficient and practical in fisheries research where specialised research vessels are very expensive.

KEY QUESTION 10: How can institutions be designed or incentivised to better support capability, skills and workforce development?

- The Deepwater Group thinks that whilst having access to world-class researchers in New Zealand is very important, connections with overseas researchers is also crucial. At times, we have been forced to use research organisations offshore because the skills do not exist in New Zealand and while this can, at times, be frustrating, in other instances, it is beneficial and should, in fact, be embraced. It allows us to leverage research money spent by overseas groups and to colonise research undertaken elsewhere. When we combine overseas expertise with excellent New Zealand capability, this creates opportunities for the up-skilling of New Zealand researchers and for future international collaborations between research groups to occur
- We would like MBIE to continue to encourage researchers to work with industry and even consider a system that values industry-facing work at least as equally as publishing work. This will have benefits for researchers who might one day move into industry and helps to ensure that researchers have a good understanding of industry needs, making them valuable scientists for New Zealand
- A performance culture is important and excellent staff, who create value for companies and New Zealand should be rewarded and recognised accordingly
- As indicated, the Deepwater Group has contributed over $57m into funding over the last 24 years. This is an extraordinarily large amount of money that industry has funded into fundamental science, some of which should arguably have been funded by the Crown. Support for the Deepwater Group's research excellence approach should not be underestimated and there could well be opportunities for MBIE and the Deepwater Group to broaden this arrangement and get increased value for New Zealand.

KEY QUESTION 13: How do we better support knowledge exchange and impact generation? What should be the role of research institutions in transferring knowledge to operational environments and technologies?

- We think it is important that Government *require* the incorporation of clear extension strategies when purchasing research so that the research has a greater chance of creating impact for New Zealand. This should include:
  - Outlining how the research will fit the purpose for which it is being purchased
  - Expecting researchers to provide more than simply reports on results and instead provide detail on research implications, recommendations and proposed next steps
- As previously mentioned, removing bloated costs from research projects will encourage industry to engage more with research organisations and as a result, the research will have more impact
- In order to have impact from research, the research needs to be tied to very real needs industry or New Zealand has
- Some of the large proposals for research funding that research organisations submit to MBIE can be too esoteric to be of practical value to industry. It seems that the desire for 'science excellence' sought in such proposals overrides any potential real world use or the timelines for outcomes are too far removed from the realities of industry. While there is certainly a place for excellent science, perhaps the funding could be balanced more in the favour of undertaking research that has the chance for the biggest impact for New Zealand – whatever that may be?
- The Deepwater Group (and no doubt other industries) would be very keen to hear about some of the highly relevant and useful research that may have been done (or is being done) in research organisations but currently, there is no easy process for hearing about some of this work. Could there be for formal opportunities for industry to connect with researchers to share research to enable opportunities for input or uptake by industry?

KEY QUESTION 14: How should we include workforce considerations in the design of research Priorities?

- See previous comments about encouraging researchers to spend more time in companies to get an in-depth understanding of industry needs in priority areas. This would create an empowered workforce and opportunities for industry to benefit from research interaction and potential career pathways for researchers

KEY QUESTION 17: How do we support sustainable, efficient and enabling investment in research infrastructure?

- Database and data provide highly useful information for the Deepwater Group and as mentioned, underpins its credibility in the international market. Support for the upkeep and updating of such key information is very important and would benefit not just industry but the science community and other stakeholders (recreational fishers, traditional fishers, the general public, etc)
- It is valuable for research organisations to have high tech equipment and processing facilities to support the Deepwater Group's science requirements. New Zealand needs to ensure that our science is at the cutting edge internationally, so providing support for such infrastructure will be important
- Maybe it would be useful to potentially centralise key facilities (e.g., culture biobanks, high tech research equipment, etc.) managed independently as a national resource and available to all researchers and industries to access

Summary

Deepwater Group supports a science and research framework that necessitates research that is demonstrably responsive to national industry and community needs, that prioritises those needs and provides for those needs to be met with clear prioritisation processes, criteria that relies on clear linkages with industry and stakeholders and extension and feedback loops that assess fitness for purpose, efficacy and adoption. Nothing that focussing solely on industry needs also tends to drive towards short-term approaches.

DWG notes that a science and research framework needs to be research focused, and incentivise collaboration and cross-organisation engagement. DWG notes that a requirement for a research organisation to 'return a profit' leads to a number of perverse outcomes. These perverse outcomes include issues around data ownership and availability, incentives for short term recruitment and reduced retention of expertise, lack of investment in on-going training, but also other perverse science outcomes like increased risk around the setting up and on-going collection of long-time series of data that enable scientists to address key questions (e.g., changes populations in both marine and terrestrial environments).

DWG submits that CRIs:

- Should not be required to make a profit;
- Should be better enabled to invest in novel and exploratory science, within appropriate limits and with appropriate (financial and technical) oversight, as well as being able to bid for research funding available from government and industry;
- Should have a funding framework where a greater proportion of their funding provided as core funding from government, especially where there is considerable public good as in the marine environment, but also be incentivised to leverage industry funding, dollar for dollar.

DWG notes that there are a number of jurisdictions abroad including Australia whose research frameworks are agile, responsive and enabling, often effectuating processes that ensure that stakeholders from different jurisdictions, industries and sectors are able to come together and discuss shared strategic needs and undertake research that provides real benefits in both a national industry and community context. Further to this, the Australian FRDC model, of which the process of research planning and delivery from a range of suppliers is well regarded by the fishing industry in Australia, provides significant government funding, but leverages industry funding, dollar for dollar (or thereabouts).

DWG remains happy to provide additional information with respect to these submissions.

We are happy to speak to these submissions should it be required.

Kindest Regards,

Aaron Irving
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Deepwater Group