



*for a living planet®*

# What if?

# Executive Summary

New Zealand's marine environment covers an area 15 times that of its terrestrial environment and our Exclusive Economic Zone (EEZ) is the fourth largest in the world. As such, New Zealand's marine environment already plays an important role in the economic, environmental and social well-being of our country and its people. It's a role that is destined to grow. However, with increasing concerns about the sustainability of seafood harvest and mineral extraction, pollution of marine habitats from land- and sea-based activities, responses to climate change and questions of marine ownership, it's clear the future holds many challenges.

WWF-New Zealand's mission is to build a future where people live in harmony with nature. Our vision is a future where our marine resources are managed for the benefit of people and nature. We initiated the Future Seas scenario planning project to look beyond the current real or perceived costs and benefits of marine reserves and explore what this protection tool could offer New Zealand in the dynamic future ahead. The Future Seas project focused on marine reserves because they represent the most comprehensive means of protection for New Zealand's marine environment.

The Future Seas scenario planning project was devised to give us some understanding of three main questions:

1. How will biological, social, economic, and cultural aspects of the marine environment in New Zealand change over the next 50 years?
2. How will New Zealand's marine environment be used and protected in the future?
3. What role should marine reserve networks play in marine protection? How extensive should they be and how will their impacts and benefits change over time?

To make sure our fix on the future was grounded in reality, we invited a select group of fishers, scientists, energy experts, community leaders, eco-tour operators, and Māori and government representatives to two Future Seas scenario planning workshops.

During the workshops we discussed a number of stories that could play out in relation to the New Zealand marine environment. We then chose to further investigate two possible scenarios: "Selling by the Litre" and "Acting Local".

## Selling by the Litre

The Selling by the Litre scenario plays out in a world where climate change follows the most optimistic Intergovernmental Panel on Climate Change (IPCC) prognosis of 2001, one that allows people and the environment to gradually adapt to the new conditions. Although the effects of climate change on habitats are observed under this scenario, they do not affect human ability to derive value from the marine environment.

In Selling by the Litre, the first 15 years (2007–2022) are characterised by the gradually declining condition of the marine environment caused by lack of resources and little focus on its management and protection. In the following 15 years (2023–2038) the decline continues as a new property-rights dominated system takes shape. An increased level of industrial activity, combined with weak environmental controls, leads to a higher number of pollution incidents and destruction of some key habitats. Pressure on water quality also increases as coastal and other marine activities intensify. Over time, as the economy improves, the government imposes national marine environmental standards and ensures strong enforcement, which results in a slow improvement over the next 20 years (2039–2059). Progress in marine sciences helps to restore and maintain remaining pockets of biodiversity.

## Acting Local

The Acting Local scenario is overshadowed by the most pessimistic IPCC climate change outcome. Environmental change in this scenario is rapid and in many aspects devastating. Society's response to climate change initially provides an impetus for economic growth, which then collapses and a no-growth economy becomes a reality. Politics are focused on local issues with strong regional independence and diversity of policy approaches throughout New Zealand.

In the first 15 years (2007–2022), human activities in the marine environment are dominated by large-scale, publicly funded projects at the same time that climate change problems intensify with an increased number of 100 and 500 year events. In the following 15 years (2023–2038), the rate of sea level rise has accelerated beyond the pace of infrastructural adaptation and many coastal areas are flooded. The next 20 years (2039–2059) in many ways bring the greatest challenges as the temperature and pH levels in the 2040s cross the tipping point and the environment enters into a violent adjustment period following dramatic sea current changes and an ecological crash in the marine environment. But by 2060 people have returned to deriving sustenance from the oceans. Society adjusts to the new situation with multinationals controlling activities in deep waters and the EEZ and local businesses and cooperatives operating in the near-shore environment. Genetically modified aquaculture is important, as is marine energy micro-generation and local shipping.

## What we learned

During the Future Seas workshops we asked the participants to look at how society and decision makers, living within each scenario world would debate for and against the establishment of a marine reserves network. We considered what costs and benefits they would find more important considering the circumstance of their life.

Both scenarios highlighted that there is scope for much more extensive activity in the seas and that access to the ocean's resources could generate economic boom or recession. On the other hand, closer analysis of predicted climate change impacts showed that many marine species are likely to come under severe stress in the next 50 years and the stability of ecosystems is not guaranteed.

## What if?

Our glimpse into two possible futures includes a look at potential statistics, news briefs, and insights from people who will witness much change within their lifetimes.



Seven-armed starfish, Mayor Island

Through the scenario planning we also learned that marine reserves don't need to detract from the potential value of the marine economy. In fact, marine reserves can enhance a number of non-extractive activities and add value to activities undertaken outside of reserves, e.g. by providing scientific baseline information, enabling more informed exploration, or by conserving a pool of genetic diversity which could be used to enhance biodiversity elsewhere.

In these two scenarios, at least, the opportunity costs of the reserves and costs of transformation were minimal compared to the eventual benefits and the costs of climate change. In fact, they were more like an insurance investment, which allowed the communities to prepare themselves for the changes that were inflicted by larger forces such as climate change, intensification of the human activity in the sea, or change of property regime.

The idea of marine reserves being used as an insurance policy surfaced in both scenarios. In Acting Local the reserves provided a mitigation mechanism for some of the impacts of climate change. In Selling by the Litre the reserves provided insurance against political mistakes in marine planning and inappropriate environmental management.

## Planning for the future

The point of scenario planning is simply to tell stories about the future that can help us to make better decisions today. With that in mind it is imperative that New Zealanders actively become involved in the dialogue about the future of our marine environment.

Through the Future Seas scenario planning project, WWF hopes to encourage the government to lead development of the agenda for establishment of marine reserves networks and other marine protected areas (MPAs). To do this we also need to build on our scientific understanding of our oceans and the potential impacts of climate change. It's also clear that fishing, mining and other industries aspiring to operate in the marine environment need to engage with all the stakeholders to develop visions and mechanisms ensuring a sustainable marine environment.

As both the Selling by the Litre and Acting Local scenarios demonstrate, our actions today have major implications for New Zealand's future.

**To read the full Future Seas report visit [wwf.org.nz](http://www.wwf.org.nz)**

*For the Future Seas project, WWF-New Zealand enlisted the scenario-planning expertise of consulting firm URS-New Zealand.*

WWF is one of the world's largest and most experienced independent conservation organizations, with almost 5 million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.



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