Oceans Futures – COVID 19

Marine Resources and Industries

CSIRO Oceans and Atmosphere

https://research.csiro.au/oceanfutures/

Project Goal: The *Oceans Futures project team develops and tests approaches that can help marine scientists, marine managers and policy makers prepare for future challenges. A variety of approaches, including quantitative and qualitative modelling, foresighting future scenarios, and historical data analysis are used to achieve this goal. The team is currently undertaking situational analysis and planning in response to COVID-19.*
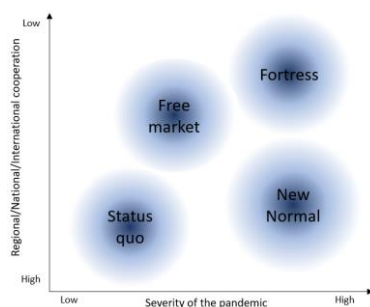
Impact on marine industries & science

1. Science is a global activity and science providers are presented with a range of challenges – our focus is the marine environment.
2. Marine industries are also part of a global market. For example, seafood is one of the most widely traded food products.
3. International trends and drivers affect Australian marine industries, resource use and management (**Box 1).** The COVID-19 epidemic is seeing cascading national and international impacts on this network.
4. Three sequential periods in this crisis have been proposed. **Response** – involving managing for continuity (now); **Recover** – learning and emerging (until vaccine); **Thrive** – preparing for the new normal (post-vaccine).

Scenarios and response options

5. The OceanFutures team is using four scenarios (left) to explore the Response, Recover, and Thrive phases for marine sectors (including seafood) and marine science. An example for seafood and science is below (right)

COVID-19 – the world changes

In early 2020 an epidemic, known as COVID-19, began to infect citizens in one Chinese province. Despite tight restrictions in China following a delayed initial response, this disease has spread to more than 200 countries around the world. Mortality rates are currently estimated to be up to 5% of the infected population, which has led to a wide range of community-based interventions, known as self-isolation strategies. Restrictions on domestic and international travel, school attendance, university classes, attendance at the workplace, and a wide range of societal gatherings have been implemented. The restrictions seek to flatten the infection curve such that health systems can cope. Over the next 12 to 18 months until a vaccine is made widely available, disruption to business as usual is anticipated.

| Scenario	Seafood industry	Science providers
Status quo	Previous markets and practices	Return to traditional approaches
New Normal	Distributed supply chains	Shared tools and data
Free market	Consolidated markets	Industry-dominated
Fortress	Domestic supply	Reduced capacity

Box 1. Australia's Blue Economy is connected to international markets and drivers

Discussions about the future of marine environments increasingly include a narrative in which the world oceans are the new frontier of economic and technological development, which contrasts with older conservation-focussed preserve-and-protect narratives or final frontier for exploration narratives. This new narrative is widely termed the **Blue Economy**. It represents a vision of an increasingly crowded marine environment with competition for space and resource and development-driven governance and technological innovation that provides solutions for the demands of a growing global population. The Blue Economy vision is centred on recognising that diverse ocean uses are interconnected and that integrated management is crucial not only to balance environmental, economic and social outcomes but also to capitalise on synergies among different uses, services and scales.

Over the past five years, the project team developed a conceptual model of the Blue Economy as a network in which nodes represent natural and anthropogenic drivers and activities impacting the Australian Ocean either directly or indirectly and the links represent the interactions between them. The model contains three levels (**Figure A**).

- <u>Global drivers</u> are those whose control and scope lie outside Australia but are the main drivers controlling the global context in which Australia as a system needs to operate.
- <u>National drivers</u> are those with control or scope within Australia whose impact on the Oceans is mostly indirect.
- <u>Blue Economy Sectors</u> directly relate to uses of Australian oceans at a regional scale.

The impacts of COVID-19 can be explored by considering global, national and regional drivers, under a range of scenarios. Responses to these scenarios can be reactive or proactive.
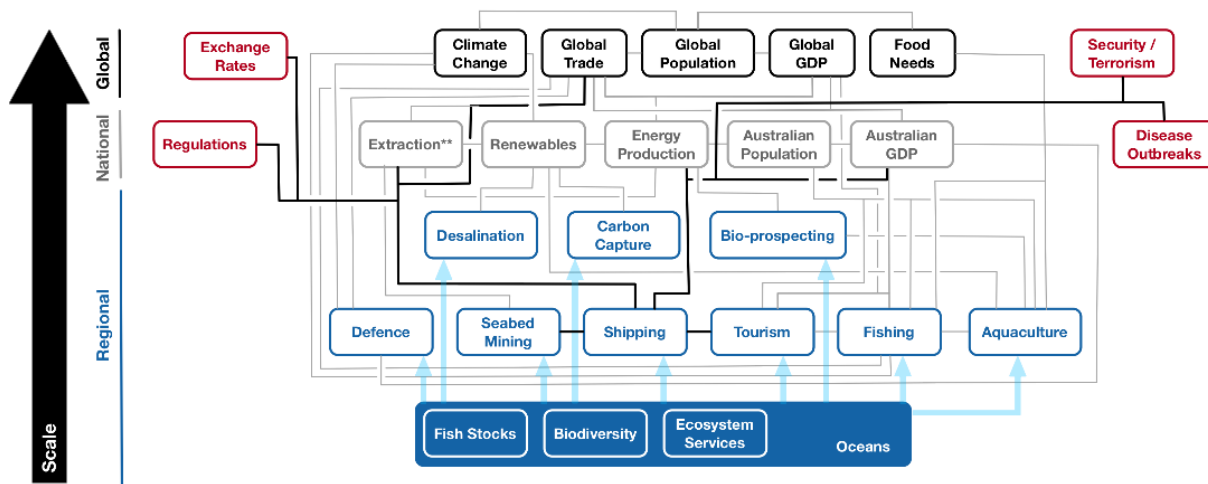
** Extraction - land and sea

Figure A. Influences on Australia's Blue Economy. The model components are organised at three levels: Global Drivers, National Drivers, and the Blue Economy Sectors. Red boxes indicate possible shocks to the system. Source: Boschetti et al. in review

Project References:

Boschetti, F., C. Bulman, A. J. Hobday, S. Contardo, H. Lozano-Montes, L. Robinson, J. Strzelecki, E. I. v. Putten, E. A. Fulton and A. D. Smith (in prep). Sectoral futures are conditional on choices of global and national scenarios – Australian marine examples. CSIRO, Oceans and Atmosphere.

McDonald, K. S., A. J. Hobday, P. A. Thompson, A. Lenton, R. L. Stephenson, B. D. Mapstone, L. X. C. Dutra, C. Bessey, F. Boschetti, C. Cvitanovic, C. M. Bulman, E. A. Fulton, C. H. Moeseneder, H. Pethybridge, E. E. Plagányi, E. I. v. Putten and P. C. Rothlisberg (2019). Active, reactive and inactive pathways for scientists in a changing world. Earth's Future **7**: https://doi.org/10.1029/2018EF000990.