

## Adapting aquaculture: 'Getting the edge' for an industry on the land/sea edge

### Summary

Oysters grow at the edge of the land and sea. Referred to as 'canaries in the catchment', they are good indicators of estuary health. Resources from CoastAdapt were used to run a workshop on the Far South Coast of New South Wales (NSW) to educate oyster farmers about climate change impacts and options to plan for these impacts. Farmers were encouraged to look at inundation maps to talk about how sea-level rise and warming oceans might alter the oyster industry on the south coast. The workshop also looked at the 'pathways' adaptation approach to help farmers to think about their plans for the future. Farmers were surveyed before and after the workshop to help evaluate any increases in their levels of understanding.

### Keywords

Aquaculture, adaptation, pathways, oyster industry, test case

### Oysters - 'canaries in the catchment'

Oysters grow at the edge of the land and sea. They are often considered as 'canaries in the catchment' because of their role as an indicator of estuary health (see Figure 1). Within the aquaculture industry, oysters are considered to be one of the species most at risk from climate change effects because of their vulnerability to changes in rainfall, temperature, salinity, acidity, sea-level rise and disease outbreaks. It is paramount to equip industry with the knowledge and tools to adapt to these changes.

Sapphire Coast Wilderness Oysters (SCWO) is the regional organisation for the oyster industry that has farms in the six estuaries of the NSW Far South Coast (see Figure 2). SCWO has fostered strong working partnerships with and among farmers and a wide range of stakeholders based on their shared vision of healthy estuaries.



Figure 1: Farmed oysters. © Pixabay.

## Working with CoastAdapt

SCWO undertook a CoastAdapt test case project to build the knowledge base and capacity of their local industry to understand climate change issues, impacts, and adaptation strategies. They also anticipated that the CoastAdapt project would build upon the previous study conducted by the University of Tasmania in partnership with NCCARF (Leith and Haward 2010), and link well with the Environmental Management Systems (EMS) currently being implemented within their estuaries.

The purpose of the project was to build the capacity of local oyster farmers to understand climate change impacts relevant for their industry. The first step was to run a workshop for oyster farmers at the Pambula Surf Life Saving Club (SLSC) on 20 April, 2017 (see Figure 3). Specifically the workshop aimed to:

- provide farmers with a framework of understanding about climate change
- educate farmers about possible impacts of climate change on their industry
- encourage farmers to consider how climate change impacts might be addressed over time using a 'pathways' approach.



Figure 2: Map of the locale of Sapphire Coast Wilderness Oysters. Source: © Bing Map 2017.

Prior to the workshop there was a survey conducted to gauge the level of understanding about climate change risks amongst the farmers; a follow-up survey after the workshop gauged how much farmers had learned through the process.

The workshop at Pambula SLSC was facilitated by Jillian Keating from Sapphire Coast Wilderness Oysters, Mark Western, an independent facilitator, and Daniel Murphy from Bega Valley Shire Council. The workshop format included short informal presentations, conducted along with opportunity for discussion and feedback in breakout groups.

Resources from the [What is climate change?](#) section of CoastAdapt provided invaluable information in preparing interesting and relevant presentations for the workshop. Flood hazard mapping provided by Bega Valley Shire Council offered a visual tool to enable farmers to view the possible future of their own estuaries and it helped inform discussions about local impacts and issues.

Presentations and discussions about impacts were followed by information and examples of the 'pathways' approach to adaptation. These examples provided a context from which farmers could begin to conceptualise practical steps they could take to adapt to climate change over time. It helped them understand that there are actions they can take now (e.g. approaches to the state government regarding lease conditions) and actions that may need to be taken further in the future (e.g. changing farming practices).



Figure 3: Oyster farmers participating in the workshop, April 2017. Source: © Jillian Keating.

## What the farmers said about the workshop

The workshop was considered to be very successful in raising awareness of the farmers about potential impacts and responses. This is reflected in the feedback from the participants:

*'Great workshop structure – kept everyone moving and thinking'*

*'By using the idea of thresholds to drive actions, it takes an overwhelming issue and breaks it into more manageable parts'.*

Some farmers reflected that these workshops helped them to recognise threats within their particular estuaries while others saw opportunities within their estuaries:

*'Ocean acidification...is a potential deal breaker for our industry'*

*'[Climate change is] a potential silver lining. There will definitely be species which will benefit from climate change... hopefully south coast rock oysters could be among them'.*

The CoastAdapt website was also reviewed by some of the farmers. One farmer observed how easy it was to move around the website, and how good it was to have such a huge range of data all available in one place.

Overall the project represents an important first step in building the climate change resilience of the NSW South Coast Oyster Industry. This 'edgy industry' now 'has the edge' on climate change impacts through oyster farmers now having increased knowledge and capacity to adapt. Specifically, it will empower Sapphire Coast oyster farmers to start identifying and developing industry-tailored and local solutions to potential climate change impacts. It will also provide the basis for oyster industry succession planning in response to climate change.

## References

Leith, P.B., and M. Haward, 2010: Climate Change Adaptation in the Australian Edible Oyster Industry: an analysis of policy and practice. University of Tasmania, Hobart, Tasmania. Accessed 13 June 2017. [Available online at [http://arnmbr.org/content/images/uploads/OYSTER\\_REPORT\\_FINAL\\_web.pdf](http://arnmbr.org/content/images/uploads/OYSTER_REPORT_FINAL_web.pdf)].

## Further reading

The Sapphire Coast Wilderness Oysters' website: [www.sapphirecoastwildernessoysters.org.au](http://www.sapphirecoastwildernessoysters.org.au)

This Snapshot was prepared by Mark Western of Integrated Coasts and Jillian Keating of Sapphire Coast Wilderness Oysters as part of a series of test cases conducted to assess CoastAdapt's performance and utility in real life adaptation situations. A special acknowledgement goes to Daniel Murphy of the Bega Valley Shire Council who also contributed valuable feedback to the test case.

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