Protect your catchment, protect your catch

A collaborative initiative to boost fish productivity in Corner Inlet, Victoria

Extension of FRDC project 2013-021

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In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

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Thanks go to the Corner Inlet fishing industry for their commitment and passion for collaborative management. In particular, to Max Laub for speaking to the group, with Neville Clarke in support. A very big thank you to Matt Goulden who braved the weather to put on a fishing display for the attendees. Lastly to Brett Cripps and Jarrod Griffin from Port Franklin Fisherman’s Association donated fresh seafood for the day.

The speakers on the day did a great job – thank you to Graeme Nicoll from Gippsdairy, Janine Hays from Destination Gippsland, Paul Boon from Victoria University, Gerard Delaney from Parks Victoria and Michael Hobson from Wildfish restaurant. Chef Oliver Edwards did a fantastic job providing us a feast of local sustainable Corner Inlet seafood.

We look forward to the continues success of the Corner Inlets Connection group in identifying and supportive collaborative opportunities such as this one. The group has been instrumental in facilitation many important conversations.

Lastly, thanks to very creative Melanie Webb for designing the “Protect your catchment, protect your catch” bumpersticker.

Executive Summary

This project furthers the strong collaborative management of the Corner Inlet catchment, aimed at providing real benefits to fisheries productivity and industry sustainability. This work further embeds the fishing industry in the process of catchment management, and establishes a common voice and united message to take to decision makers and promote meaningful action. We refined our message to ensure it was positive, achievable and broadly supported by three of the region's largest industries: farming, fishing and tourism. We worked with our established partners in the catchment in hosting a 'Showcase Day' in November 2016 that demonstrated to stakeholders and decision makers the firm commitment of all local industries, government and non-government groups, towards achieving a vision of a healthy and productive catchment that supports a robust commercial and recreational fishery.

This project is an extension activity of the recently completed FRDC major project 2013-021 "Using local knowledge to understand and manage ecosystem-related decline in fisheries productivity". We build on the strong collaborative relationships developed in that project to hold and event that both elevates the recognition and standing of the commercial fishing industry, and demonstrates a clear and widely-supported pathway to addressing environmental challenges to the fishery. We achieve this by leveraging our commitment with that of our key partner, the West Gippsland Catchment Management Authority. Together we were able to make our resources go much further and ensure our message reached many more stakeholders.

The event was effective in raising the awareness and profile of collaborative catchment management in Corner Inlet. A survey of participants showed a significantly improved awareness and understanding about the natural values of Corner Inlet, the link between catchment and coastal health and the level and importance of collaborative catchment management. Furthermore, the event elevated the recognition of the fishing industry, their contribution to the region, and the issues that they face. The ultimate goals of improved land management, better water quality, enhanced fish habitat and ultimately a more productive fishery are much longer them that what can be measured at present. To achieve them, all parties will need continued and dedicated effort towards a shared vision into the future.

The outcomes of the project have broad reaching lessons and guidance to coastal fisheries around Australia that are experiencing similar productivity challenges related to surrounding catchment activity. We strongly support the further development and dissemination of our "Engagement Guidelines for Fostering Collaborative Relationships in Coastal Fishing Communities" and to workshop these lessons with other coastal fisheries. Building on our experiences, we envision developing collaborative management pathways unique to each fishery, which understands the major threats, identifies solutions, partners with those who can affect change, and deliver their message successfully and effectively. We see a need for coastal fishing communities to be a strong part of their regional environmental management to ensure their sustainable future.

Introduction

The productivity of the Corner Inlet fishery is under threat from poor water quality flowing from the surrounding catchment (Ford et al. 2016). Seagrass, a critical habitat for key fish species such as King George Whiting (*Sillaginodes punctatus*), Rock Flathead (*Platycephalus laevigatus*), Southern Calamari (*Sepioteuthis australis*) and Southern Garfish (*Hyporhamphus melanochir*), has declined by 27% since 1975 at a rate of 0.5 km yr^{-1}. The main factors driving this decline – algal blooms and turbidity – are related to the quality of water entering the Inlet. Reduction in light as a result of algal blooms and turbidity pose the greatest threat to seagrass in Corner Inlet. Sediment from the catchment entering the Inlet contributes significantly to turbidity and nutrients runoff plays a significant role in fuelling green algal blooms. Hence, in order to address the loss of seagrass habitat, the focus must therefore be on driving land practice change in the surrounding catchment.

The recently completed FRDC project 2013-021 identified a pathway to address these water quality issues through collaborative management (Ford et al. 2016). There was a need to further support this collaborative approach and secure an ongoing commitment from decision-makers to ensure the long-term sustainability of the fishery. We also identified the need to build the profile of the fishing industry by showcasing the positive work they are doing to improve the health of the marine environment. This will serve to increase social license and ensure the future of the sector.

Our partners in FRDC Project 2013-021, the West Gippsland Catchment Management Authority, proposed an event to showcase the strong collaborative catchment management work in Corner Inlet-Nooramunga. This provided an excellent extension opportunity to further address the significant challenges of poor water quality leading to seagrass habitat loss and reduced fishery productivity. Through the involvement of the fishing industry in the showcase event, we saw great potential to push the case for complete funding of the Corner Inlet Water Quality Improvement Plan (WGCMA 2013), which provides a roadmap for improving water quality by adopting industry improvement programs such as Fert$mart (Dairy Australia). These stakeholders were first brought together by a very powerful initiative called the Corner Inlet Connections Group. This group, which was instrumental in the success of the previous FRDC project, holds meetings 2-3 times per year to communicate the work in the catchment and identify opportunities for collaboration. All the ingredients and groundwork was in place to improve conditions for the fishery, and we took the opportunity of this the event to showcase our plan to decision makers.

Despite the event being partially funded by our partners, there were no resources to engage the fishing sector and promote their involvement. This FRDC project was needed to adequately fund the engagement of fishers, to promote their profile and credentials, and ultimately to ensure they are key players driving a sustainable future.

The issues facing the Corner Inlet fishery are not unique, and we see great benefit in the further communication and extension of our experience to other fisheries around Australia. We saw a need to learn from our successes in Corner Inlet and provide recommendations on effective strategies for community engagement and project extension.

Objectives

1 Extension of the findings and recommendations of FRDC Research Project 2013-021 through continuing the process of collaborative management

2 Bring together key Corner Inlet industries and federal and state government decision-makers to present a unified vision of solving water quality and fishery productivity challenges

Method

Collaborative Engagement Guidelines

Our methods build upon the process of collaborative management outlined in FRDC project report 2013-021 (Ford et al. 2016). In that report, we produced a set of "Engagement Guidelines for Fostering Collaborative Relationships in Coastal Fishing Communities" which is attached as Appendix A. These guidelines covered ten steps to collaborative engagement:

1. Identify and understand the issue you want resolved
    - *In our study, the issue is the loss of seagrass meadows resulting from poor water quality coming from the surrounding catchment*
2. Know your players and playing field
    - *We identified groups contributing to the issue, and the key management and leadership groups that could enable change*
3. Identify an advocate/champion
    - *In this instance the lead researcher took on this role of representing the fishing community when engaging other players. Ideally, this would be someone within the industry itself.*
4. Establish your credentials
    - *We effectively communicated the environmental sustainability credentials of the local fishery, which was very important given our issue was primarily environmental*
5. Know your value to the community
    - *We focused on the economic, historical and cultural value of fishing to the local region, ensuring the fishing industry was considered an industry worthwhile protecting*
6. Identify other motivating factors
    - *In fixing issues of water quality, it was not only the fishing industry that benefited. There were environmental and conservation outcomes that benefited local amenity, tourism and recreation, along with efficiency gains on farms when runoff was better managed*
7. Reach out and listen
    - *Inevitably there are reasons why these issues are not easy to solve, and we made sure we listened and understood the barriers to improving water quality in the catchment, and avoided laying blame or shame*
8. Plan active engagement with the community
    - *We planned an event that involved the key players who could affect change in the catchment and improve water quality – farmers, farming industry bodies, and government authorities and regulators*
9. Hold a successful collaboration event
    - *We held an event that brought together the fishing and farming industries to discuss the issues of water quality and seagrass loss. We ensured that the event was interactive, educational and social, allowing all voices to be heard and considered*
10. Consolidate after the event
    - *We surveyed participants about their learnings from the day and assessed intended practice or culture change. We also generated significant media and promotional material top keep momentum up after the event*

This project furthers the chain of engagement guidelines. We build on the success of the showcase event by taking our message to a higher level of decision makers. The key was refining this message and ensuring we had a united and positive request that politicians and government could understand, value and act on.

Methods building on collaborative engagement guidelines

Here we add five new steps to the collaborative engagement guidelines. These additional steps build on the strong collaboration already established in the first ten, and finish with taking the refined and united message for action direct to decision makers.

11. Organise partners for a showcase day

The event covered in the original guidelines was focused around collaboration amongst stakeholders within the catchment. We saw need for a follow-on event that showcased these strong collaborations to external stakeholders, and draws in support from government decision makers.

Our project partners, the West Gippsland Catchment Management Authority secured funding to form the basis of an event to showcase the strong collaborative partnerships built in the Corner Inlet region. We saw this as a critical opportunity to combine with our partners to push a united message around improving water quality to benefit fisheries productivity. Initially, the event was focused on showcasing the collaborative work however with the involvement of the research team and funding via the FRDC, we pushed for an outcome-driven focus instead. We see great potential for strong investment and commitment in addressing issues of water quality and fisheries productivity given the existing multi-sectoral collaborations, multi-sectoral research and strong action plan. We agreed that the event could provide a platform to present a united message to decision makers around the value of investment in water quality improvement. The voices would be those of the major industries in the catchment – fisheries, dairy and tourism – with support from government authorities who have the plan to address the problems.

The commercial fishing sector in Corner Inlet has already a strong history of working collaboratively in catchment management. However, it was critical that the industry was well represented in the event to provide a strong and united call for action. We partnered with Seafood Industry Victoria, who held an informal workshop with license holders to discuss their involvement in the showcase event and sought commitments to attend and resource the event. We identified potential speakers willing to communicate directly with the audience and decision-makers on the day and those willing demonstrate fishing operations to attendees on the day, and those willing to supply fish for a local seafood meal.

Secondly, we engaged with local recreational angling clubs in Port Albert and Leongatha to ensure their involvement in the showcase event. Similarly, via the West Gippsland CMA we engaged local indigenous groups through the Gunaikurnai local land group, who have an active participation in the management of Corner Inlet. We aimed to identify local champions who are passionate about improving the environment to ensure productive fishing. Lastly, we engaged a high-profile Melbourne chef, Oliver Edwards (Cumulus Inc.), to participate in the event and showcase the fresh local sustainable seafood we are at danger of losing.

12. Refining the message – positive and attainable

We felt it was critical to ensure the message to decision-makers was positive, united and demonstrated clear benefits to the sectors. The message was built around a request for funding for the Corner Inlet Water Quality Improvement Plan, which was completed by the West Gippsland CMA in 2013, and outlines actions and investments required to reduce nutrient and sediment input into Corner Inlet. The benefits to all sectors were highlighted:

- Investment in improving sediment and nutrient loss on farms leads to efficiency gains on farm, improving profitability and environmental impact in the farming sector
- Reduced runoff leads to better water quality, slowing or reversing seagrass decline and improving productivity in the commercial and recreational fishing sectors
- Improvements in water quality and seagrass enhance the natural values of Corner Inlet, creating a more desirable tourism location, and improved recreational fishing opportunities increase fishing based tourism

This message was positive and the proposed solution was a clear win for all that supported them. No negatives, no blame, just solutions.

13. Hold a successful showcase event and demonstrate a united message

The showcase event brought together the most important industries of the South Gippsland rural economy – farming, tourism and fishing – to convey the importance of making investment in water quality improvements. The event was held at the Wildfish restaurant at Port Albert Wharf on Friday 4th November 2016. Invitations were sent to federal and state ministers, local politicians, local and regional business representatives, governmental departments, media and a variety of interested stakeholders.

In order to better spread our message, we designed bumper stickers (See Figure 1) with a unique logo and displaying the message "Protect your catchment, protect your catch". Approximately 200 of these stickers were handed out during the event. A further 150 were provided to Seafood Industry Victoria for inclusion in their next newsletter, and another 150 provided to VRFish for distribution with their promotional material.

Figure 1: Bumper sticker design for the showcase event.

Showcase presentations

The day started with a series of talks to communicate the current challenge and its solutions. The event showcased contributions from major players in the collaborative catchment management space in Corner Inlet. Angus Hume, chair of the board for West Gippsland CMA, chaired proceedings and introduced the history of the Corner Inlet Connections Group, which has been the basis for collaborative catchment management in the region. This was proceeded by a Welcome to Country by Grattan Mullet from the Gunaikurnai people of Gippsland, who highlighted the strong links between land and sea, between country and people.

The speakers were tasked with telling the story of the collaborative success of Corner Inlet Connections, and to drive our vision of a healthy productive environment underpinning the regional economy. We wanted the audience to see the local industries and managers all speaking from the same book - the importance of a healthy catchment and good water quality. We also wanted to highlight our achievements so far in reaching our goal, e.g. fishers restoring seagrass beds, dairy reducing fertilizer use and saving money using the Fert$mart programs, and Landcare initiatives to restore saltmarsh habitat. The details of each presentation is provided in Appendix B.

We aimed to ensure we provided solutions to any problems we raised, highlighting that the only thing that is holding us back is the lack of resources. This message was intended to resonate with politicians and decision makers; as a region we had done all the hard work in understanding our issues, and we were ready to take action. All we lacked was a helping hand to make it a reality.

The speakers, in order of presentation were:

***Tourism/Fishing*:** Michael Hobson, Wildfish restaurant and commercial fisherman

***Tourism*:** Janine Hays, Destination Gippsland

***Farming*:** Graeme Nicoll, Chair of GippsDairy

***Environment*:** Paul Boon, Victoria University

Environmental Management: Gerard Delaney, Parks Victoria

Fishing/Environment: John Ford, Melbourne Uni/Mezo Research

Catchment management: Tracey Jones, West Gippsland CMA

Figure 2: Four of the speakers on the day, clockwise from top left: Graeme Nicoll (GippsDairy), Paul Boon (Victoria University), Tracey Jones (West Gippsland CMA) and John Ford (FRDC project leader).

A panel discussion followed the final presentation (See Figure 3), which has ended with the general statement: “We have challenges, we have solutions, now we need to implement them”. Specifically, we called for further funding of the catchment management initiatives outlined in the Corner Inlet Water Quality Improvement Plan, and support for Landcare initiatives in rehabilitating coastal and riparian habitat.

Figure 3: Panel discussion led by Chair Angus Hume

Local Corner Inlet Seafood lunch

Attendees were then served a selection of fresh local fish from Corner Inlet cooked by the Melbourne seafood chef Oliver Edwards from Cumulus Inc. Oliver spoke about the importance of having a fresh local and sustainable seafood supply for the food culture of Melbourne and Victoria. He described each dish as it was served (See Figures 4 & 5).

Figure 4: Chef Oliver Edwards describing the seafood dishes served at the showcase event

Figure 5: Sustainable seafood feast at Wildfish restaurant cooked by Cumulus Inc. chef Oliver Edwards

Boat trip and fishing demonstration

Lastly, we invited attendees onto a chartered boat (owned by local operator and Wildfish restaurant owner Michael Hobson) for a short tour of the waters around Port Albert. We provided a guided tour of the seagrass meadows important for fishing, the mudflats important for migrating birds, and the beautiful scenery that attracts tourists to the area. Local commercial fisher Max Laub spoke about the fishing industry, its importance to the region, its sustainable practices and current challenges from poor water quality (See Figure 7 & 8). Local commercial fisher Matthew Goulden then demonstrated the sustainable fishing activities (See Figure 6). He set a small seine net shot to demonstrate the low-impact netting methods, low bycatch and the care taken while sorting the catch that ensures quality product and high survival of any discards.

Figure 6: Commercial fisher Matt Goulden demonstrating sustainable fishing practices

Evaluation

To gauge the success of the event, we asked attendees to fill out a short survey of what they have learned and their intended actions resulting from this learning. The survey is attached as Appendix C.

14. Create a Joint statement to support your cause

We wanted to harness the momentum and support for action that we created at the Showcase event, and distil our message into a short and direct statement. We have chosen to pursue a joint statement that was tabled at the Corner Inlet Connections meeting and could be supported by all members. The statement will contain a broad vision for the region, as well as specific actions and activities that aim to bring about this vision. When signed by all parties, the joint statement can be a powerful tool for use in awareness, promotion and applications for funding.

We used the following guiding principles, adapted from existing frameworks used by the group:

Creating a vision:

Keep the vision short and relatable to all stakeholders. Investigate whether similar statements exist for your group or had already been workshopped in related projects. In our case, a vision statement existed from when the Corner Inlet Connections group was founded; however it was no longer in common knowledge. Our group started by workshopping the simple phrase "a healthy and productive Corner Inlet".

Set priority work areas:

The road to achieving a vision is likely to be long and involve a broad range of activities across the stakeholder group. Priority areas should encompass all these activities that contribute to achieving your vision, however they need to be focused and meaningful to individual stakeholders. For example, priority work areas might be specific to on-farm nutrient and soil management, or riparian and coastal habitat, or conservation of natural values.

Agree on commitments

The Joint statement will be much more powerful if it contains commitments or intentions. This is not intended to be target setting around the activities in the priority work areas, but rather commitments to the collaborative management process. For example, commitments might be to attendance in ongoing meetings, or supporting partners in collaborative projects and funding applications.

15. Deliver message to decision makers

The final step in our collaborative catchment management guidelines is taking the united message to the real decision makers. This can include ministers, politicians and government representatives. By showing a clear and positive vision for the future that is supported by all major regional industries, that is achievable and a win-win on all fronts, we will have a powerful case to push. The message, supported by the Joint Statement, can also be taken to media to highlight the strong 'grass-roots' momentum of people working together to achieve benefits across the board.

Figure 7: Participants enjoying the boat trip

Results and Discussion

Evaluation of the Showcase Day

The showcase day was a great success. We had 46 attendees from the 55 invitations, which were capped due to limited space on the afternoon boat trip. Attendees included representatives from:

- Victorian State Parliament
- Federal Department Environment and Energy
- Victorian Department of Land, Water and Planning
- South Gippsland Water
- South Gippsland Shire Council
- Wellington Shire Council
- Gippsland Coastal Board
- Dairy Australia
- Gunaikurnai Land and Waters Aboriginal Corporation
- Yarram Landcare Network
- Victorian Recreational (VR) Fish
- Port Albert Angling and Hunting Club
- Leongatha Angling Club
- West Gippsland Catchment Management Authority
- Seafood Industry Victoria
- South Gippsland Landcare Network
- Gippsland Ports
- Corner Inlet Fisheries Habitat Association
- Parks Victoria

Figure 8: Commercial fisher Max Laub (centre back with microphone) educates attendees on sustainable fishing practices, including state MP Danny O'Brien (front left, blue checked shirt).

We received 18 evaluation sheets from participants at the showcase event, a response rate of 39%. We found attendee's awareness was significantly higher after the event around the natural values of Corner Inlet (paired t-test, $p<0.001$), the link between catchment and coastal health (paired t-test, $p=0.002$) and the level of collaborative catchment management (paired t-test, $p=0.001$) (See Figure 9). Thirteen of the respondents reported an increase in awareness of at least one of the areas, and there was no reported decline in awareness. Five respondents reported no change to their awareness, however all of these attendees scored an eight or higher for all questions. It is likely that responses may be skewed towards those already involved in the process; they were already highly aware of the issues raised prior to attending the event. In the future, it may be pertinent to try and capture those new to the process to gain a better understanding of the impact of these events.

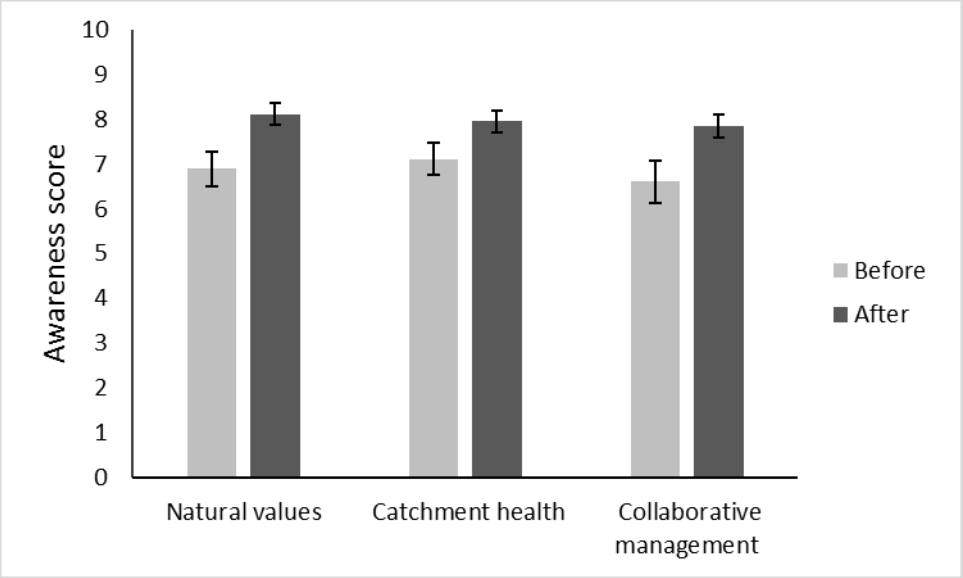

Figure 9: Comparison in awareness levels of participants before and after the showcase event. Bars are standard error. See Appendix C for description of questions.

Highlights of the event raised by respondents included:

- Seeing such diverse industries with the same positive message
- Awareness of high level of connection between the partners
- High quality of presentations
- Recognition that people are interested and relatively united
- Having so many different groups in the room.
- Scientific information
- The breadth of topics and presenters
- The breadth of all present and who they represented
- Hearing about the effort by dairy farmers being active regarding Nutrient management on farms, all the guest speakers, and talking to the commercial fishing guys about their practices.
- Gaining a better understanding of the tourism and fishing industries perspectives.
- The participation and enthusiastic discussion between all participants

The important next steps raised by respondents centred around four key areas – funding catchment management initiatives, education around the issues faced, monitoring the success of current initiatives, and ongoing collaboration. Some of the specific comments were:

- **Funding**: Fund actions in the Victorian Governments *Water Quality Improvement Plan* (WQIP) through concerned and focussed lobbying. Focus on nutrient and sediment control. What is the cost to be if we don't invest in improving water quality? We must implement plan - is a working document - needs to drive every conversation.
- **Education:** Education of farming community around water quality issues. Raising the national profile of Saltmarsh/seagrass. Continued promotion of the value of coasts and need for habitat restoration.

Put Corner Inlet ‘on the map’. We conserve only what we love, love only what we understand, understand only what we are taught. Farmers need to see what community wants

- **Monitoring:** Measure the impacts of practice change and improved catchment health via water quality monitoring to increase the certainly/reliability of catchment modelling.
- **Collaborate:** Continue the conversation and share all future opportunities to cooperate and learn of achieved results. Need collaborative effort - strategically planned for reaching goals.

Impact of the showcase event

We saw great momentum created by the showcase event. The Corner Inlet Connections group grew significantly, with four new fulltime members, including new representatives from the tourism and fishing industries. The February 2017 meeting revealed a strong drive for further collaboration and action. The group agreed to develop a vision and priority work areas, and these are currently under development. We expect to create a joint statement by mid-2017, after which we will take our message to decision makers and drive further action and funding commitment.

Conclusion

We have comprehensively met all four project objectives. Our first objective, the successful participation of the commercial fishing sector in the showcase event, is clearly met by the involvement of local commercial fishers in the day including the presentation by Michael Hobson, the demonstration of fishing practices and the lunch of local seafood. Success in our second objective, successful participation of government decision makers, is demonstrated by the attendance of politicians, both federal and state department representatives, and local councils. The results of our participant evaluation show clearly that we met the third objective, an increase in awareness of attendees around the need for continued water quality improvements. Lastly, we have promoted the project outcomes via media and via this project report, which is to be disseminated widely to stakeholders (See Figure 10).

The key output of this project was the further development of the Guidelines for Collaborative Management. This updated version now covers the collaborative catchment management journey from the initial stages of understanding the problem, to taking the message to decision makers and lobbying to resource the solutions. These guidelines will be highly relevant to other fisheries around Australia that face similar environmental driven challenges to fishery productivity. Small coastal seagrass-dependent fisheries exist along the Australian coastline, particularly in the south-east and south-west regions, and seagrass is under threat in most of its temperate range. Similarly, water quality issues threaten coastal aquaculture operations such as oyster farming in areas such as eastern Tasmania and NSW coast. We aim to distribute our findings to these fisheries and farms to promote the benefits of working in collaborative catchment management and provide guidelines for best practice. We envision that the Corner Inlet experience will be a leading example in how environmentally driven productivity challenges can be met in coastal fisheries.

Recommendations

Recommendations for further steps in collaborative management of Corner Inlet

Action	Lead	Support
- Finalization of the Joint Statement by the Corner Inlet Connections Group, which includes a vision of Corner Inlet, priority areas and collaborative commitments	Corner Inlet Connections Group	West Gippsland CMA
- Continue to seek resources for initiatives outlined in the *Corner Inlet Water Quality Improvement Plan*, using the Joint Statement to draw attention to the need	Corner Inlet Connections Group	All partners
- Ensure ongoing participation of the commercial and recreational fishing sectors in the Corner Inlet Connections Group through sector peak bodies	Seafood Industry Victoria, VRFish	Fishing industry groups, fishing clubs

Recommendations on development and extension of Collaborative Guidelines

Action	Lead	Support
- Dissemination of updated "Engagement Guidelines for Fostering Collaborative Relationships in Coastal Fishing Communities" created under FRDC Project 2013-021 with the five new collaborative management steps.	Project team	FRDC
- Organise workshops with representatives from Australian coastal fisheries with similar external environmental challenges to productivity. This would aim to take project extension to the next level by showcasing the learnings of our process and map out successful collaboration pathways in other fisheries	Fishing industry (i.e. peak bodies), fisheries managers	FRDC

Recommendations on effective strategies for community engagement and project extension

- When developing a project extension, try to utilise established partnerships developed during the major project. Combined resources go much further and a collaborative event reaches many more stakeholders.

- Learn from the experience of other projects. The "Engagement Guidelines for Fostering Collaborative Relationships in Coastal Fishing Communities" associated with this report is a good place to start.

- Community engagement and collaborative management takes time and takes long-term commitment by any industry. This does not conform well to research project timelines, and hence industry

commitment must be made external to such projects. It is critical to ensure that industry sees the benefit in their direct participation.

- Start any community engagement by first understanding the size and extent of your circle of influence. Work from the inside out to build your engagement links.

- Be realistic about your goals. Real problems are complex and require many heads and many hands to solve. Remember attitude shift is a success in the early days. Be satisfied with small wins. It will take many small steps to reach your goal.

- Encourage your industry to join committees and working groups. Identify which groups have influence over the areas you are facing challenges.

- Establish the credentials of your industry. Know your value to the community. For instance, if you are asking others to improve their environmental performance you must first demonstrate your own efforts. Others are not likely to make changes if you do not.

- Find common ground and start there. Be prepared to listen and acknowledge the view of others. They may not see your problems the same way as you do.

Extension and Adoption

This project in itself is a small extension of the of the recently completed major FRDC project 2013-021. We build on the conclusions and recommendations of the major project by supporting continued collaborative catchment management and by showcasing the need for further investment in initiative to improve water quality and improve fishery productivity. Throughout the project, we engaged with a range of stakeholders and collaborators both locally, regionally and nationally. This momentum created by this project ensures the continued collaboration in Corner Inlet, and maintain the relationships developed between the fishing, farming and tourism industries, with local and state government departments, politicians and community groups.

Project coverage

Media is continuing on the showcase event, with a media release scheduled when the Corner Inlet Connection Group finalise the Joint Statement in mid-2017. The showcase event was publicised extensively through social media, and appeared as a feature article in Seafood Industry Victoria's 'ProFish' magazine.

Figure 10: *Tweets of the showcase event*

Appendices

Appendix A: Engagement Guidelines for Fostering Collaborative Relationships in Coastal Fishing Communities

Appendix B: Showcase event running sheet and speaker’s notes

Appendix C: Evaluation form used in the Showcase Day

Appendix D: List of researchers and project staff

Appendix E: References

ENSURING THE LONG TERM SUSTAINABILITY OF AUSTRALIA'S SMALL SCALE COASTAL FISHERIES

ENGAGEMENT GUIDELINES

FOSTERING COLLABORATIVE RELATIONSHIPS in COASTAL FISHING COMMUNITIES

There is a growing need to address external, often land-based, threats to the sustainability of Australia's coastal fisheries. Shoreline development, vegetation loss and poor water quality from catchment runoff all threaten the coastal habitat and fisheries' productivity.

Encouraging collaborative management of the broader coastal environment, including the catchment, has the potential to benefit fisheries by addressing these threats and arresting productivity declines. A collaborative approach requires fishers' and land users' cooperation to share understanding of, and responsibility for, the coastal ecosystem, and to decide on targeted management actions that are both realistic and effective.

These guidelines aim to assist the formation and development of collaborative relationships between fishers and land users that will:

- lead to a mutual understanding of the impacts of land use on the marine environment, the sustainability of the local fishery and the sustainability of the land users' businesses;
- encourage land users to identify and adopt management practices targeted at protecting and restoring the marine environment;
- ensure that fishers' observations and concerns are integrated into the community's decision-making framework.

FRDC
FISHERIES RESEARCH & DEVELOPMENT CORPORATION

All photos courtesy Robert Kenyon, Drift Media, except bottom right (Jenny O'Sullivan)

The guidelines are based on a process that has been used by representatives of the Corner Inlet fishery in south-east Victoria to communicate fishers' concerns about declining seagrass meadows to the community. Research indicates that likely causes of the decline are sediment and nutrients entering the catchment from urban areas, local farming and forestry businesses.

The fishers recently organised an event that brought fishers, farmers and other members of the community together to discuss the issue from both the fishers' and the farmers' perspectives. Feedback from participants revealed increased awareness and understanding about the issue from both groups, and a willingness to engage in the future.

Remember:

- understand the size and extent of your circle of influence. Work from the inside out.
- be realistic about your goals. The decline of the coastal marine environment has occurred over many decades; likewise, its restoration is likely to require an equally long period.
- be satisfied with small wins. It will take many small steps to reach your goal.

1. Identify and understand the issue that you want resolved

Invest time and resources in:

- gathering reliable evidence that demonstrates that you have a legitimate environmental concern;
- gathering reliable evidence that identifies potential causes of that concern. (Look for evidence from similar areas if information is lacking for your system);
- establishing links with reputable bodies or organisations that can suggest and initiate potential solutions to that concern.

Over a period of eight years, the Corner Inlet fishers (and more recently, researchers from the University of Melbourne) have been mapping the size and location of seagrass meadows in the inlet. These maps provide visual proof of the fact and extent of the decline of the seagrass meadows. The fishers and researchers have also being collecting and analysing water samples from the inlet and its tributaries to measure and identify the sources of excess nutrient and sediment loads.

2. Know your players and your playing field

To engage the most effective people within your community, you need to be able to identify:

- the size and extent of the catchment;
- the major land users within the catchment;
- the industry bodies/ organisations representing the major land users eg regional dairy, beef, wool, sugar cane, forestry companies, fisheries;
- the natural resource managers operating in the catchment eg catchment management authority, water authority, parks and wildlife;
- governmental agencies operating in the catchment eg the council, Department of agriculture, environment, fisheries etc
- not for profit organisations with an environmental focus, eg Landcare, Coastcare, community action groups;
- other stakeholders eg foreshore committees of management, tourist bureau.
- Engaging early with your regional catchment management authority will assist in identifying:
- major stakeholders and existing networks;
- existing initiatives that may align with the issue you want to bring to the table;
- partnership and funding opportunities.

3. Identify an advocate (find a champion)

When considering potential advocates who will speak and act on behalf of the fishers, think laterally as the best candidate may not necessarily be a fisher. Your advocate needs to be committed for the long term, and able to interact and even negotiate with a wide range of people.

The Corner Inlet fishery's advocate is a researcher; other advocates could include a Landcare or Coastcare member, celebrity chef, community leader.

4. Establish your credentials

The community is more likely to acknowledge the fishers' concerns if the fishers can demonstrate that they operate legitimately and transparently, and fish responsibly and sustainably.

The Corner Inlet fishers have a recognised code of practice to ensure that the area is not overfished

or degraded, and have independent sustainability accreditation through the Sustainable Australian Seafood Assessment Program. They are always ready to explain and demonstrate their practices.

5. Know your value to the community

Identify and, if possible, quantify the value(s) that the fishers contribute to the community, and the potential loss to the community if the fishery was to cease.

Value can include:

- economic: eg direct and indirect employment, wages/profit spent within the community, tourism;
- food and sustenance: eg fresh fish and seafood;
- cultural & historical.

6. Identify other motivating factors

Highlight the potential benefits of the outcomes you are seeking that go beyond the fishing community, i.e. that will be shared by the broader community, such as:

- aesthetic benefits;
- increased land values;
- improved recreation (fishing, swimming, bird watching)
- increased bird and wild life;
- protection of a shared natural resource;
- improved water quality.

7. Reach out and listen

Begin a dialogue with each of the 'players' identified in section 2, bearing in mind:

- reciprocity (if you want them to listen to you, you must also listen to them);
- empathy (if you want them to acknowledge your concerns, you must also acknowledge theirs);
- do not start by laying blame. Almost certainly no-one will be acting with bad intentions, and everyone will react defensively if accused of something. Instead, explain your problem;
- do not shame people into action. Instead, focus on building awareness of when lapses can or do occur, and the help that is available to prevent or deal with those lapses;
- people are often more comfortable and receptive if they are in their own environment (ie consider 'sitting at their table' rather than asking them to sit at yours);
- seek to identify similarities between the fishers and the people you are engaging with;
- approach each dialogue with an open mind;
- be content with small gains;
- be persistent;
- be creative with your interactions so that people will sit up and take notice.

The Corner Inlet fishers' advocate offered to speak for just three or four minutes about the issues concerning fishers at field days and workshops run for local farmers by Landcare and GippsDairy. As well as being able to 'get his message out', these events gave him a deeper insight into the issues that local farmers perceived as being important to their businesses and provided a relaxed environment to meet several of the 'players' identified in step 2.

8. Planning for active engagement between fishers and other groups in the community

To design your own event to bring fishers and other groups of the community together you need:

- clarity about your goals and what you want to achieve. Do you want to initiate new relationships, or consolidate existing relationships? Identify solutions to the problem? Develop action plans to resolve the problem?
- to identify your target audience;
- creativity: you want people to sit up and take notice of your event;
- awareness about the restraints or commitments (eg time, economic, social) that may prevent your target audience from participating;
- making the most of the contacts and networks you have already made to publicise your event;
- the support of local media (remember to budget for advertising) and potentially the use of social media to publicise your event.

The Corner Inlet fishers wanted to meet with farmers to raise awareness of the impacts that sediment and nutrient loads have on seagrass in the inlet, and to establish collaborative relationships to carry out restorative works in the future.

The target audience was farmers managing land in the catchment, although representatives from other industries and agencies were also invited.

Organisers wanted to design an event that would be interactive, educational and social, involve both anecdotal and scientific evidence about the decline of seagrass meadows, and encourage a mutual understanding between the two groups. A boat trip and seafood lunch at the local hall (both hosted by the fishers), followed by a paddock walk on a nearby dairy farm, ticked all the boxes.

The event was scheduled on a Friday, and ran from 11am to 2.30pm to fit in with morning and evening milking, and the tides. Speakers included researchers from Melbourne University and a representative of the regional dairy body, the fishers and a local dairy farmer. The event was publicised through the local Landcare network, the regional dairy body, local newspapers and radio. Numbers for the boat trip were limited to the vessels' carrying capacity, but extra spaces were available at the lunch and paddock walk.

9. On the day - the keys to success

Maximise your outcomes by:

- reminding participants to listen and to be respectful;
- avoiding blame and accusation;
- keeping to advertised times;
- posing questions to encourage discussion eg do you have ideas about this issue? What do you perceive as the main problems here? Does anyone have a view on a solution?
- highlighting the similarities between the different groups to create empathy and mutual understanding;
- recording the event (photos, video);
- obtaining participants' feedback at the end of the event (rate this event; what did you get out of this event, what could have been done better; are you interested in further action etc).

The Corner Inlet event was designed to highlight the similarities between the fishers and the farmers. Both groups were referred to as primary producers, and discussions focused on the importance of high quality pasture within their businesses. Each group was encouraged to describe their management practices, profit drivers and threats to their business: in the fishers' case, while out on the boat, and in the farmers' case, while in the paddock.

Written feedback obtained at the event indicated that both groups had a better understanding of each others' businesses and environmental concerns. The farmers were more aware of the problem of declining seagrass meadows, while the fishers realised that many farmers are already working to reduce nutrient and sediment loads. Both groups indicated they were willing to work together in the future.

10. After the event

Maintain momentum and make the most of your outcomes by:

- analysing the event (what worked, what didn't etc);
- analysing the feedback;
- recording contact details;
- publicising your success (newspapers, radio, social media);
- following up with participants, particularly any who had questions and/or indicated an interest in further action.

The Corner Inlet fishers arranged for a video to be made of the day which has been released on social media: https://vimeo.com/130063251. A press release was also distributed to traditional media outlets including local newspapers and industry publications: http://www.wgcma.vic.gov.au/news/latest-news/farmers-and-fishers-of-corner-inlet.

Quotes from feedback:

"The question over seagrass diminishment is a community, as well as an industry, issue."

"Everyone is trying to work after the sea and the land, and now we need to work with each other."

"We now have an improved understanding of seagrass management and the need for collaboration between primary industry sectors."

CORNER INLET SHOWCASE

NOTES AND EVALUATION

CornerInletConnections
Committed to a Healthy Corner Inlet

West Gippsland Catchment Management Authority, PO Box 1374 Traralgon 3844
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The Value of Corner Inlet. Michael Hobson, Wildfish Port Albert

How do you value Corner Inlet?

You can evaluate the Inlets history, its importance socially, the health of its environment. You can evaluate the Inlets economics, but is that its true value?

Many visitors tend to view Corner Inlet as a pristine environment; after all it is a Ramsar listed wetland of international importance, it contains the worlds southernmost population of White Mangrove, Victoria's largest area of Broad-leafed Seagrass, it provides a feeding, nesting and breeding area for thousands of water birds and shore birds both resident and migratory, it provides a habitat that sustains hundreds of native plant and animal species that both local people and visitors take advantage of through site seeing, adventure tourism, recreational and commercial fishing. However this perception of a pristine environment ignores the changes that have taken place in Corner Inlet and the changes that continue to occur.

For thousands of years Corner Inlet and its catchment has been the world of the Bratauolong clan of the Gunaikurnai nation. We spend our time measuring things in an economic sense; we cannot comprehend what it means to belong to a place spiritually. Place and people as inseparable concepts that had to be looked after, since the land and water is a living thing, the source of all life. It is sacred because the deities shaped it, humanized it and put within it the resources it contained. Land is not empty; the land is full of knowledge, full of story, full of goodness, full of energy, full of power.

Ferdinand von Mueller who was appointed government botanist for the Colony of Victoria by Governor LaTrobe and later went on to become director of Melbourne's royal botanic gardens described the vegetation around Corner Inlet in the middle of the 19th century;

'The ridges and the Valleys of the Strzelecki Ranges were covered by enormous mountain ash and blue gum and by the only slightly smaller yellow stringybark. Among these large trees were the smaller hazel, musk and blanketwood; in the damp shady gulleys of creeks grew blackwood trees, maiden hair fern, and tree ferns among the rocks. Further down, on the coastal plain, the vegetation thinned to form an open forest, and around Corner Inlet there were tea-tree and larger trees. The isthmus of the Promontory was covered by open scrub, grass and heath, which gave way to low sandy hills covered with scrub, a few swampy valleys, and then the mountains of the Promontory itself, where messmate and mountain ash grew in the valleys between the huge granite outcrops.'

The book 'The land of the Lyre Bird' describes the early years of the 1840's when more than 300 white settlers and 100,000 of their animals arrived. With high prices and the ability to ship cattle from Port Albert to lucrative markets, mainly the colony of Port Arthur the landscape began to change. Within a generation the Bratauolong had been displaced and killed and observations of the changes to soil, water supply and vegetation were being recorded.

My family arrived here in Port Albert in 1846, like many others arriving in those early days of white settlement, they viewed the land and the water very differently than the traditional owners and have been changing the landscape and the waterways ever since. The earliest exploitation of the Inlets natural resources began with the native oyster fishery. This saw the

oyster beds decimated by both harvesting and by changes to the waterway by the land clearing that was occurring. As early as the 1850,s reports of the silting up of the waterways around Port Albert were being observed. As John Orr, from Turnbull Orr and Co., reported 'I know the harbor- it is filling… and will in a few years be filled up all together. The gold rush to Gippsland also played its part with a new Chinese migrant population catching and buying fish to dry to supply a reliable source of protein to their countrymen working in the goldfields. Melbourne's appetite for fresh fish was for many years supplied in the main from the Corner Inlet fishery. With the advent of the Great Southern Railway and the location of the fish market in the middle of Melbourne access to this natural resource became much easier to exploit. Changes on the land too were occurring more and more land was being cleared to farm. My family who arrived as freed convicts took advantage of the booming trade, building transport routes from the coast to the hills and developing farmland along the Tarra River. I remember having conversations with my late grandfather and he lamented what previous generations of our family had done. 'We didn't know any better' was a phrase that still rings in my ears.

We have lost information built up over millennia of how to manage this country. Our legacy is now to forever play catch up with our attempts to better manage what we have more recently inherited.

In an economic sense we can measure lots of things in and about Corner Inlet.

We can measure how many jobs the Inlet creates, in primary production, in tourism and hospitality. We can measure the agricultural production and give it an economic value of the catchment. We can measure the trade generated by local industries reliant on agriculture and forestry and other primary production. We can measure spending of the recreational fisherman buying boats, rods, tackle, fuel, bait and ice. We can measure the production of fish and the economic activity and employment this creates as produce moves through markets, wholesalers, retailers, shops and restaurants. We can measure how much tourists spend on food, entertainment and accommodation. We can measure the economic activity that all these jobs create locally and further afield.

We can measure the environment too.

We can measure the size of stands of mangroves and saltmarsh, the areas of seagrass. We can measure how many birds live and visit here. We can measure the quality of the water flowing through the streams and rivers.

So we have economics and environment we can measure them both but what is the value of the environment in an economic sense?

How much is clean water in our streams and rivers worth? How much is a hectare of saltmarsh or broadleaf seagrass worth? To tourists? To fishermen? To other plants and animals reliant on a healthy environment? How do we attribute an economic value? How much can we afford to lose 10%, 20%, 50%? What has been the value of what we have already lost?

In my experience we have always struggled to place an economic value on the environment.

Earlier this year I attended Fisheries Victoria stock assessment meeting for the Corner Inlet Fishery held in the Welshpool hall. As the assessment of the health of the stocks of different species was being presented it became apparent that Fisheries Victoria had no control whatsoever regarding the single most important factor that determines the health of a fish population. Fisheries can control licence numbers, gear types and effort they can control bag limits. But the single most important factor that determines the health of a fishery is the fish's habitat, its environment. Fisheries have no control of the amount of seagrass in the Inlet, they have no control over the quality of water entering the Inlet they have no control of the volume of fish that enter and exit the Inlet, yet they are charged with managing the fishery without any meaningful tools to control the most critical factor determining fish production. There was a realisation in that hall that day by commercial fishermen, recreational fishermen, representatives from Fisheries Victoria, management and enforcement, Parks Victoria, DELWP, WGCMA, and scientific members that while we are losing such large amounts of vital habitat we were all basically trying to rearrange the deck chairs on a sinking ship.

We have marine protected areas in Corner Inlet but what are they protected from? They are protected from fishing and what else. They are not protected from poor water quality high in nitrates and phosphates that stimulate the growth of macro algae. That blanket seagrass meadows, choking out the sunlight and laying barren hectares of what was once a habitat for other plants and animals totally reliant on that species. What is the greatest threat to those marine protected areas? How foolish would we be if we fail to protect them?

Much good work has already been done. More than 700 hectares of saltmarsh and coastal vegetation in this part of the Inlet has been fenced and protected. Many landholders have improved stream sides by fencing and re-vegetating watercourses. Farmers are looking at more cost effective fertilizing regimes which increase their profitability and reduce runoff. There are many landholders wanting to do more but they require assistance. We need to be improving our water quality monitoring so that we can best target areas of concern. We need to assist those agricultural sectors that are doing it tough and make available the programs so as to not further burden their financial situation.

We need to do more to encourage buy in of meaningful environmental programs and use those improvements to generate marketing opportunities and take advantage of a world more focused on environmentally friendly products. Our region needs every job that can be generated; we need to develop our industries in primary production and tourism that reduce impacts on the environment we rely on.

This is a unique and special place and we have a massive responsibility to our communities and to the world to protect what we have. To protect our local jobs and industries that drives the local economy. To protect this wetland of international significance, and all the plants and animals that cannot protect themselves. We have already identified many of the problems that this environment has and we have constructed ways to improve the health of that environment. What we need now is to do more of work that is so vitally needed. We don't have to sacrifice the productivity of the land that is so important to our modern regional way of life. We can continue to farm and fish. We can improve how we do things we can use our efforts to grow economic productivity and protect the environment. Future generations will judge us by what we have done and more importantly by what we have not done.

Michael Hobson Wildfish

Michael Hobson: Fisherman, Master Mariner, Business Owner

Community Group Memberships:

- Lieutenant Port Albert CFA
- Vice President Port Albert Progress Association
- Committee member Yarram Early Learning Centre Inc.
- Board member Yarram Yarram Landcare network

Professional Affiliations: Member Seafood Industry Victoria

I began my career as a professional fisherman in my early 20's

I fished, predominantly, in the Commonwealth Southern Shark Fishery and became an executive member of the Southern Shark and Gillnet Fisherman's Association and the Southern Shark Industry Council

Became a director of Wetland Care Australia

Introduction of an ITQ management system forced me and many other small scale professional fishermen out of the fishery

I bought a share and operated a charter fishing business based in Port Albert

I worked as a safety trainer at the Barry Beach Escape Craft Training Center and at the Helicopter Underwater Escape Training Centre in West Sale training mainly offshore oil and gas industry personnel

Worked an engineer, mate and captain of yachts in the Pacific and Atlantic oceans, Mediterranean and Caribbean seas

Returned home to Australia and created wildfish and Port Albert Wharf

Agriculture within the Corner Inlet Catchment: Graeme Nicholl, Chair GippsDairy

The impact of agriculture on the Corner Inlet Catchment has never been clearly understood or defined. Corner Inlet catchment is an area of great agricultural value both now and it has the potential to be into the future. The 2040 climate change predictions show this region can remain a productive food bowl although the season to season variability in climate will remain a challenge.

Productive agriculture can coexist within a healthy Corner Inlet catchment. There is significant good-will within the ag sector to be responsible land managers. Community expectations of agriculture have changed over time and the Australian agricultural industry has a history of being adaptive and responsive.

Partnerships between agriculture and WGCMA have demonstrated a pathway towards improved land management and catchment health. A partnership between WGCMA and Dairy Australia/GippsDairy has seen 100% participation in nutrient management planning within sub-catchments of Corner Inlet. These nutrient management plants will assist farmers to improve nutrient management on farm and decrease the nutrient loads into the Corner Inlet basin.

The partnership between the WGCMA and Dairy Australia/GippsDairy is a great example of facilitated and supported practice change, delivering long term improvements in the catchments health. Agriculture constitutes just over 50% of total land use in Corner Inlet and dairying comprises around 10% of the land use. Targeted partnerships to improve nutrient management in beef and sheep grazing industries along with lifestyle farms has the potential to bring about significant change.

Graeme Nicoll (GippsDairy Chair)

Graeme Nicoll is a dairy farmer from South Gippsland. Graeme and his wife Gillian own and operate a mixed beef-dairy business, milking between 250 and 300 crossbred cows, based on 250ha of owned and leased land south of Leongatha. He holds a variety of qualifications in Dairy, Land Rehabilitation and Horticulture.

Graeme undertook the Nuffield Scholarship tour in 2010 and commented that "the Nuffield scholarship is an investment in yourself and your business that will pay back tenfold. To travel the world to pursue your subject of interest with a network of contacts is a life changing experience and one not to be missed. The Nuffield experience has provided me with a tremendous breadth of insights and understandings. Most importantly it has encouraged me to continually question and seek answers to our ever changing agricultural sector".

Graeme was the past Secretary of the Victorian Branch of Nuffield Australia, was Deputy Chair at GippsDairy's from October 2013, and Chair from October 2015.

Corner Inlet: Environmental Values: Professor Paul Boon, Institute for Sustainability & Innovation, Victoria University, Melbourne

This presentation introduces the environmental values of Corner Inlet/Nooramunga by discussing five topics:

- The need for the *longue durée*
- Ecology, geomorphology & sea-level rise: how these have interacted to generate current environmental values in Corner Inlet
- Focus on mangroves and saltmarsh
- How have they changed in the past
- How might they change in the future?

The *longue durée*

The *longue durée* is the term coined by the French historian Fernand Braudel for his book on the history of the Mediterranean, published in 1949. This idea − that it is possible to understand the past only in terms of 'the slow-moving structures and rhythms of centuries', rather than in the conventionally short-span of most historians − has proven exceptionally fertile in the field of environmental history; it was invoked in Tom Griffith's recent (2016) overview of the work of Australian environmental historians, in Murray Johnson's 2014 overview of Australia's Aboriginal past, and Grace Kaskens' history of early Sydney. It can also be an informative way of looking at the environmental values of Corner Inlet/Nooramunga and how they came to evolve into the suite of structural, function and process values we observe today, especially in terms of sea-level rise and coastal inundation during the past 20,000 years of the current interglacial period.

What are environmental values?

Ecosystems can be viewed in terms of their structure (e.g., species composition), their processes or function (e.g., photosynthesis and primary production, and support of aquatic food webs), or their value (e.g., to humans in terms of ecosystem services). The environmental value of the aquatic ecosystems of Corner Inlet/Nooramunga reside both in their biodiversity aspects (e.g., high species diversity) and in their ecosystem services aspects (e.g., support of aquatic foods food webs, protection of shorelines against erosion). The currently fashionable economic valuation of these ecosystem services is, however, based on very poor foundations. Community understanding of the environmental value of seagrass is high; of mangroves slightly lower; and of coastal saltmarsh, abysmal. Despite the very great environmental value provided by coastal wetlands, they continue to be underfunded by Commonwealth and State agencies (Boon 2012). Moreover, investment in the rehabilitation of coastal wetlands and estuarine systems is likely to provide a greater return on investment than for almost any inland aquatic system, as shown recently in the cost:benefit analysis undertaken by Creighton *et al*. (2015).

Mangroves & saltmarsh

Corner Inlet/Nooramunga supports some of the largest areas of mangrove and coastal saltmarsh in Victoria. The area of various types of coastal wetland in Victoria was quantified in Boon *et al*. (2015) and they showed there to be 846 ha of mangrove and 437 ha of saltmarsh in Corner Inlet; the coast and islands of Nooramunga supported an additional 2,241 ha and 3,916 ha, respectively. The Corner Inlet/Nooramunga region supported more than half of all the mangrove area in Victoria. Corner Inlet is also the most southerly location where mangroves occur in Australia: indeed, it is the highest latitude expression of mangroves anywhere in the world.

Changes since the mid-19th century

Sinclair & Boon (2012) quantified changes in the area of saline coastal wetland in Victoria since the mid-19th century and showed that more than 80% of the pre-European area of mangrove had been retained by the beginning of the 21st century. In contrast, 40% of the area of other types of coastal wetland had been lost from Corner Inlet, and 20% from Nooramunga.

Likely changes in the future

Coastal saline wetlands face a large number of threats, and these threats will have an impact on how these areas continue to deliver their current environmental values. Climate change is an overwhelming threat to mangroves, saltmarsh and other types of saline coastal wetland. Although sea-level rise is often considered as the major aspect of climate change in coastal systems, a wide range of other components will have effects, including higher atmospheric CO_2 concentrations, higher air and water temperatures, a decrease in the severity and frequency of winter frosts, and increased incidence of storm surges, and altered patterns of freshwater run-off. In addition to these physico-chemical impacts, an important threat the environmental values of Corner Inlet and Nooramunga is climate-change denialism.

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Professor Paul Boon BSc Syd, PhD (Philosophy) Griff

Professor, Institute for Sustainability and Innovation (ISI)

Professor Paul Boon has been working on aquatic systems for the past 25 years. He has particular expertise in the ecology and management of inland floodplain rivers and wetlands, estuaries and coastal wetlands, including seagrasses, mangroves, saltmarshes and coastal lagoons.

Paul worked for CSIRO Land & Water Division on research and development and consulting projects which addressed the ecology and management of freshwater wetlands, floodplains and riparian corridors. He continued this line of investigation when he worked for the environmental consulting firm Sinclair Knight Merz.

More recently Paul has focused on the provision of environmental water for natural and degraded wetland systems in South Australia, New South Wales and Victoria.

Paul has published many papers in the scientific literature on the ecology and management of aquatic systems, and has presented hundreds papers at scientific conferences and to community groups or natural-resource management agencies.

Paul's research interests include:

- ecology and management of inland river
- floodplains and wetlands
- ecology and management of coastal estuarine systems "“ seagrass beds, mangroves, saltmarshes etc and interactions between recreation and tourism and aquatic systems including ecological impacts and sustainable use of critical aquatic destinations

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Parks Victoria Key project in recent years: Gerard Delaney

Spartina Control

- *Spartina anglica* species are native to Northern Hemisphere which was introduced to Victoria in 1920s and 1930s for land reclamation and reducing coastal erosion.
- Ecological impacts:
    - Invades mudflats, mangroves, saltmarsh, seagrass.
    - Sediment accretion, channel filling.
    - Alters sediment habitat, fauna, flora.
    - Eliminates shorebird habitat.
- Recognised pest in Australia, New Zealand, China, Europe, UK, USA.
- *Spartina* Control Program undertaken since 1995 within South Gippsland Inlets.
- *Spartina* up to 3.5km from the shoreline.

- Management Objectives
    - Progressively reduce distribution and extent of Spartina and eradicate all infestations within 5 years.
    - Eradicate any new Spartina infestations within 2 years of detection.
- Operational control techniques evolved from hand spraying, boat, hovercraft and helicopter.

Sea Search – Seagrass Monitoring

- A community-based monitoring program for Victoria's marine protected areas
- Initiated in 2005, using scientifically rigorous methods developed in partnership with Deakin University
- Reviewed and updated in 2012 to provide a wider range of activities for volunteer involvement
- Activities include transect/quadrat based surveys, fixed photo points and Sea Search Patrols in seagrass meadows and rocky intertidal reefs.
- Aims
    - Engage volunteers / community in caring for Victoria's marine environment
    - Record condition of Posidonia seagrass at different sites in Corner Inlet's MPAs over time and use this information to guide management
    - Identify emerging issues
    - Disseminate information and promote the importance of seagrass habitats to a wider audience

Urchins

- Heliocidarius erythrogamma – native urchin common on rocky reefs
- Common barren forming species on rocky reefs but rare in seagrass.
- Normally present in Corner Inlet in low numbers
- At two sites, abundance of urchins has increased enormously
- Urchins are eating all emergent seagrass creating barrens
- Many questions with management implications

Fox Control – Barrier Islands

Fox Control – Barrier Islands

- Box Bank – no fox activity (monitoring)
- Clonmel Island – no fox activity (monitoring)
- Dream Island – small number of foxes, 1-3 (current eradication program and monitoring)

- Snake /Little Snake Island – reduce and maintain low fox population (continued program – monitoring)
- Other Islands – No current programs

Gerard Delaney

Gerard Delaney is the Area Chief Ranger for South Gippsland and Bass at Parks Victoria. He has worked within South Gippsland for seven years and manages a cross functional team focused on service delivery for the community. He has previously worked a as a recreation planner, managing the implementation of the metropolitan and regional trail network, and also worked as a ranger in a number of metropolitan parks.

Fishing Industry "Protect your catchment, protect your catch" John Ford

Fishing is a highly valued cultural and economic component of the South Gippsland region. It is under threat from a declining marine environment brought about by poor water quality. Through our collaborative management approach, we have the expertise, the tools and the plan to address this decline before it causes major impact to the region. We lack only the momentum and government commitment to realize this.

Local South Gippsland seafood is highly prized for its world-class quality, exceptional taste and sustainable harvest. Commercial fish catch from Corner Inlet – Nooramunga is worth $3 million dollars off the boat, which drives over $10 million of revenue for Melbourne restaurants. The industry supports around forty full time local jobs and dozens of part-time support roles. Value will only grow as export opportunities open up with the Asian region.

Recreational fishing is a key tourism drawcard for visitors making daytrips, weekend getaways and school holiday trips. The recreational fishery adds around $20 million in economic activity to the South Gippsland region, mostly in the tourism sector.

The most important fish caught in the region all rely directly on the extent of seagrass in coastal waters. Seagrass grows in large meadows, providing a home for King George Whiting, Rock Flathead, Garfish and Calamari. Snapper, gummy shark and trevally will often visit seagrass meadows in search of food. Simply put, no seagrass means no fish.

The cover of seagrass in Corner Inlet has declined by 24% since 1998. Not only does this affect fish production, but also compromises important ecosystem services such as water filtration, sediment stabilization and blue carbon storage.

Seagrass is threatened by poor water quality. Sediment coming from the catchment reduces light availability and bury seagrass. Nutrients from manure, fertilizers and stormwater fuel the growth of nuisance algae that smother seagrass, starving them of light and oxygen. We need to act to reduce the loads of sediment and nutrients entering the coastal environment. The Corner Inlet Water Quality Improvement Plan gives us the framework to make this a reality.

Fishers are ready to pull their weight. Already, scientists have worked with the fishing industry to trial methods of replanting seagrass. We are ready to scale up and launch a massive replanting effort. However, until water quality improves we are unlikely to see success for our efforts.

Fishers are proud to be a part of collaborative catchment management and want to contribute to a healthy, sustainable future for our region.

Dr John Ford

Dr John Ford is marine and fisheries scientist at Mezo Research (www.mezo.com.au). John is an Honorary Research Fellow at Melbourne University and has worked the last four years with commercial fishers in Corner Inlet and Nooramunga. His focus has been on understanding the causes of seagrass decline and promoting collaborative catchment management to address threats of poor water qulity. John also has extensive experience in seafood sustainability, having worked with the Sustainable Australian Seafood Assessment Program and the Marine Stewardship Council standard. He is regularly called upon to present on marine issues on TV and radio.

Corner Inlet Fishery Summary- Fisheries Victoria

Key Species

Commercial Fishery	***Recreational Fishery***
• King George Whiting • Southern Sea Garfish • Rock Flathead • Australian Salmon • Silver Trevally • Southern Calamari	• Sand Flathead • Blue spotted (Yank) Flathead • King George Whiting • Australian Salmon • Silver Trevally • Southern Calamari • Snapper

Fishing Methods

Commercial fishers predominantly use haul seines and mesh nets. Haul seine harvest accounts for approximately 70 per cent of the commercial catch but effort has declined over the past decade. Mesh net harvest accounts for the remaining commercial harvest.

Management Arrangements

The fishery is managed using a range of input controls:

- limits on the number of licences (maximum of 18);
- limits on gear type;
- spatial and temporal closures (including a weekend closure to minimise conflict with recreational fishers); and
- legal size limits for individual species.

The majority of Corner Inlet commercial fishers operate in accordance with the *Victorian Bays and Inlets Fisheries Association Environmental Management System* and the *Corner Inlet Fisheries Habitat Association Code of Practice* that stipulates:

- seine net shots are limited to two per day (from midnight to midnight);
- shots must be set and closed up within ninety minutes; and
- operators cannot work both sides of the line known as the Middle Ground in any one day.

Recent Catch and Effort

The 2014/15 Corner Inlet commercial harvest was 263 tonne of which 197 tonne was caught by haul seine and 65 tonnes by mesh net. The commercial catch has remained relatively stable since 1996/97, although there has been a decrease in fishing effort (number of days) over this period.

The main target species are King George Whiting and Rock Flathead, which account for approximately 60 per cent of the catch by weight, followed by Southern Calamari and Southern Sea Garfish.

Main Outcomes of 2016 Fishery Stock Assessment

The clear message from stakeholders during the 2016 stock assessment meeting and local knowledge surveys is that the decline of seagrass habitat is the biggest risk to the sustainability of the Corner

Other outcomes of the stock assessment report include:

- Rock Flathead stocks have been in decline since 2009-10, but abundance remains within long-term average;
- King George Whiting abundance is variable but within long-term average. Catch rate increased during the 2016/16 summer with fishers reporting their best season a many years. Catch rates, however, are expected to decline over the coming 1–2 years due to natural mortality, fishing mortality or these fish leaving Corner Inlet to mature in coastal waters. These observations are consistent with King George Whiting harvest in Port Phillip Bay and appear related to good recruitment of small juveniles in 2013 that have now grown into the fishery but lower recruitment since.
- Calamari stocks are increasing and are above the long-term average.
- Southern Sea Garfish abundance has declined as is below the long-term average. This decline is likely to be state-wide due to the stock structure of this species (one genetic stock) and is also reflected in the preliminary results of the recent Port Phillip Bay stock assessment.
- Australian Salmon and Silver Trevally abundance has been increasing since the late 1980s, although the catch rates in recent years have been highly variable. Recent Australian Salmon catch rates are more than 20 per cent above the long-term average; the 2014/15 catch rate for silver trevally is near the long-term average.

Proposed Management Response

Short term

- Obtain more informative commercial catch and effort data by improving reporting requirements and employing, where possible, technology such as data loggers; and
- Develop target, trigger and limit reference points for key species that can be used to more effectively manage the fishery.

Medium term

- Collaborate with relevant agencies to support water quality improvements using our systems and processes to help other agencies deliver on their objective, e.g. issuing permits required for research projects.

Long term

- Develop a fishery management framework for the recreational and commercial sectors of the fishery that includes more effective monitoring, reference points and which will underpin a management plan and associated harvest strategy.

Tracey Jones: WGCMA

See Water Quality Improvement plan attached in appendix.

Tracey Jones has worked with the West Gippsland Catchment Management Authority for the past 9 years in a range of river health, irrigation efficiency, groundwater, salinity and nutrient management projects. She is currently responsible for overseeing the National Landcare Programme investment into the Corner Inlet Connections program, a role that sees her working with a diverse range of stakeholders from across the region, all with an interest in protecting both the Ramsar site and surrounding catchment. Tracey has a background in hydrogeology and economics, and has worked in a variety of private industry and consulting roles prior to her time at the WGCMA.

Janine Hayes – Tourism Project Manager Destination Gippsland

(no notes)

Janine has had an eclectic career managing a number of small businesses in both Qld and Victoria, working in the Tourism sector for the past 20 years. o ignored

She works closely with Industry in regard to professional development opportunities, training and project management. o ignored

Janine's current focus is the visitor economy in regard to strategic planning and the improvement of the visitor experience and does this in collaboration with businesses, business tourism associations and Local Government.

Exploring the Treasures of Corner Inlet
Friday 4th November 2016
Event Evaluation Sheet

1. **Please indicate your level of awareness of the values of Corner Inlet and the surrounding catchment?**

   Please circle response

	LOW								HIGH
Before this event	1	2	3	4	5	6	7	8	9
After this event	1	2	3	4	5	6	7	8	9

2. **Please indicate your level of awareness of the connection between activities in the catchment and the health of the Corner Inlet Ramsar Site**

Please circle response

	LOW								HIGH
Before the event	1	2	3	4	5	6	7	8	9
After the event	1	2	3	4	5	6	7	8	9

3. **What was the highlight of the event for you?**

_____

_____

4. **Please tick the boxes of the programs operating within Corner Inlet that you are interested in learning more about?**

Water Quality Improvement Plan	
Landcare Programs	
Tourism Industry	
Nutrient Management on Farms	
Seafood Industry	
Recreational Fishing	
Other – please explain	

Australian Government | National Landcare Programme

This event is supported by West Gippsland Catchment Management Authority through funding from the Australian Government's National Landcare Programme.

CornerInletConnections
Committed to a Healthy Corner Inlet

5. Are you interested on being involved in the Corner Inlet Partner Group?

No thank you	
Mailing list for update only	
Invite to next CI Partner Group meeting *(held every 6 months with the next meeting scheduled for Feb/ March 2017)*	

6. Is there anything else you would like to add?

If you are interested in more information or being part of the Corner Inlet Partner Group, please add your contact details here

Name: _____

Organisation: _____

Address: _____

_____

Email: _____

Phone: _____

Thank you for taking the time to complete this evaluation form
We appreciate your time

Australian Government | National Landcare Programme

This event is supported by West Gippsland Catchment Management Authority through funding from the Australian Government's National Landcare Programme.

CornerInletConnections
Committed to a Healthy Corner Inlet

Appendix D – List of personnel

Named Investigators

Primary Investigator:

- Dr John Ford, Mezo Research

Co-Investigators:

- Jonathan Davey, Executive Officer, Seafood Industry Victoria

Showcase event partners

- Tracey Jones, Water Program Coordinator, West Gippsland CMA
- Belinda Brennan, Chair of Corner Inlet Connections
- Michael Hobson, Proprietor Wildfish Resetaurant

Consultants and service providers

- Melanie Webb, graphic designer
- Oliver Edwards, chef

Appendix E – References

Ford, J.R., Barclay K., and Day R.W. 2016. *Using local knowledge to understand and manage ecosystem-related decline in fisheries productivity*, Fisheries Research and Development Corporation Final Project Report, Melbourne University, VIC.

West Gippsland Catchment Management Authority. 2013. *Corner Inlet Water Quality Improvement Plan.* Authors: Dickson, M., A. Roberts, and G. Park. West Gippsland Catchment Management Authority, Traralgon VIC.