Thanks to Funders

Helen Macpherson Smith Trust

Student Team, Advisors, and Sponsors

Student Team

(Left to Right)
Salvatore Lombardo, Shelby Morrison, Nicole Shedd, Peter Dentch

Advisors

Prof. Fabio Carrera
Professor of International and Global Studies
Director of Venice and Santa Fe Project Centers

Prof. Stephen McCauley
Assistant Teaching Professor - Interdisciplinary
Co-director of Melbourne Site

Sponsors

Neil Blake
Port Phillip Baykeeper
Founding Director of the EcoCentre
Order of Australia Medal Recipient

Fam Charko
Marine Biologist at the EcoCentre
Fellow of the Centre for Sustainability Leadership in Melbourne

Abstract

Port Phillip Bay faces issues that threaten marine species and other ecosystem services. There are many government and community organisations with diverse responsibilities and/or interests in 'issues'. This project trials processes to create cross-sector collaborations on Bay management issues. Surveys, workshops, and interviews were conducted with a wide-range of stakeholders. Priority issues were identified and relevant information gathered.

'Climate change' and 'marine pests' were selected as topics for separate workshops with relevant stakeholders to contribute to a paper on the issue. Network maps were created to help consolidate knowledge of issues and organisations working on them. This document outlines how to foster a cooperative environment through processes that incorporate and synthesise knowledge gained from different stakeholders, for better outcomes for the Bay. The 'Marine pests issue paper' is included in this booklet as an example outcome of this collaborative approach.

Table of Contents

The Case for Collaboration

The community-managed Port Phillip EcoCentre was conceived in 1998 by City of Port Phillip in collaboration with Earthcare St Kilda and 4 other local community groups to create a hub for environmental action. Within 3 years Port Phillip EcoCentre Incorporated had attained not-for-profit 'charitable organisation' status which enabled funding from a range of funding sources thats were not open to local government. This initiative was founded on the strong relationships between the local government and several community groups that had formed since the mid 1980's to protect the local environment. The local government and community sectors each had essential strengths to contribute and the strong partnership encouraged external stakeholders to invest in the project.

The benefits of cross-sectoral collaboration had been highlighted locally by the state government declaration of St Kilda Breakwater Co-operative Management Area for Wildlife in 1992. In response to a 6 year study documenting the presence of a colony of around 100 Little Penguins, a Cooperative Management Advisory Committee was convened, with representatives from the Department of Conservation and Environment, Earthcare St Kilda, Port of Melbourne Authority, Royal Melbourne Yacht Squadron, St. Kilda City Council, and a penguin researcher.

The 'cooperative'approach ensured the aims and responsibilities of all stakeholders were considered to inform strategies to achieve essential major works to install an extra 20,000 tonnes of rock to restore the deteriorating breakwater, without harm to the penguins. By 1998 the breakwater had been completely renovated; and by 2013 the safe boating capacity of St Kilda harbor was substantially increased; and the penguin colony had increased to around 1,400.

The EcoCentre is advocating that similar cross-sectoral collaborations be adopted for other issues affecting the Bay. In 2020, the EcoCentre has 32 officially affiliated groups and over 240 partner organisations. These include valued international affiliations with the Waterkeeper Alliance and Worcester Polytechnic Institute (Massachusetts, USA). The City of Port Phillip continues to provide base funding which has enabled the EcoCentre to effectively seek project funding from a range of other sources including state and federal government and the philanthropic sector.

 Neil Blake, was conferred the honorary title of Port Phillip Baykeeper in 2008, in recognition of his work to protect the Bay: commencing as a volunteer with the St Kilda Penguin Study (1985-2002); founding member of Earthcare St Kilda (1989); and founding Director of Port Phillip EcoCentre (1999). The Port Phillip Baykeeper program is a part of the Waterkeeper Alliance, an international network comprising non-governmental defenders for specific bodies of water, such as rivers, lakes, and bays. Waterkeepers act as the voice for the body of water they represent.

The Port Phillip Baykeeper Strategic Collaborations Plan is a key step in Neil's preparations to pass the baton to the next generation Baykeeper.

Creating the Collaboration Plan

This project is intended to assist the Port Phillip Baykeeper developing a cross-sectoral collaboration model to promote cooperative action among the stakeholders of the Bay.

We completed the objectives in steps, since each part of the project would build on the next. The outcomes of each part is illustrated on the right.

Steps:

1 Identify key stakeholders and their priorities

2 Promote dialogue on priority issues

3 Develop issue papers on priority Issues

4 Promote action in Issue-based networks
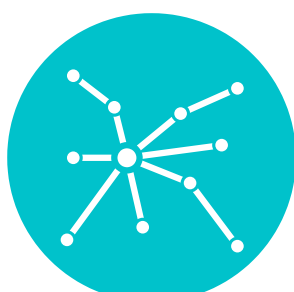
Outcomes:

Survey stakeholders on priorities and activities

Issue-based workshops iwith diverse stakeholders

Issue summary and recommended actions

Promote network maps and potential partnerships

3

Our Approach

Initial Survey
- Formulate an intial survey and distribute among the Bay stakeholders
- Identify priority issues, limitations, outreach practices, and more

Roundtable Workshop
- Hosted through online video conferencing
- Participants spanned a range of sectors
- Conversation followed issue paper outline

Issue Papers
- All research is compiled into an issue paper
- Issue's specifics agreed on and shared by multiple organizations around the Bay.

Determine Action
- Stakeholders converse to determine the best course of action
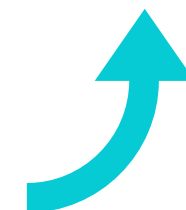- Issue paper used as an outline for gathering information

Collaborative Action
- Utilise network maps to collaborate on shared issues
- Identify potential partners
- Apply for grants and resources in collaboration for more success

Steps to collect and format issues information:

- **Work with EcoCentre to construct and conduct a survey to gather stakeholder information and priority issues**
- **Select topics for 2 roundtable workshops.**
- **Conduct workshops with interested stakeholders.**
- **Combine desktop research with workshop outcomes to create 2 draft issue papers, incorporating information from the different sectors.**

The next step to review the issue paper with the stakeholders to determine recommendations (managment actions required to respond to the issue).

4

Opening Stakeholder Dialogue with Workshops

Conducting a roundtable workshop should:

Open Communication
Opens communication pathways between stakeholders about shared issue.

Promote Understanding
Voices from different sectors are heard and considered

Provide Information
Each participant brings different information from first-hand experience

Foster Collaboration
Involve a variety of stakeholders to contribute to the process

Our Process to Choose Workshop Topics:

Analysis of Initial Survey
- Survey sent to ~50 stakeholders
- High priority issues identified

Workshop Determination
- Identify the highly prioritised issues from initial survey.
- Determine the diversity of stakeholders invested in the issue.

Issue-Based Workshops
- Issue-based workshops in person or through video conference used to populate the issue paper.
- Utilised to promote cross-sectoral communications around PPB.

5

Developing Issue Papers

An Issue paper should:

Briefly outline the issue
Outline a summary of the issue, compiling the priorities and knowledge of stakeholders
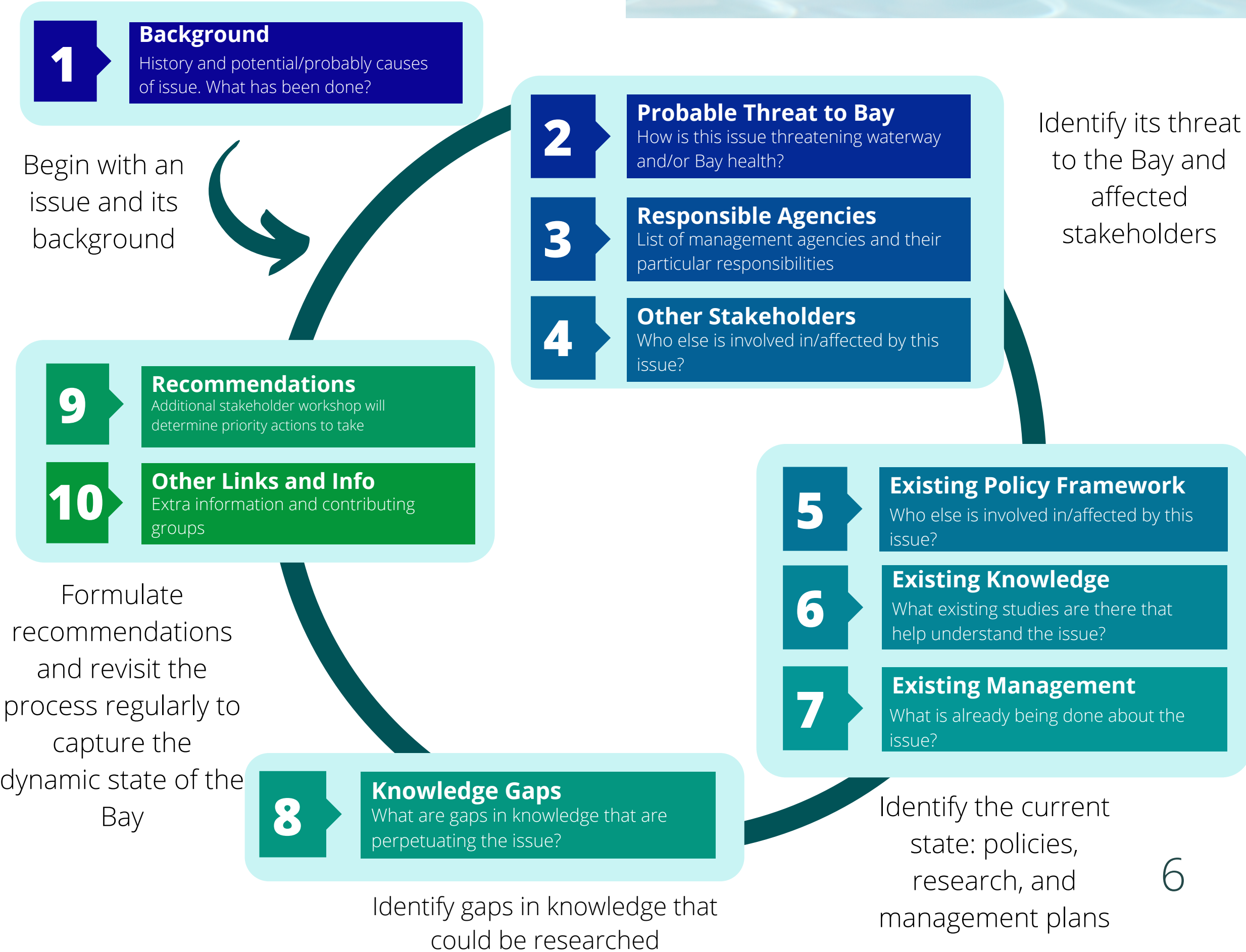
Summarise knowledge
Summarises current knowledge about the issue's background, impacts, stakeholders, and management

Outline future steps
Points for further research on the issue to fill knowledge gaps and inform additional recommendations

Inform the public
The paper is used to inform the public and provide a template for the creation of future papers

1 Background
History and potential/probably causes of issue. What has been done?

Begin with an issue and its background

2 Probable Threat to Bay
How is this issue threatening waterway and/or Bay health?

3 Responsible Agencies
List of management agencies and their particular responsibilities

4 Other Stakeholders
Who else is involved in/affected by this issue?

Identify its threat to the Bay and affected stakeholders

9 Recommendations
Additional stakeholder workshop will determine priority actions to take

10 Other Links and Info
Extra information and contributing groups

5 Existing Policy Framework
Who else is involved in/affected by this issue?

6 Existing Knowledge
What existing studies are there that help understand the issue?

7 Existing Management
What is already being done about the issue?

Formulate recommendations and revisit the process regularly to capture the dynamic state of the Bay

8 Knowledge Gaps
What are gaps in knowledge that are perpetuating the issue?

Identify the current state: policies, research, and management plans

Identify gaps in knowledge that could be researched

6

Encouraging further action

Utilising Collaborative Networks

To determine the best course of action, the issue paper draft can be used as conversation starters among stakeholders and set the agenda for another roundtable workshop.

To promote collaboration, a network map (shown on next page) helps to visualise where each organisation is located and what they work on. The survey provided information on the high priority issues each stakeholder focuses on. The network map uses this information, displaying each organisation as a coloured dot, with the coulour representing its organization type, or sector.
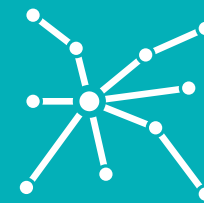
After a plan of action has been decided on, the network map can be used to identify stakeholders who may be interested in collaborative effort on issues they have in common.
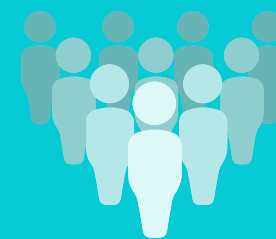
Determine Action
- Stakeholders begin conversations to determine the best course of action
- Issue paper utilised as conversation starter to understand the current state of an issue

Network Mapping
- Used survey results for a network map connecting stakeholders by issues
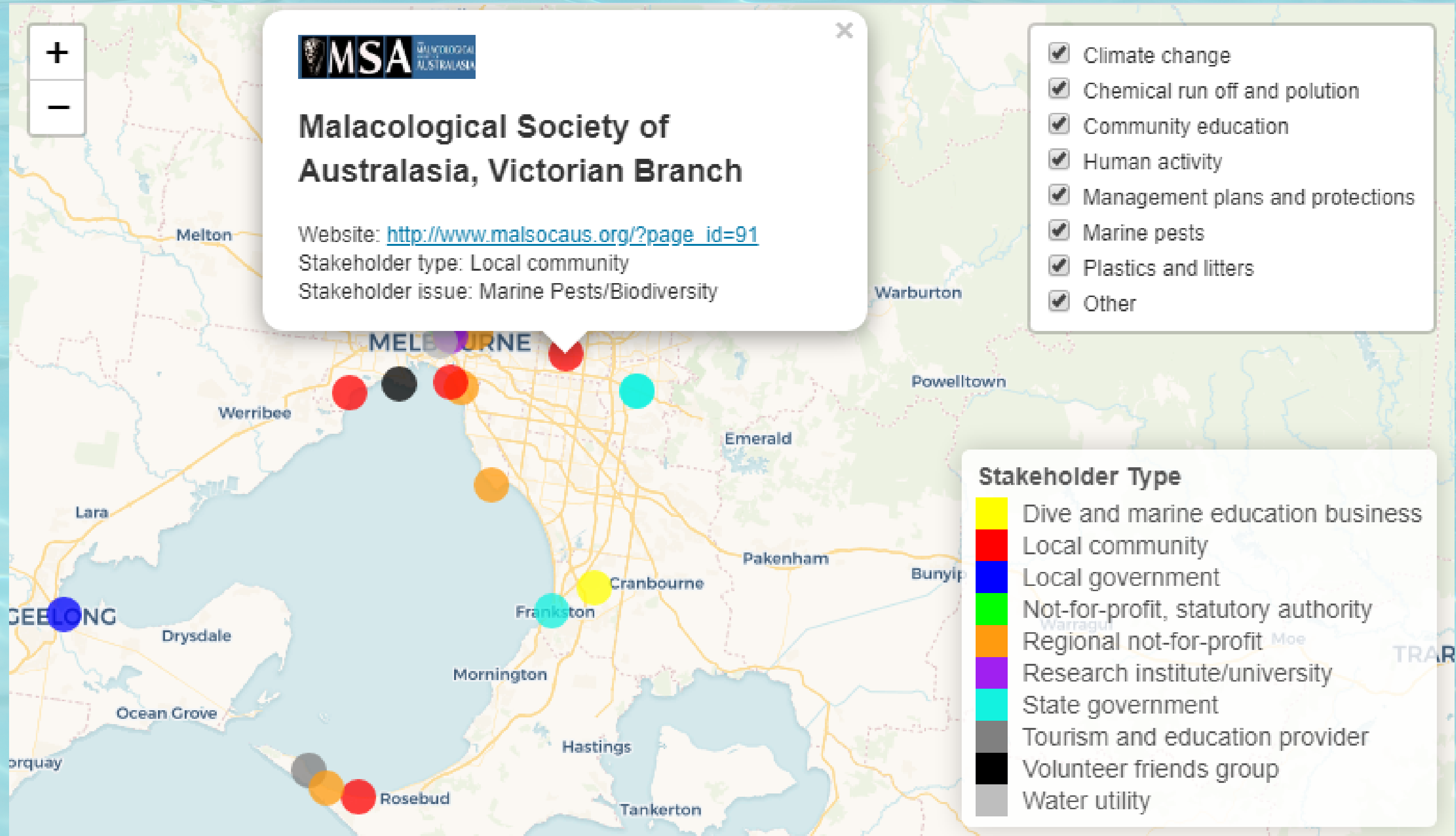- Programmed using VisNetwork package in R

Take Action with Cross-Sectoral Collaboration
- Utilise the Network Map Tool to identify possible partner organisations
- Connect with a variety of organisations to lead a collaborative effort

Stakeholders network map

Opening cross-sector dialogue: summary of workshop method and outcome

4 Stakeholder Types
- Not-for-profits
- State Government
- Businesses
- Community Groups

9 Attending Participants
- 4 WPI students
- 3 EcoCentre staff
- 9 other participants

1 Hour Workshop
- 5 minute discussions on each section of the paper
- Took notes during and sent them out in a workshop follow-up

Marine Pests Issue Paper

Port Phillip Bay Issue Paper: Marine Pest Species

EcoCentre and Collaborators Overview of Pest Species in Port Phillip Bay

This paper outlines Port Phillip EcoCentre and Collaborators perspectives on protecting waterways and the Bay from marine pests.

Port Phillip Bay history with marine pests.

Marine pests, or species that disrupt the natural environment, have been introduced to coastal waters of Australia. Since the 1800's more than 160 species have been introduced to Port Phillip Bay.[1] An estimated 30 percent of these foreign pests were introduced through boat travel.[2] Active carrier transport through international waters allows for species to invade locations by attaching to hulls or remaining in the ballast water of ships.

Beyond affecting the biodiversity of marine environments, these pests have the ability to disrupt the economic benefits that the Bay provides. These include aquaculture, recreational and commercial fishing, and domestic and international shipping.

Government responses to this threat have focused on measures to prevent new introductions of marine pests; and to prevent the spread of pests from

the Bay to other waters. These responses are based on accepting that pests will never be eliminated due to a relative absence of biological controls.

Community responses include Earthcare St Kilda culls of Northern Pacific Seastars from St Kilda harbour and neighbouring sites since 2005; and two research projects by Port EcoCentre in 2013:

- study of impacts of Northern Pacific Seastars in St Kilda and Mornington harbours; and
- Best Practice Guide to Removal of Northern Pacific Seastars

Some of the species threatening the Bay are: Northern Pacific Sea Star, Purple Sea Urchins, Undaria, European Fan Worms

A number of pest species have been introduced to Port Phillip Bay, mostly through ships entering the Port of Melbourne. These species reduce the biodiversity of the Bay through competition, predation, and herbivory that affect other populations.[3]

1 ▸ Background

2 ▸ Probable Threat to Bay

3 ▸ Responsible Agencies

4 ▸ Other Stakeholders

2 of 4 Pages Shown

Marine Pest and Climate Change Issue Papers are available on the EcoCentre Website

Species Name	Resources it Uses	Effect on Other Species	Additional Impacts
Northern Pacific Seastar *Asterias amurensis*	Preys on molluscs, barnacles, crabs, crustaceans, worms, echinoderms, sea urchins, and even other sea stars.[4]	Can reduce populations of native fish through competition and reduce shellfish populations through predation.[5]	Have been found to negatively affect aquaculture by eating molluscs meant to be harvested.[6]
Japanese Kelp "Wakame" *Undaria pinnatifida*	Photosynthetic, grows in large amounts creating thick canopies and underwater forests.[7]	Can reduce populations of native kelp through competition and take up enough space and light to displace species.[7]	Nearly impossible to eradicate once an area is affected.[8]
European Fan Worm *Sabella spallanzanii*	Filter feeders: consume plankton and other nutrients in the water.[9]	Can outcompete native species for space and food, particularly mollusc species.	Have been found on mussel grow out lines. Can outcompete these species and reduce the catch.[11]
European Green Shore Crab *Carcinus maenas*	Preys on bivalves and other crustaceans, such as soft-shell clams and scallops.[20]	Can reduce shellfish populations and potentially outcompete native crab populations.[20]	Has the potential to negatively impact mollusc aquaculture.[20]
Purple Sea Urchin *Heliocidaris erythrogramma*	Mostly consume drifting kelp, but have the ability to easily overgraze and prevent any kelp from repopulating.[13]	Overgrazes kelp, reducing the population and could outcompete species that also feed on native kelp.[13]	Can essentially eliminate kelp forests and displace all species that rely on them.[14]

Summary of Pest Species in Port Phillip Bay

Stakeholders in this issue, including responsible management agencies and their existing pest management practices.

Some of the key stakeholders include the aquaculture industry. They can be directly affected by marine pests because of their ecological effects. Shipping industries and recreational boaters are also affected due to their potential to spread marine pests.

Other stakeholders include marine care groups, recreational and divers, education groups such as Two Bays, schools and universities, and other community groups or not-for-profit organizations.

Additional key stakeholders in this issue are the management agencies responsible for marine pests. The Department of Jobs, Precincts, and Regions has responsibilities for prevention of marine pest incursions. They try to track newly arrived pest species and take steps to prevent them becoming established. Management of established pests are the responsibility of Parks Victoria. Commonwealth Scientific and Industrial Research Organization is a federal government agency that does marine pest research. They created the National Introduced Marine Pest Information System. It was created to

help identify pest species as well as help biosecurity managers develop response plans. Lastly, the Victorian Fisheries Authority has a marine pests working group that focuses primarily on campaigns to prevent the spread of marine pests. The national government is also a responsible agency and has compiled research on marine pests to begin developing response plans.

The following figure details the potential physical, biological, and chemical controls for each prevalent invasive species. Generally, the physical control methods are the ones being implemented already to manage pest populations. There is a potential to use biological controls as a more long-term solution, but most would require more extensive research in a controlled environment before they could be used in Port Phillip Bay.

How to use the Network Map
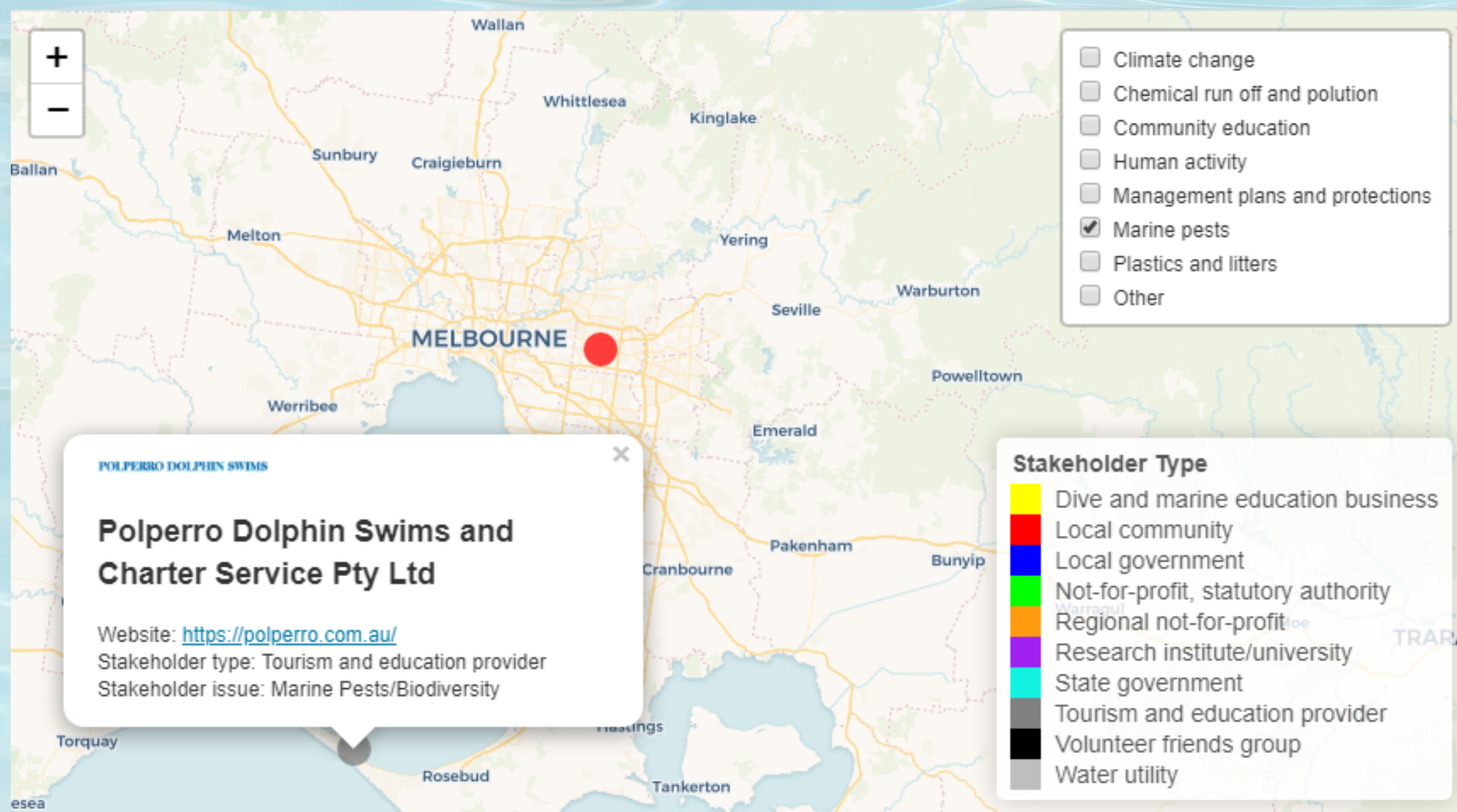
Users can navigate the map by panning and zooming while selecting the desired stakeholder issues. More organisation information can be found in a popup menu by clicking the colour-coded icons on the map.

The network map can help to:

Identify Potential Partners

Identify and learn about other organisations working on marine pests

Determine Actions

Begin conversations with organisations across sectors on the best course of action to take

Lead a Collaborative Effort

Connect with a variety of organisations around the Bay to lead a collaborative effort

12

Implementing the Collaboration Plan

Identify workshop topics
Cover all long-term threats to the the Bay (eg. Microplastics, Chemical Runoff, Dredging, etc.)

Initiate workshops
Any organisation can lead new issue-based workshops and re-visit past workshops
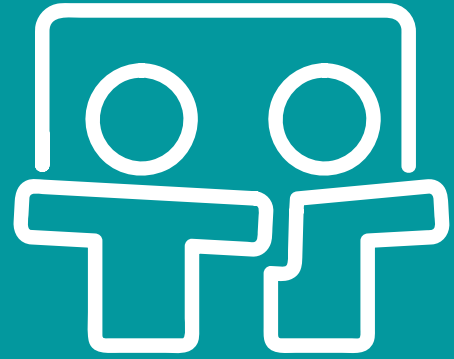
Implement the collaboration plan
Stakeholders actively plan and deliver partnership projects

Consolidate viewpoints
Develop recommended actions for stakeholders to align their own missions with

Cross-sector collaborations - new way to a healthy Bay

Benefits of Cross-sector collaboration

- Diverse views lead to an overall higher understanding
- Aligned planning helps government, researchers, environmentalists, and community to be more effective and efficient.

"A rising tide lifts all boats"

Normalising collaboration benefits all stakeholders of Port Phillip Bay, not just certain groups

14

Additional Links

EcoCentre Website: https://ecocentre.com

Project Website: https://sites.google.com/view/mcp-eco-d20/home