

Port Phillip Bay Environmental Management Plan 2017–2027

Annual Report 2019



January 2020



Environment,
Land, Water
and Planning

Acknowledgments

DELWP would like to acknowledge and thank all delivery partners, groups and individuals who have given time to provide input and review during the development of the Port Phillip Bay Environmental Management Plan 2017-2027 Annual Report 2019.

The Victorian Government proudly acknowledges Victoria's Aboriginal communities and their rich culture and pays respect to their Elders past and present. We recognise the intrinsic connection of the Kulin nation people to Nairm (Port Phillip Bay) and its catchment, and we value their contribution in the management of land, water and the natural landscape. We support the need for genuine partnerships with Aboriginal people and communities, to understand their culture and connections to Country, and to better manage the Bay and its catchment. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

Author

Hazel Stanworth, DELWP
Virginia Brook, DELWP

Editor

Lawrance Ferns, DELWP

Photo credits

Front cover: Marcia Riederer, DELWP

© The State of Victoria Department of Environment, Land, Water and Planning 2019



This work is licensed under a Creative Commons Attribution 4.0 International licence. You are free to re-use the work under that licence, on the condition that you credit the State of Victoria as author.

The licence does not apply to any images, photographs or branding, including the Victorian Coat of Arms, the Victorian Government logo and the Department of Environment, Land, Water and Planning (DELWP) logo. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>

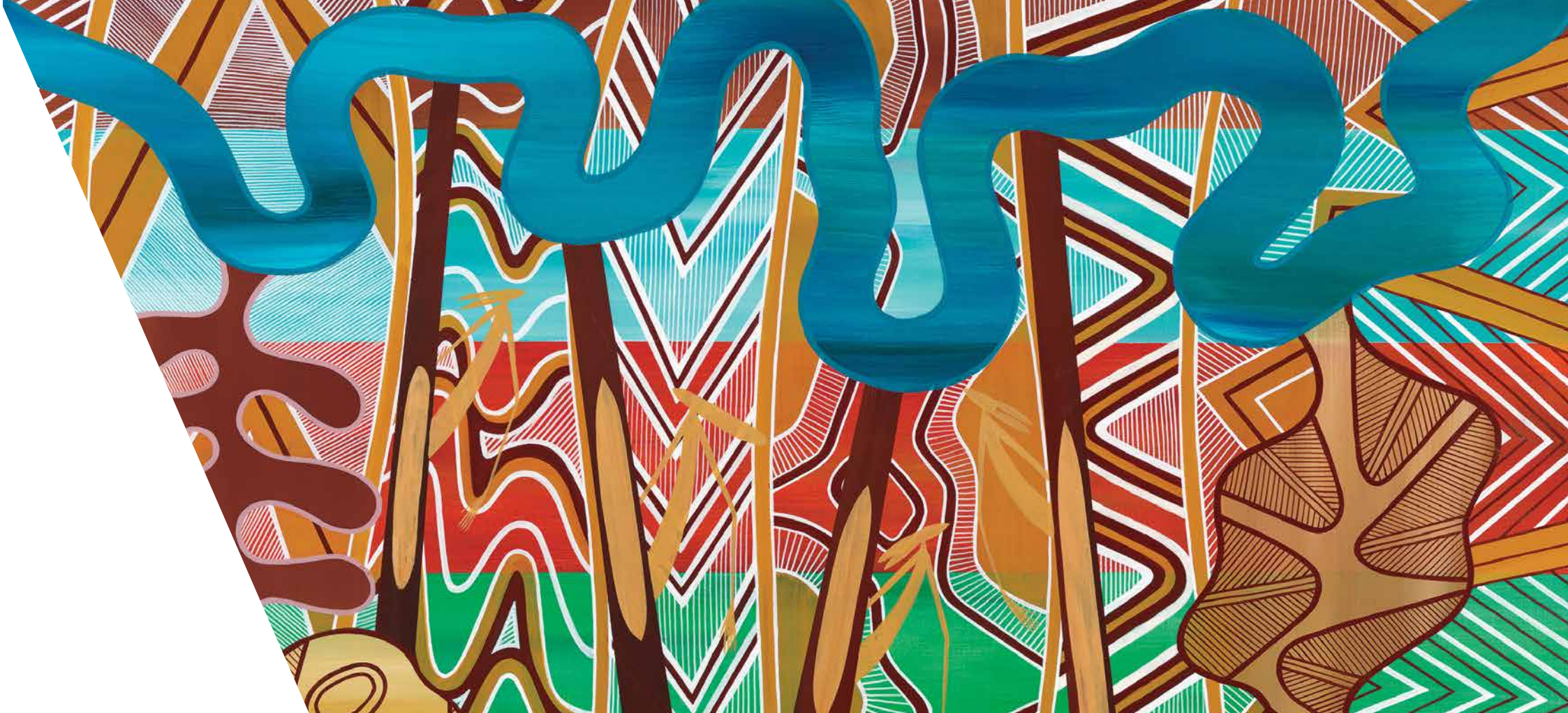
ISBN 978-1-76077-642-8 (pdf/online/MS word)

Disclaimer

This publication may be of assistance to you, but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

Accessibility

If you would like to receive this publication in an alternative format, please telephone the DELWP Customer Service Centre on 136186, email customer.service@delwp.vic.gov.au, or via the National Relay Service on 133 677, www.relayservice.com.au. This document is available on the internet at www.delwp.vic.gov.au.



Acknowledgments

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



Contents

1	Introduction	4
2	Governance and functions	6
3	Traditional Owner Inclusion	7
4	Reporting	8
5	Progress of implementation by DELWP and partner organisations	9
5.1	DELWP	9
5.2	Department of Jobs, Precincts and Regions - Biosecurity	9
5.3	Environment Protection Authority Victoria	9
5.4	Melbourne Water	9
5.5	Parks Victoria	9
5.6	South East Water	9
5.7	Sustainability Victoria	9
5.8	Victorian Marine and Coastal Council	9
6	Achieving the Goals	10
6.1	Stewardship of the Bay	10
6.2	Improving water quality	10
6.3	Thriving marine life	10

Photo: Marcia Riederer, DELWP

7	Highlights	11	9	Next steps and challenges	20
7.1	DELWP engagement activities	11	9.1	Communications plan	20
7.1.1	The Port Phillip Bay Forum	11	9.2	Development of the MERI Strategy	20
7.1.2	Day by the Bay Festivals	12	9.3	EMP Funding	21
7.2	Stewardship of the Bay	12	9.4	Traditional Owner Inclusion process	22
7.2.1	Balcombe Estuary Reserves Group (BERG)	12	10	Appendices	24
7.2.2	EPA Victoria	13	10.1	Appendix 1: Delivery Plan activity updates	24
7.3	Improving water quality	14	Stewardship		24
7.3.1	Bellarine Catchment Network (BCN)	14	Water quality		27
7.3.2	Melbourne Water	15	Marine life		49
7.4	Thriving marine life	16	10.2	Appendix 2: EMP Framework	55
7.4.1	Victoria's Marine Knowledge Framework	16	10.3	Appendix 3: Governance meetings	56
7.4.2	DJPR Biosecurity	17	10.4	Appendix 4: Glossary of acronyms	58
8	Resourcing	18			
8.1	Grants	18			
8.1.1	Port Phillip Bay Fund	18			
8.1.2	Coastcare	18			
8.1.3	Biodiversity Response Planning: Marine Environmental Targeted Actions initiative	18			
8.2	Expenditure to date	19			

1 Introduction

The Port Phillip Bay Environmental Management Plan 2017-2027 (EMP) represents the Victorian Government's ongoing commitment to ensuring that Port Phillip Bay remains healthy and resilient over the coming decade.

In this plan, the Department of Environment, Land, Water and Planning (DELWP), in partnership with Melbourne Water (MW) and the Environment Protection Authority (EPA) Victoria, have built on current programs and investments to develop an environmental management framework to protect the health of the Bay and to combat emerging environmental threats and challenges (the EMP framework is provided in Appendix 2). Community and stakeholder groups have contributed significantly to the EMP's development and to its ongoing implementation.

The EMP applies to 'all the waters of Port Phillip Bay bounded by the high-water mark'. In managing the health of the Bay, the EMP also seeks to influence the management of surrounding and connecting rivers and catchments, and all inputs they bring to the Bay as illustrated below.

The EMP is authorised under the Marine and Coastal Act 2018 and the State Environment Protection Policy (SEPP) (Waters) 2018 to manage the health and resilience of the Bay to include setting pollutant load targets and beneficial use environmental quality objectives.



Figure 1: Port Phillip Bay catchment area

The vision of the EMP is 'a healthy Port Phillip Bay that is valued and cared for by all Victorians' with future action and investment over the 10 years to be guided by the following three main goals:

- Stewardship of the Bay is fostered across community, industry and government.
- Water quality is improved to ensure environmental health and community enjoyment of the Bay.
- The Bay's habitats and marine life are thriving.

These strategic priorities have then been translated into a Delivery Plan which provides a more detailed account of how the EMP will be implemented and sets out a schedule of subordinate activities under the EMP's priority actions. It only includes funded activities across government, industry and the community, that align with these priority actions and identifies delivery partners for project implementation.

This annual report covers the EMP implementation from its release in December 2018 through to the end of the 2018-19 financial year. At this early stage in the EMP timeline, the plan is not at a point to allow reporting on metrics and outcomes. In this context, the focus of the report is on the scope of activities funded and their current status (on-track/not on-track). It provides an overview of priority actions and the early progress of funded activities. Reporting is based on early estimates of the effectiveness of the Delivery Plan in implementing the priority actions of the EMP.

Aspects within EMP delivery for future focus have been recognised for development. A Monitoring, Evaluation, Reporting and Improvement (MERI) strategy is currently being developed to report on and provide a systematic, evidence-based approach to future monitoring and evaluation of the health of the Bay's ecosystems and habitats. Refer to the Next steps and challenges section of this report for more information.

Photo: Marcia Riederer, DELWP



2 Governance and functions

The management of the Bay is complex, involving numerous government agencies, local government and community organisations in its care and use. In this context, DELWP has established four governance groups to support the coordination and implementation of the EMP (and Delivery Plan).

The governance structure for EMP implementation is illustrated in figure 2 (right), which outlines the different organisation responsibilities for management oversight and delivery. A summary of the structure and achievements of the governance groups to 30 June 2019 is provided in Appendix 3.

Governance groups ensure that the implementation of the EMP is aligned to, and/or directly delivered, by complementary regional plans and strategies, such as:

- DELWP's draft policy for the Marine and Coastal Act 2018
- DELWP's Biodiversity 2037 Plan
- DELWP's Water for Victoria Plan, the Integrated Water Management Framework
- DELWP's Aboriginal Inclusion Plan
- DELWP & EPA's SEPP (Waters) and Implementation Plan
- EPA's Yarra River, Bay catchment & beach reporting
- MW's Healthy Waterways Strategy 2018-2028

Photo: Marcia Riederer, DELWP

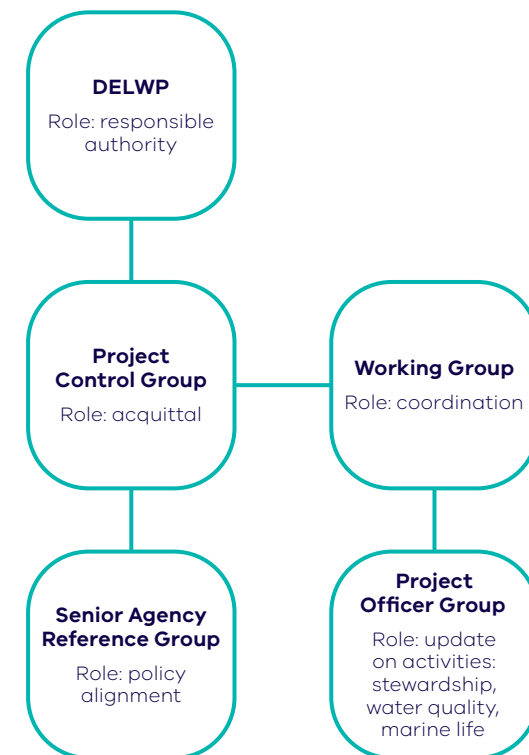


Figure 2. Governance structure for implementation of the EMP

3 Traditional Owner Inclusion

Since the release of the EMP, DELWP's Aboriginal Inclusion team have supported engagement with Registered Aboriginal Parties (RAPs) located around Port Phillip Bay, namely Bunurong Land Council Aboriginal Corporation, Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation, and Wathaurung Aboriginal Corporation (trading as Wadawurrung). These groups have been consulted through individual meetings and each group invited to represent on the partner and stakeholder governance groups; Project Officer Group (POG) and Senior Agency Reference Group (SARG) established for the 10-year period of the EMP.

SARG membership also includes representatives from the Federation of Victorian Traditional Owner Corporations (FVTOC) and Aboriginal Affairs Victoria (AAV) to ensure alignment and linkages with relevant policies and initiatives.

Representatives from these groups attended the stakeholder forum hosted by DELWP in February 2019. A Welcome to Country ceremony opened the event and the program included a session on Aboriginal values to showcase some of the great work being delivered by and in partnership with Traditional Owners (refer the Port Phillip Bay Forum in the Highlights section).

Engagement with these groups will continue and approaches are being developed to allow effective and meaningful participation across the wider Aboriginal communities (further information is provided in the Next steps and challenges section).

The EMP governance group meetings employed indigenous businesses to support procurement opportunities for Indigenous owned or controlled businesses.

Photo: Marcia Riederer, DELWP



4 Reporting

The Delivery Plan outlines funded activities that align with the objectives and priorities of the EMP. Progress updates on all activities are provided in this report. These activities include projects funded by the DELWP Port Phillip Bay Fund, Biodiversity Response Planning and Coastcare Community Grants, as well as projects delivered and supported through other partner organisation initiatives.

Yearly updates on the progress of the Delivery Plan are prepared by the cross-agency Working Group and the Project Officer Group who manage or deliver activities. These updates are endorsed by the Project Control Group and are fed into the annual report. This is the first annual report, evaluating the EMP from its release to the end of June 2019.

The EMP is subject to five-yearly reviews, the first is due in 2021 which will be guided by a MERI strategy, currently under development (further information is provided in the Next steps and challenges section).



"A healthy Port Phillip Bay that is valued and cared for by all Victorians".

Photo: Marcia Riederer, DELWP

5 Progress of implementation by DELWP and partner organisations

Activities to deliver the EMP under the Delivery Plan began in late 2017. The Delivery Plan is now accessible on DELWP's Coasts and Marine webpage along with this report, the EMP and its supporting documents (available at: <https://www.marineandcoasts.vic.gov.au/coastal-programs/port-phillip-bay>).

Progress on activities is set out in Appendix 1 with summarised information below for DELWP and partner organisations responsible for delivery of multiple activities across the goals.

5.1 DELWP

DELWP is delivering activities under the following goals of the EMP:

- Stewardship
- Water quality
- Habitat and marine life.

DELWP has undertaken:

- 14 activities that are currently underway through the Port Phillip Bay Fund, consisting of 75 projects from the first two funding rounds
- Two activities that are completed and four activities currently underway through the Coastcare Grant program, consisting of 20 projects from the two most recent funding rounds

- Three activities under the Biodiversity Response Planning's Marine Environment Targeted Actions (META) initiative. One completed, and two currently underway
- Eight activities that are being directly delivered through DELWP's divisions; Biodiversity, Land Management Policy and Water and Catchments. Two completed, and six currently underway.

5.2 Department of Jobs, Precincts and Regions - Biosecurity

The Department of Jobs, Precincts and Regions - Biosecurity (DJPR Biosecurity), previously known as the Department of Economic Development, Jobs, Transport and Resources (DEDJTR), has led three major activities under the habitat and marine life goal of the EMP, with one completed and two ongoing.

5.3 Environment Protection Authority Victoria

EPA has undertaken five activities under the stewardship and water quality goals of the EMP, all still currently underway.

5.4 Melbourne Water

MW has led seven activities under the water quality goal of the EMP, with one completed and six ongoing.

5.5 Parks Victoria

Parks Victoria (PV) have led five activities under the water quality and habitat and marine life goals of the EMP with two completed and three currently underway.

5.6 South East Water

South East Water has undertaken three activities under the water quality goal of the EMP, all still currently underway.

5.7 Sustainability Victoria

Sustainability Victoria (SV) has led five activities under the water quality goal of the EMP, all still currently underway.

5.8 Victorian Marine and Coastal Council

The Victorian Marine and Coastal Council (VMaCC) has completed a major study of community attitudes on marine values (Wave 5). This activity is under the stewardship goal of the EMP.

6 Achieving the Goals

Progress towards achieving the EMP's goals are described in Appendix 1 which itemises the various funded activities, and the corresponding priority actions they address. The below information provides a summary of how many activities are being undertaken per goal.

6.1 Stewardship of the Bay

There are 17 activities being delivered against this goal. DELWP and partner organisations are responsible for delivering seven activities. Ten activities are being delivered through funding and grant schemes and include:

- 44 Port Phillip Bay Fund projects
- 16 Coastcare Grant projects
- one META project.

6.2 Improving water quality

There are 30 activities being delivered against this goal. DELWP and partner organisations are responsible for delivering 23 activities. Seven activities are being delivered through funding and grant schemes, these include:

- 24 Port Phillip Bay Fund projects
- three Coastcare projects.

6.3 Thriving marine life

There are 14 activities being delivered against this goal. DELWP and partner organisations are responsible for the delivery of eight of these activities. Six activities are being delivered through funding and grant schemes and these include:

- seven Port Phillip Bay Fund projects
- one Coastcare project
- two META projects.



Photo: Marcia Riederer, DELWP

7 Highlights

Amongst the activities captured so far across the 21 EMP priority actions there have been several highlights which illustrate some of the important management issues for the Bay (refer to Appendix 1 for a more detailed account of Delivery Plan achievements for this period).

7.1 DELWP engagement activities

7.1.1 The Port Phillip Bay Forum

This one-day forum was a joint event hosted by DELWP with the Port Phillip Bay Fund and Coastcare program leaders. The forum brought together key organisations currently active in the Bay with over 150 people attending. The day included 35 presentations which showcased the various activities being delivered under the EMP and funded through DELWP's grant programs.

The Port Phillip Bay forum provided a great opportunity for bringing together an impressive array of stakeholders and community groups. The event provided opportunities for networking and for celebrating the enormous contribution made by these caring networks in partnership with organisations and research institutions.

The program covered a range of activities under the EMP goals:

- Stewardship of the Bay:
 - Aboriginal values with the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation and Victorian Environmental Assessment Council
 - Building capacity with Beach Patrol Australia, the Yarra Riverkeeper Association and Love our Street
 - Partnerships with the Bellarine Catchment Network, the Port Phillip EcoCentre and the City of Frankston
 - Youth engagement with St. Aloysius School, the Dolphin Research Institute and Fishcare Victoria.
- Water quality:
 - Litter science with the 14th Brighton Sea Scouts Venturer Unit, RMIT University's Litter Tracker and the Scout Association of Australia, Victorian Branch
 - Nutrients and pollutants with DELWP, Melbourne Water, EPA and Werribee River Association
- Litter reduction with Tangaroa Blue, the Port Phillip EcoCentre and Sustainability Victoria.
- Marine life:
 - Citizen science and data with Australian Marine Ecology, the Victorian National Parks Association and Reef Life Survey
 - Restoration with the National Centre for Coasts and Climate, the University of Melbourne, and The Nature Conservancy
 - Biodiversity values with the Marine Mammal Foundation and the Geelong Sustainable Group
 - Marine pests with PV and the Department of Jobs, Precincts & Regions (DJPR) Biosecurity.

7.1.2 Day by the Bay Festivals

Two outdoor festival events, organised by Remember the Wild, were held over February and March 2019 at Mornington and Point Cook to celebrate Port Phillip Bay. Over 15 environmental organisations attended to promote their Bay activities with over 2,800 members of the public in attendance.

DELWP staff had a stall at both events and engaged with a range of community members about:

- The EMP, promoting actions the community can get involved with to protect and value the Bay (PV pamphlets on marine pests were very well received by locals in particular).



Figure 3: Day by the Bay activities.

Photo: Karen Forsyth, DELWP

- Information on the latest round of funding through the Port Phillip Bay Fund and Coastcare Grant.
- Biodiversity 2037, linking the vision to actions supporting a healthy Bay including the new Victorian Biodiversity Atlas Go app. (data collection).
- Protecting marine mammals and what to do about stranding's and entanglement.

7.2 Stewardship of the Bay

7.2.1 Balcombe Estuary Reserves Group (BERG)

This group worked with local schools, Mt Martha Rotary and officers from Mornington Peninsula Shire to continue their long-standing project dedicated to restoring and protecting the Balcombe Estuary Reserves, an invaluable environmental and recreational asset.

Works focused on protecting the biodiversity and integrity of this important wildlife corridor. The project included weed control and re-establishment of indigenous vegetation on a two-hectare site and contributed to the environmental values of the Bay and its surroundings by:

- reducing weeds
- improving indigenous vegetation and habitat

- improving the riparian zone with roll-on benefits for water quality
- contributing to environmental monitoring and reporting with litter data collection.

The activity helped to raise awareness in the local community about the impact of litter, the issue of its control and provided opportunities for environmental education and knowledge sharing with a trained ecologist.



Figure 4: BERG volunteers.

Photo: Liz Barraclough, BERG

7.2.2 EPA Victoria

EPA continues to provide current community updates through the Yarra and Bay website which highlights water quality issues within the catchment, beaches and marine environments of the Bay. The Beach Report program has included delivery of SMS messages to over 10,000 subscribers warning the community of poor water quality over the peak summer months, forecasts for swimmer safety and weekly microbial (enterococci) monitoring at 36 popular swimming beaches. Data collected by the community in the first year of EPA's citizen science project, Drain Detectives (funded by the Port Phillip

Bay Fund), will support better understanding of numerous drains prone to causing pollution to the Bay.

EPA's Report Card for 2017-2018 (published 2019) provides an up-to-date snapshot to the community of the status of water quality within the Bay and its catchments. Recent upgrades to reporting include the addition of interactivity to graphs displaying the Water Quality Index (WQI) results and improved mapping. The Report Cards are a valuable source of monitoring the EMP's priority actions for improving water quality. Figure 5 displays the WQI for the Port Phillip Bay catchment for 2017-2018.

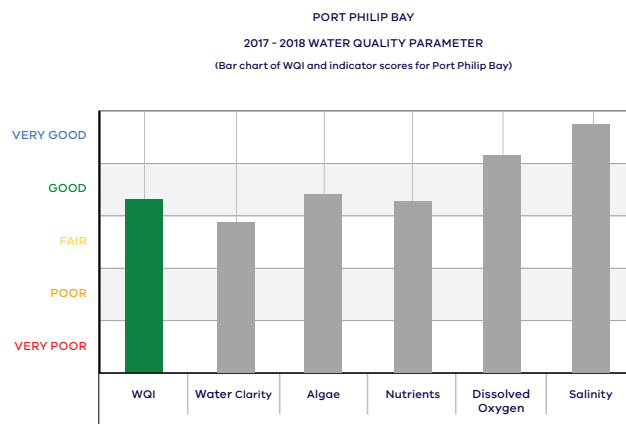


Figure 5: The water quality score graph for the Port Phillip Bay catchment for 2017-2018

Photo: Marcia Riederer, DELWP





Figure 6: Bellarine Catchment Network litter project locations

7.3 Improving water quality

7.3.1 Bellarine Catchment Network (BCN)

This network of 30 community groups and organisations continued their outstanding work at multiple sites across Geelong and the Bellarine Peninsula to promote awareness of and deliver improved outcomes such as:

- marine environment habitat awareness
- habitat protection and restoration
- regular litter audits at 15 hotspot locations
- thousands of volunteer hours each year to track litter in order to address litter source reduction
- event waste reduction at festivals and events across the region
- citizen science beach and biodiversity monitoring
- business partnerships for waste and litter reduction.

The network partnered with seven land management organisations to deliver multiple activities that saw a 200% increase in participation in 2018. Targeted education, signage and infrastructure has seen a decrease in litter at 13 of the 15 litter hotspot locations.

In its Caring for Our Bays program, BCN engaged with groups as diverse as Corrections Victoria, businesses, scouts, home school families, coastal action groups, schools and divers to address what stakeholders saw as key issues affecting the bays.

7.3.2 Melbourne Water

Melbourne Water lead multiple projects aimed at improving water quality by maintaining stormwater assets and ensuring nutrients and sediments are being removed from the catchment and prevented from flowing into the Bay. Melbourne Water are responsible for 435 stormwater quality treatment systems in the Bay's catchment, 51% of these systems are constructed wetlands consisting of 509 individual wetland cells and 519 sediment ponds.

These assets are now maintained in an annual program. This program uses a risk-based prioritisation approach to ensure stormwater assets can meet design intent and function efficiently to capture nutrients and sediments. The condition and performance of these assets are assessed through numerous inspections and monitoring techniques to monitor inlets and outlet condition, internal hydraulic structures condition, water levels and aquatic vegetation condition.

The vegetation cover in a wetland (as demonstrated in figure 7) is used as a proxy for performance to calculate nitrogen removal. It is estimated that over 155 tonnes of nitrogen are removed from these assets per annum.



Figure 7: Melbourne Water's satellite IR (infrared) imagery to detect wetland vegetation cover

7.4 Thriving marine life

7.4.1 Victoria’s Marine Knowledge Framework

The Biodiversity Division within DELWP is leading the development of the Marine Knowledge Framework (MKF) Project. A framework was first recommended by the Victorian Commissioner for Environmental Sustainability in the State of the Bays Report 2016 for Port Phillip and Western Port Bays and recommended to be extended across all marine waters in the State of Environment Report 2018.

The MKF project involves the coordination of all available information on Victoria’s marine and coastal biodiversity and environmental processes into a central knowledge management system. Until recently, there was no system within the state to consolidate all marine research and this resulted in widely dispersed data that was difficult to access and share across decision makers (government agencies, research institutes and the scientific community).

The development of the MKF will ensure marine research and monitoring efforts are integrated and directed towards sustainable management priorities.

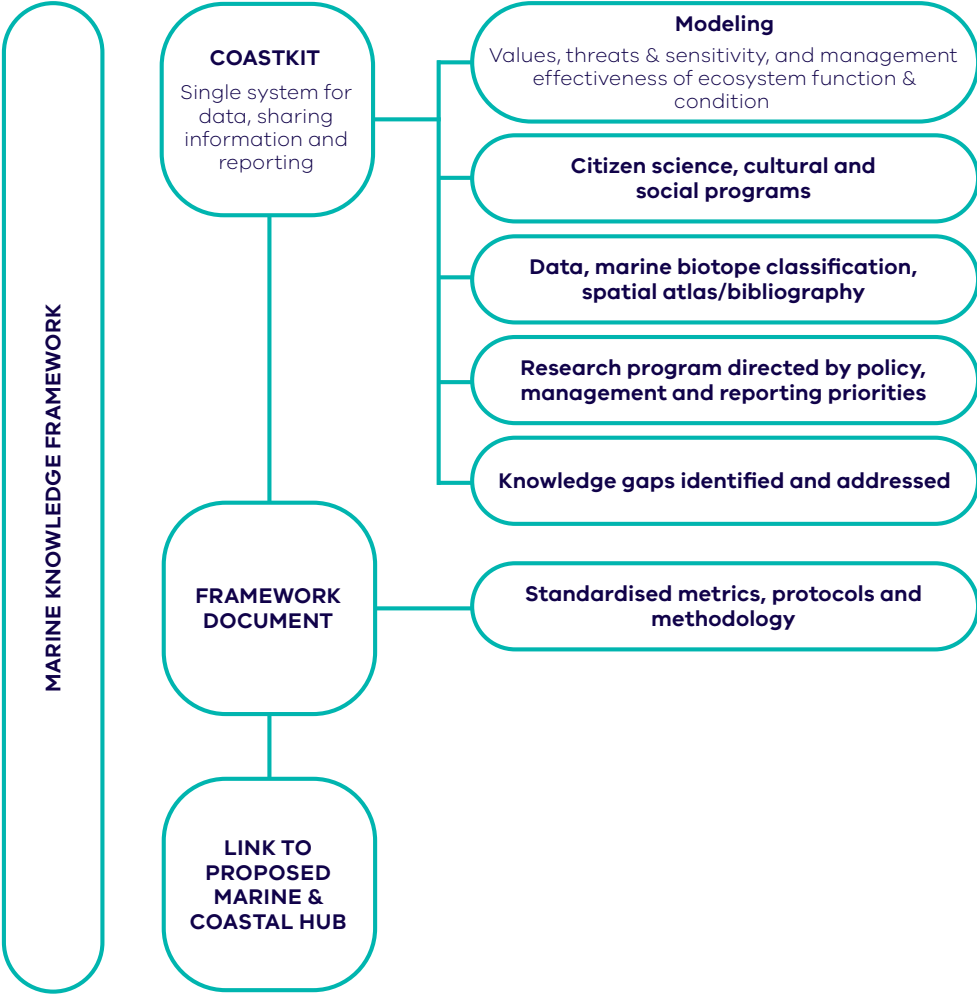


Figure 8: Marine Knowledge Framework - conceptual framework.

7.4.2 DJPR Biosecurity

Prevention of the entry and spread of new and existing marine pests is a crucial challenge for all responsible government agencies, industry and the community. DJPR Biosecurity has undertaken numerous significant activities over the past two years to reduce the risks posed by marine pests, including:

- Working closely with the Commonwealth and other Australian jurisdictions on the development of national strategies for marine pests and continues to engage with the marine sector on biofouling.
- Implementing a new communication and engagement strategy to improve understanding of marine pest issues in the broader Victorian community. As part of this DJPR Biosecurity has developed online marine pest information: www.vic.gov.au/marine-pests.
- Adopting a risk-based approach with a focus on the detection of any new pests and establishing baseline information regarding the distribution and abundance of existing marine pest species within the Bay.
- Building the capacity and capability of marine managers to respond rapidly to any new incursion of marine pests and ensure effective and efficient decision making. This has included undertaking training exercises, establishing appropriate governance arrangements with relevant experts and key organisations, and working closely with the Commonwealth to align national and state marine pest objectives.

Photo: Marcia Riederer, DELWP



8 Resourcing

The EMP has been developed to celebrate and grow the breadth and impact of existing programs and community initiatives. It will be progressively implemented over a ten-year timeframe. DELWP are committed to leading the coordination and governance of the EMP through the implementation phase with support from Melbourne Water and EPA. Resourcing and funding to implement the EMP will come from a range of sources, including organisational budgets, agency contributions, and government grants.

Implementation resources of the EMP via the current Delivery Plan are committed across all delivery partners. It is expected that state government agencies, local government, industry and community organisations will continue to identify future activities that align with the EMP and their own organisational objectives. Each agency and organisation will define budgets required, seek funding and effectively manage delivery where appropriate.

8.1 Grants

There are several DELWP grant programs currently resourcing projects whose objectives are to address issues in and around Port Phillip Bay. These grant programs support the EMP vision and share a key aspiration of supporting stronger partnerships across community, industry and government to ensure aims and outcomes are aligned.

8.1.1 Port Phillip Bay Fund

The Port Phillip Bay Fund is completing its final round of grant allocations for a program which has invested \$9.1 million between 2016-2020.

This fund provides an important opportunity for the state government to support direct investment in the health of the Bay. The program focuses on resourcing organisations and community groups who work to protect and preserve the health of the Bay.

The fund targets a variety of local and regional priorities for the Bay and catchment area as well as implementing priority actions of the EMP, including:

- Encouraging partnerships across a range of interested groups and organisations.
- Enhancing the amenity and environmental values in the Bay and on the foreshore.
- Reducing and addressing threats to the health of the Bay, including nutrients, pollutants and litter.

A final evaluation report will be produced at the end of the grant program to demonstrate that the fund has met its objectives and to ensure financial accountability and appropriate project management.

8.1.2 Coastcare

Coastcare is supported by hundreds of community volunteer groups working to protect and enhance Victoria's 2000 kilometres of coastline. The program assists volunteers in identifying local environmental problems and working with government, local businesses and interest groups to achieve practical, sustainable solutions to better manage the coastal and marine environments within the state.

The Coastcare Victoria Community Grants Program provides funding to community organisations to protect and enhance the coastal and near-shore marine environment. It has two key focus areas:

- The conservation, rehabilitation, restoration and preventative actions for Victoria's coastal and marine ecosystems.
- To support community participation and engagement to enhance community knowledge and understanding of coastal and marine management.

Many of the projects funded by this grant program are being delivered around Port Phillip Bay to address key local marine and coastal issues. The latest round of funding from the grant program was made available in early 2019.

The Coastcare Strategy is currently under review with one of the key aspirations being to help implement and align more closely with relevant marine and coastal policies and plans such as the EMP.

8.1.3 Biodiversity Response Planning: Marine Environmental Targeted Actions initiative

Biodiversity Response Planning (BRP) is a new, area-based, planning approach to biodiversity conservation in Victoria. It is designed to strengthen alignment, collaboration and participation between government agencies, Traditional Owners, non-government organisations and the community.

Under the BRP and META, five projects worth \$1.703 million will be delivered over three years within marine and coastal environments to help secure Victoria’s biodiversity. These projects will be delivered by various government and non-government stakeholders.

Three of these projects are undertaking action within Port Phillip Bay and will contribute towards implementing the EMP whilst simultaneously addressing targets of Biodiversity 2037 under the goal ‘Victoria’s natural environment is healthy’.



Figure 9: Sub-tidal reef restoration work.

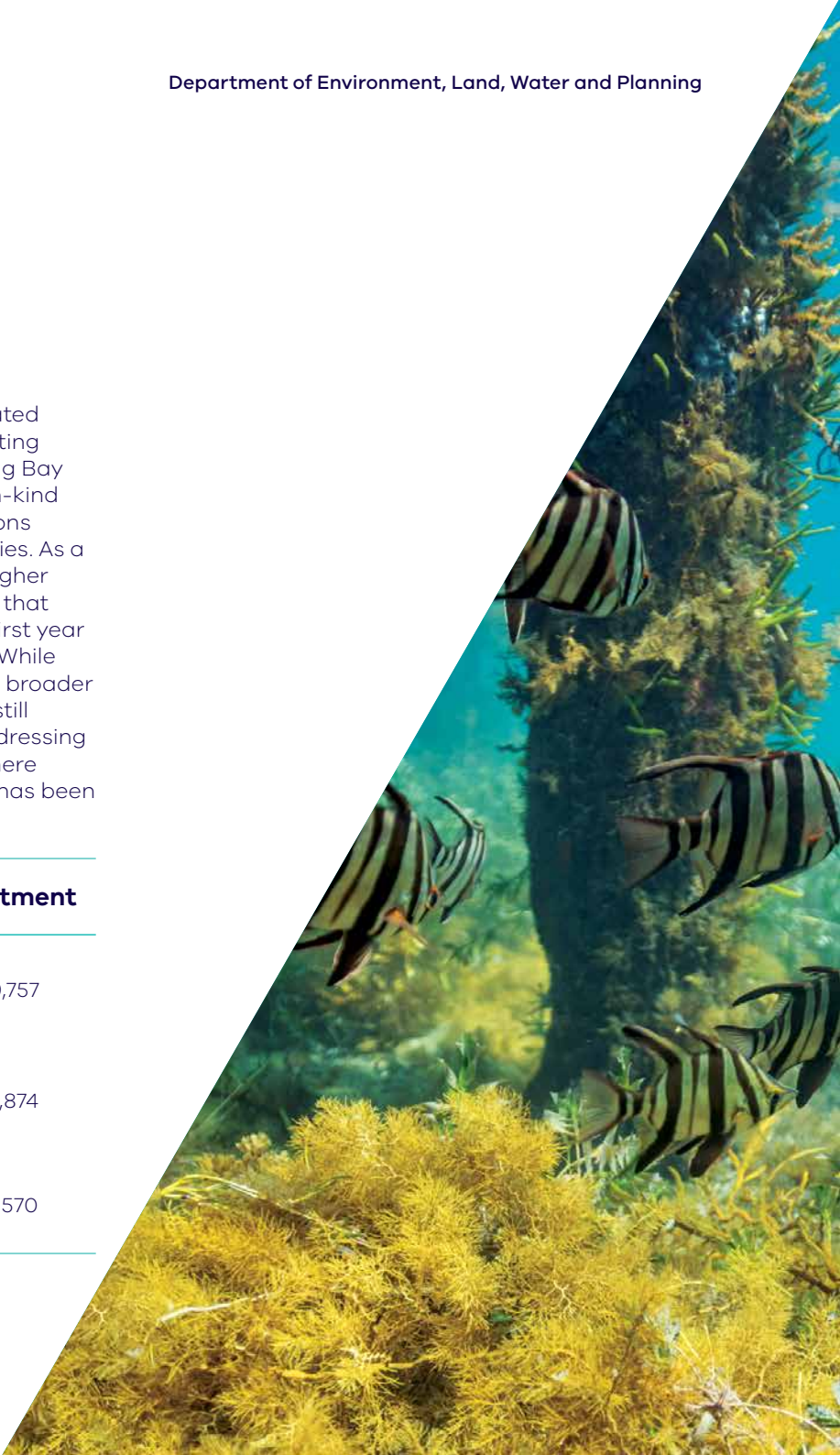
Photo: Parks Victoria

8.2 Expenditure to date

The first year of the EMP has seen an estimated investment of \$12,756,201 towards implementing activities to address priority actions affecting Bay health. This figure excludes the significant in-kind contributions made by the many organisations contributing towards achieving these activities. As a result, the true investment is considerably higher than the value listed. It should also be noted that several activities in the Delivery Plan in the first year were state-wide interventions and projects. While objectives of these activities were aligned to broader state or regional plans and strategies, they still provided a notable contribution towards addressing the priority actions affecting Bay health. Where possible, the expenditure for these projects has been apportioned to Port Phillip Bay.

Goal	Investment
Stewardship of the Bay is fostered across community, industry and government	\$2,899,757
Water quality is improved to ensure environmental health and community enjoyment of the Bay	\$7,536,874
The Bay’s habitats and marine life are thriving	\$2,319,570

Photo: Marcia Riederer, DELWP



9 Next steps and challenges

9.1 Communications plan

A communications plan is being developed to guide the approach and activities for the implementation of the EMP into the future.

The objectives of this plan are to:

- Promote the implementation of the EMP as a collaborative, multi-partner and stakeholder driven process.
- Communicate actions and outcomes to relevant target audiences.
- Identify clear responsibilities across DELWP and lead organisations to facilitate communications to coordinate deliverables on implementation.
- Encourage the participation of target audiences in the delivery of actions.
- Coordinate delivery partners within DELWP and other organisations to manage activities and promote consistent messaging within networks.
- Encourage delivery partners and stakeholders to share news and updates about actions and outcomes within their own networks.

9.2 Development of the MERI Strategy

A MERI strategy is being developed to assess EMP outcomes and inform the five-yearly review of the EMP.

The MERI strategy will incorporate the recommendations of the State of the Bays Report 2016 (updated in 2017) and support future five-yearly State of the Marine and Coastal Environment reports required under the Marine and Coastal Act 2018.

The tools and applications being developed within the MKF will be used to build the framework of the MERI strategy. DELWP are working with marine research specialists and partner agencies to undertake this work. The approach is to monitor selected indicators from ecosystem models under the EMP themes of 'improving water quality' and 'ensuring marine life and habitats are thriving' to report on Good Environmental Status (GES) of priority habitats in the Bay. This approach, derived from the Marine Strategy Framework Directive of the European Union, has been building on the initial work developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in partnership with DELWP and key stakeholders to complement the first State of the Bays report in 2016–2017.

The first stage of the project, to undertake a prioritisation and gap analysis exercise, was completed in June 2019. The report identifies knowledge gaps within the ecosystem modelling and prioritises knowledge gaps that are of critical importance for validating the modelling and meeting the objectives of the MERI strategy.

The MERI project is due for completion in May 2020 and, in the meantime, partners and stakeholders will be consulted to continue the process of mapping existing monitoring and evaluation programs. Once potential indicators and monitoring methods have been identified, workshops will be undertaken to optimise any existing programs and clarify any significant gaps where additional monitoring is required. Following the MERI process, future annual reports will start to focus on the evaluation of activity outcomes as well as status of completion.

The MERI strategy will link to other government agency reporting programs including the evaluation of Biodiversity 2037. Where appropriate, the strategy will incorporate evaluation through DELWP's Standard Outputs reporting.

In delivering this purpose, the MERI Strategy will assist in achieving the goals of the EMP, build understanding of the science underpinning the EMP,

ensure accountability for efficient and effective use of public and private resources, and form a key part of the EMP communication strategy.

The primary functions of the MERI strategy are to:

- Provide the framework for collection and analysis of the information needed to determine if the EMP is meeting program and policy goals.
- Guide and facilitate provision of data and information for annual reporting and five-yearly evaluation review.
- Ensure, through reporting of outcomes, that EMP activities meet Australian Government requirements for accountability, transparency, learning and improvement.
- Provide the principal mechanism to reinforce, review and refine activities as part of a continual improvement process.

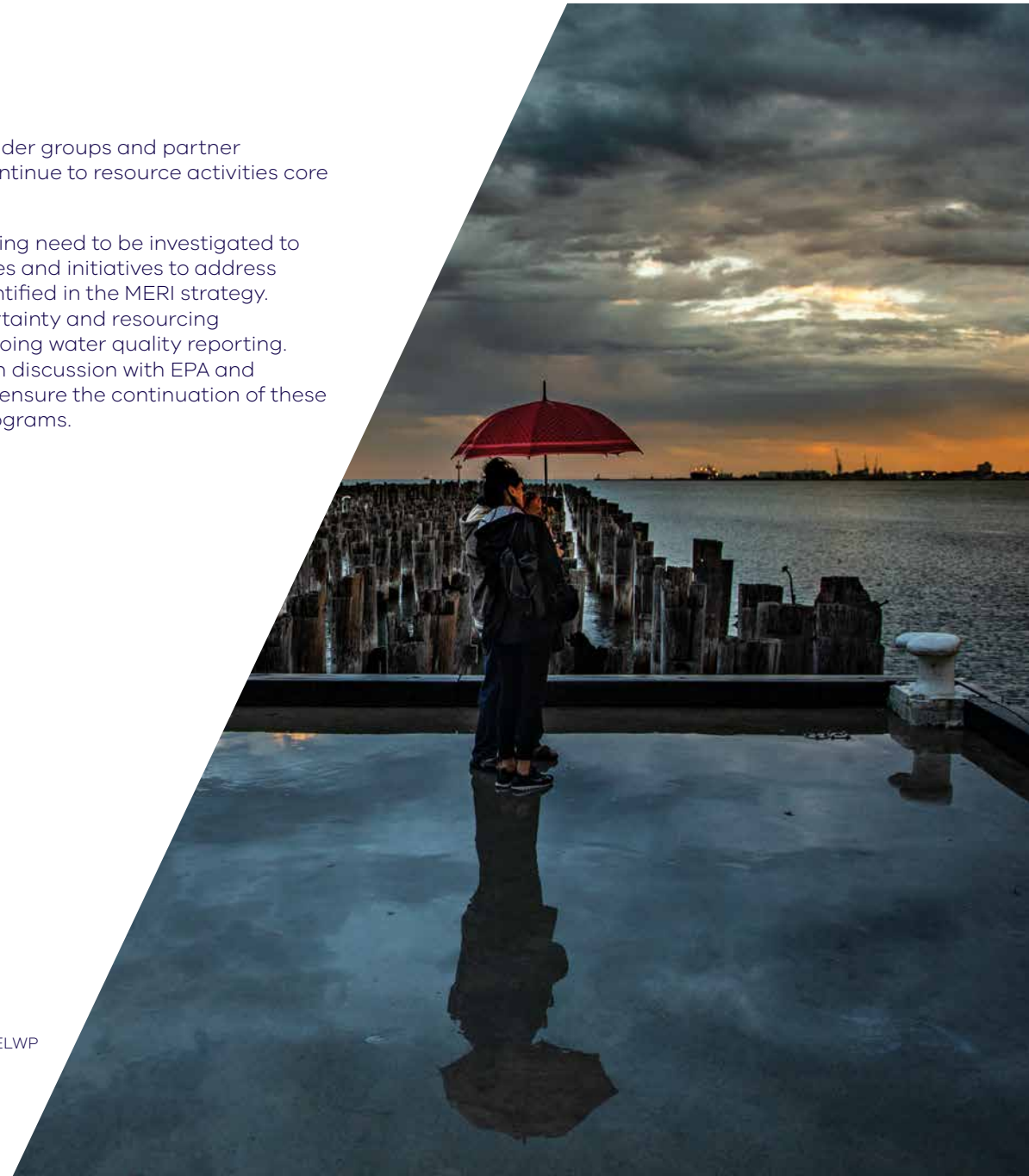
9.3 EMP Funding

Currently funding within DELWP for the EMP is available for the administrative oversight of the project and for existing ongoing activities. The Port Phillip Bay Fund continues to partner with coastal

and marine stakeholder groups and partner organisations will continue to resource activities core to their portfolios.

New sources of funding need to be investigated to support new activities and initiatives to address gaps and needs identified in the MERI strategy. There is a lack of certainty and resourcing surrounding the ongoing water quality reporting. DELWP is currently in discussion with EPA and Melbourne Water to ensure the continuation of these critical reporting programs.

Photo: Marcia Riederer, DELWP





9.4 Traditional Owner Inclusion process

Munganin – Gadhaba, DELWP's Aboriginal Inclusion Plan 2016-2020, recognises the need to increase our understanding and recognition of Aboriginal culture through developing partnerships to 'achieve together' in all aspects of our work. The need to maximise opportunities for acknowledging Traditional Owner group knowledge, rights and aspirations for land and sea country was also highlighted in the recent Marine and Coastal Act 2018.

While the process and co-ordination of pathways for Aboriginal inclusion are still in the early stages of development. A partnership project with the three RAPs and FVTOC is now underway through funding from Round 3 of the Port Phillip Bay Fund.

The Bunurong Land Council Aboriginal Corporation, the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation and the Wathaurung Aboriginal Corporation (trading as Wadawurrung) will each undertake separate but related aspects of this project to develop a Reading Country Program with bio-cultural indicators for land, water and biodiversity. The biocultural data will be stored in a database which will be owned and managed by the relevant Aboriginal Group and shared on their own terms.

Photo: Marcia Riederer, DELWP

By 2020, this project progressed data sharing agreements between relevant Traditional Owner groups and DELWP with the objective of informing relevant policies and strategies affecting management of Country (land and sea).

The VMaCC has been invited by Traditional Owners to co-chair the Sea Country Co-Governance Group with a mandate to communicate rights and aspirations, engage in the development of the Marine and Coastal Strategy, and sharing learnings from Sea Country management projects. In this role, VMaCC will provide an invaluable resource to DELWP officers to facilitate better engagement practice and processes.

The EMP will continue to seek opportunities for Traditional Owner inclusion in its coastal and marine planning and management initiatives.



10 Appendices

10.1 Appendix 1: Delivery Plan activity updates

Stewardship



CONNECT AND INSPIRE

Improve appreciation and understanding of Bay values and connections to catchment

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
ACTION 1-1: Work with Aboriginal groups to improve understanding of Aboriginal cultural values and interests in the Bay and support connections to Country				
Activity 1-1-1: DELWP Investigate the expansion of the Aboriginal Waterway Assessment tool to include marine habitat sites		Partially achieved (25%)	Feasibility report of an Aboriginal assessment tool for marine habitats.The completion of this project will be a significant milestone in progressing the tool which will enable TO connection with Country (Land and Sea) by assessing its health through active participation.	2018-21
Activity 1-1-2: Two Port Phillip Bay Fund projects	A. Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation	Partially achieved (67%)	A Wurundjeri Narrap Team are conducting weed control, fencing and revegetation to reduce the impact of erosion and create a healthy habitat for local species in partnership with local groups along the Maribyrnong River.	2018-20
	B. Bunurong Land Council Aboriginal Corporation	Partially achieved (50%)	The Bunurong Land Council Sea Ranger team are being trained and supported by Port Phillip and Westernport Catchment Management Authority (PPWCMA) and Trust for Nature to achieve a healthier Bay at culturally sensitive sites and by contracting to local Councils to employ Aboriginal people at specific sites.	
ACTION 1-2: Develop and deliver programs to inspire greater appreciation of the Bay’s values				
Activity 1-2-1: MCC (now VMaCC) Develop Bay values communication program, includes analysis of coastal values		Partially achieved (90%)	The Wave 5 project is the fifth round of social research into Victorian community attitudes and behaviour to the coastal and marine environments. Surveys have been undertaken (online and via phone) by 2500 Victorians.The results from Wave 5 survey will inform a marine and coastal values communication program, the final report will be available soon online. https://www.marineandcoastalcouncil.vic.gov.au/resources/vmacc-reports	2018-19

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 1-2-2: PV Interpretation and education programs within Marine Protected Areas (MPAs)		Achieved	<p>Educational programs with community in MPA's across the Bay, with over 500 participants. Activities have empowered the broader community to get actively involved in caring for the Bay, building capacity and knowledge within community and industry networks.</p> <p>Support provided for Summer by the Sea and School Holiday programs within marine protected areas at Ricketts Point, Point Cook and Jawbone Marine Sanctuaries, and Port Phillip Heads Marine National Park.</p> <p>Co-ordinated Victorian National Parks Association's (VNPA) Great Victorian Fish Count at all Marine Sanctuaries and supported and promoted Sea Slug census involvement within parks.</p>	2017-19
Activity 1-2-3: 14 Port Phillip Bay Fund projects	A. BCN	Partially achieved (67%)	<p>Supporting Caring for Our Bays, a multi-faceted program focussing on litter awareness, analysis and citizen science. A conference has been held and curriculum-based resources developed for educating schools and the community.</p> <p>This is a multi-partnership alliance of community groups, government agencies and private businesses to improve the waterways along Corio and Swan Bays, Geelong and the Bellarine Peninsula.</p>	2017-20
	B. Port Phillip and Western Port region, DELWP	Deferred	To be revisited.	
	C. Australian Wildlife Assistance, Rescue and Education (AWARE)	Achieved	Developed educational & information resources on the impact of marine detritus and distributed at schools and community events.	
	D. Darebin Creek Management	Achieved	Worked with educational institutions to promote the impacts of localised litter on waterways. Schools adopted part of their local waterways to clean up to reduce litter and to improve water quality..	
	E. Farming Moorabool	Achieved	Developed teaching materials for local schools and the community, on sustainable farming while protecting the Bay through environmental stewardship.	
	F. Black Rock Preschool	Achieved	Developed a kindergarten program with a focus on the local environment, incorporating the beach and its surroundings into an exciting learning space.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 1-2-3: 14 Port Phillip Bay Fund projects	G. Friends of Greenwich Bay	Achieved	Fencing and signage at Sandy Point Nature Reserve to rehabilitate degradation due to rabbit grazing and uncontrolled access.	2017-20
	H. VNPA	Partially achieved (67%)	Broadening and deepening engagement and learning in the Bay, by developing novel learning and engagement resources and activities for new audiences, specifically families through the VNPA's Wild Families activities and resources.	
	I. St. Aloysius Primary School	Partially achieved (67%)	Inspiring primary school age Marine Science experts and through them, educating the wider community.	
	J. Mother of God Primary School	Partially achieved (67%)	Through learning from marine experts on water and land and developing student led citizen science, children from six schools in non-coastal settings will develop an understanding of the Bay and how to care for local waterways.	
	K. Friends of Beware Reef	Partially achieved (67%)	Developing a marine species identification and diver guides to assist visitors and tour operators learn about its marine values as well as how to minimise their impact. A marine species booklet has been published and launched at a community event.	
	L. Port Phillip EcoCentre	Achieved (100%)	Leading the way to protect the Bay: Nerm events for students and teachers.	
	M. Geelong Sustainability Group	Achieved (100%)	Geelong Sustainability partnered by community, industry and government will develop a suite of educational films and products to promote the health of the Bay.	
	N. Yarra Riverkeeper Association	Partially achieved (67%)	Collaborative collection and collation of present Yarra Catchment data to build our understanding of cultural heritage, biodiversity and river health.	
Activity 1-2-4: BERG Mt Martha One Coastcare Victoria project		Achieved	This project extended ongoing works at Balcombe Estuary in Mt Martha, concentrating on protection and rehabilitation of indigenous vegetation, including planting and weed removal. Other works included protective fencing, erosion prevention works, and plant and track maintenance. Signage was installed to mark entrances and exits and to assist use of formal access paths. The community was engaged through targeted information, interpretive signage and on-ground activities.	2018-19

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
Activity 1-2-5: VEAC Assess the values of Victoria's marine environment including Port Phillip Bay	Achieved	Assessment report and inventory atlas of marine environmental, social, cultural and economic values in Victoria and the threats to those values. The assessment provides a status of these values across key industry sectors to inform marine policy and planning, such as the Port Phillip Bay EMP. http://www.veac.vic.gov.au/investigation/assessment-of-the-values-of-victorias-marine-environment	2017-19
ACTION 1-3: Build understanding of management responsibilities and programs for the Bay and its catchment			
Activity 1-3-1: EPA Maintain and improve environmental condition reporting online, including annual Report Cards, water quality alerts, and recreational water quality reporting programs (Yarra Watch and Beach Report)	Partially achieved - ongoing	Market research was conducted, including user feedback, to evaluate the accessibility and user friendliness of the Yarra and Bay website. To increase community and organisational partners use of environmental condition reporting, new features have been added to the website including to Beach Report, Yarra Watch, the water quality alerts and expanded reporting (Report Cards) to other waterbodies not previously included. The Report Card 2017-2018 is now accessible online. https://www.yarraandbay.vic.gov.au/report-card Scoping for online condition reporting (e.g. Reporting products and an Envirowatch website) is underway for future environmental condition reporting.	Ongoing from 2017

**EMPOWER ACTION**

Improve collaboration and partnerships across community, industry and government

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
ACTION 2-1: Build capacity and knowledge within community and industry networks			
Activity 2-1-1: 13 Port Phillip Bay Fund projects	A. Dolphin Research Institute (DRI)	Partially achieved (75%)	2017-20
	B. 1st/14th Brighton Sea Scouts Venturer Unit	Achieved	
		In 2015 a trial project was run in some Victorian Secondary Schools to promote the "I sea, I care" Coastal Ambassador Program. This program works with a series of Ambassadors and provides them with opportunities to experience different projects and then report back on these adventures to their classmates through peer-teaching, public speaking, writing articles and supporting social research. This project aims to interact with another 24 schools and 240 ambassadors to potentially engage with over 100,000 people.	
		The Scouts at Holloway Beach, Brighton have been undertaking research and beach audits to understand the impacts of erosion and microplastics on the health of Port Phillip Bay in conjunction with the St. Kilda Eco-Centre. This project delivered a training resource for other scouting groups to follow in undertaking their own audits and promotes taking responsibility for "their" beach, including rubbish collection.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 2-1-1: 13 Port Phillip Bay Fund projects	C. AWARE	Achieved	This project continued the successful "Waste, Wildlife & Our Waterways" program, encouraging community stewardship of coastal areas by reducing plastic litter. The project developed engaging & informative materials for community members. AWARE volunteers took these materials to classrooms, community groups, and public events emphasising the risks for wildlife when plastic waste enters our waterways.	2017-20
	D. Werribee River Association	Partially achieved (67%)	The project identifies litter hot spots adjacent to waterways in Wyndham, where litter is potentially destined for the bay. Practical, on-ground activities to clean up hotspots are undertaken to assist the induction of new volunteers and partnerships and to educate school students, community and organisations on the benefits of avoiding the creation of litter.	
	E. BCN	Achieved	The Caring for our Bays program (CFOB) aims to address the increasing threat of plastics in our oceans, through lifting the profile and appreciation of Corio Bay and Port Phillip Bay through a collaborative focus on preventing litter at its source. This CFOB project improved infrastructure and signage, engaged community and business, delivered litter education and clean-up events and developed educational material. The program successfully developed strong partnerships with land-managers and community groups and connected with the local business sector.	
	F. PrimeSCI, Swinburne University of Technology	Partially achieved (67%)	The "Healthy Rivers, Healthy Bay" initiative aims to raise community awareness within two major catchments (Yarra and Dandenong). The project aims to instil a sense of ownership and environmental stewardship through student and teacher workshops, with a focus on local waterways as part of a larger catchment, highlighting stormwater/litter issues. Activities include undertaking water quality testing and litter audits. "Riverbank Rescue" events will link schools, local councils and environment groups.	
	G. Friends of Williams Road Beach	Achieved	Bushland restoration along the Mt Eliza Coast has been underway since 2003, with a view to improving the vegetation quality and resilience of 2.6 hectares of vulnerable Coastal Headland Scrub. This project continued the restoration program and utilised both volunteers and contractors in the propagation of seeds, planting and hand-weeding, litter control and education of community groups. The project also continued the ongoing education of the local scouting group on taking environmental responsibility for the Bay.	
	H. Friends of Beleura Hill Cliff Path	Achieved	The Beleura Hill Cliffs at the end of Mills Beach in Mornington, contain a significant remnant of vulnerable Coastal Headland Scrub. Safe access to this area is from the Beleura Cliff Path which transverses thorough this area, as the cliffs are very steep. This project involved indigenous plantings to create a terrace beside the path, in which deep rooted indigenous plants will be planted to create a future seed bank and stabilise the cliffs.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 2-1-1: 13 Port Phillip Bay Fund projects	I. Friends of the Hooded Plover (Mornington Peninsula)	Achieved	Mornington Peninsula National Park has over 5 million visitors per year. It is home to the vulnerable Hooded Plover, which lay their eggs directly on the sand in a nest scrape above the high-tide mark or in the dunes. This project involved the installation of permanent fencing will direct beachgoers onto the beach using formalised paths to reduce erosion impacts and risks of egg/chick crushing.	2017-20
	J. Mornington Peninsula Shire	Achieved	This project involved the rehabilitation of sand dunes and coastal banksia woodland, extending from Mt Eliza to Portsea, with the construction of fencing, removal of invasive species, revegetation with indigenous species, habitat restoration and working with local community groups to monitor the works.	
	K. Frankston Beach Association	Achieved	The primary objective of this project is to revegetate and restore degraded coastal dune. Works involve the removal of weeds followed by planting of species of endemic coastal flora. New plants will consolidate the thin strip of dune and will strengthen the existing endemic plant population, enhancing the 7 km coastal remnant flora to provide a contiguous corridor for native flora and fauna is the major priority.	
	L. BERG Mt Martha	Partially achieved (67%)	This project continues works at Balcombe Estuary to maintain, restore and protect the vulnerable and threatened Mount Martha Coast Banksia Woodland and Foreshore. The Project aims to further the health of the habitat and protect biodiversity values across priority areas via ongoing weed management and by creating natural protection through vegetation buffer zones. Works include the rationalisation of access tracks and the restoration of Indigenous vegetation. The project also develops community capacity and facilitates engagement.	
	M. Birdlife Australia	Partially achieved (67%)	Avalon Coastal Reserve (ACR), now under the management of PV, has have a unique opportunity to restore this part of the Bay and foster greater community awareness and stewardship of the reserve. This project will deliver important research and on ground works to restore ACR through a range of high priority actions that wouldn't otherwise be financially possible. This project will lay an important foundation for the long-term management of this internationally significant site.	
Activity 2-1-2: 16 Coastcare Victoria projects Activities marked with an (*) were added to the Delivery Plan post its December 2018 publication	A. Friends of Williams Road Beach	Achieved	This community project continued works to improve habitat quality in 2.6 hectares of Coastal Headland Scrub, Coast Banksia Woodland and Berm Grassy Shrubland. The site incorporates registered middens and, in addition to ongoing bushland restoration works, grant funding was used to further the Baden Powell Park Scout Group's understanding of Aboriginal Cultural Heritage. An educational day was organised with trained volunteers working with small groups of scouts on waste recycling, understanding the effects of plastics on marine life, bushland restoration, and a lecturer providing Cultural Heritage awareness training.	2017-19

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 2-1-2: 16 Coastcare Victoria projects Activities marked with an (*) were added to the Delivery Plan post its December 2018 publication	B. Marine Education Science and Community (MESAC)	Achieved	MESAC supports Marine Care Ricketts Point (MCRP) inc., a 250-member volunteer group based at Ricketts Point Marine Sanctuary. In response to a recent decline in MCRP's knowledge base, this project sought to upskill and increase public education activities. MESAC developed an Activity Leaders Manual for MCRP and conducted appropriate introductions for a small group of targeted volunteers. The training manual was aimed at a Citizen Science level and is well-illustrated.	2017-19
	C. Mount Eliza Association For Environmental Care (MEAFEC)	Achieved	MEAFEC has been undertaking weed control and revegetation works south of Earimil lookout for many years and has undertaken weed control and revegetation works at the Ranelagh Rocks area. This project formed stage 1 of linking these two high quality sites. The project focused on the northern boundary of Earimil Creek estuary and included the removal of woody weeds, installation of locally sourced tube stock to replace the weed species.	
	D. Friends of Mud Islands	Achieved	Mud Islands is a small yet significant group of islands in the Port Phillip Bay Marine National Park. The Friends of Mud Islands is a volunteer group which assists the care, maintenance and preservation of these unique islands which are registered as a Ramsar wetland of international importance. By preserving the island's ecological health and values, volunteers can positively impact and contribute to a healthy viable habitat. This project involved the provision of access for works including rubbish removal and weed reduction. In addition, the project provided for awareness raising and education through community involvement in bird monitoring, seagrass monitoring, and collaboration between individuals and community and environmental groups.	
	E. Friends of Williams Road Beach	Partially achieved (80%)	This project enables the continuation of weed-control works amidst depleted Coastal Headland Scrub and Foredune, immediately south of 2.7 hectares of restored habitat. The aim of the project is to reduce the flow of wind-blown weeds to increase the habitat-corridor by 116 metres. Maintenance weeding and the pickup of plastic pollution by Friends is also ongoing.	
	F. Friends of Fishermans Beach Mornington	Partially achieved (80%)	Despite the iconic character of Linley Point on the Mornington shoreline, the coastal headland scrub has become quite degraded over the years. Building on work done by the Friends Group and the Green Army in 2017, the revegetation grant is returning a substantial central area of the Linley Point to healthy indigenous cover. Works include the enhancement of a central park/rotunda as a public recreation facility.	
	G. MEAFEC	Partially achieved (80%)	MEAFEC has been actively working South of Earimil lookout undertaking weed control and revegetation works to restore the natural Indigenous vegetation along the Mount Eliza Foreshore. This project represents stage 2 of works to provide a biolink between two high quality vegetation polygons. This work extends existing works and includes the control of high threat weeds and the planting of indigenous locally sourced tube stock.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 2-1-2: 16 Coastcare Victoria projects Activities marked with an (*) were added to the Delivery Plan post its December 2018 publication	H. Silverleaves Conservation Association	Partially achieved (80%)	This project involves the removal of three large pine trees from the foreshore reserve and weed control to protect and enhance the vulnerable Coast Banksia Woodland and Hooded Plover habitat. This project also includes revegetation in Coast Banksia Woodland and Coastal Dune Scrub with indigenous coastal species, monitoring and protection of threatened Hooded Plover and the design, production and installation of an interpretational sign and design and dissemination of fridge magnets to educate and raise awareness of the area's significant environmental values.	2017-19
	I. BERG Mt Martha	Partially achieved (80%)	BERG Mount Martha are developing a baseline inventory of Mt Martha foreshore reserve by surveying and mapping vegetation. The project aims to set up a single, central, accessible database that will streamline and enhance data collection and will allow data-sharing within BERG Mt Martha and with key stakeholders, environmental groups and interested parties. It is proposed to build on this inventory with ongoing data collection from surveys and monitoring for use in planning for biodiversity and habitat management, weed control and revegetation.	
	J. McCrae Homestead Coastal Group	Partially achieved (80%)	This project aims to remove invasive weeds along the McCrae foreshore and to provide continued weed and routine bushland maintenance of existing revegetated areas and those areas which have been previously cleared of woody weeds. The objective of the works is to enhance and protect the diversity of the coastal habitat by planting indigenous species in a target area within that section of the McCrae foreshore where work is undertaken by the McCrae Homestead Coastal Group along Pt Nepean Road.	
	K. Friends of Beleura Cliff Path	Partially achieved (80%)	The century old popular Beleura Cliff Path traverses a wild, scenic area which contains significant remnant Coastal Headland Scrub vegetation. This project involves planting a dense strip of plants to strengthen the path edges and to create a seedbank for revegetation of the cliff below. The Friends of Beleura Cliff Path continue to monitor drainage and erosion problems as they emerge and are undertaking works to repair damage to the path.	
	L. Mornington Environment Association	Partly achieved (80%)	This project continues the work previously undertaken by the Friends Groups and Green Army. Activities include mulching, planting, and the treatment of noxious and environmental weeds by manual removal and spraying. These works will protect and improve the fragile coastal dunes of Red Bluff area and will reduce the chance of future erosion of the cliffs. Community participation will facilitate awareness raising in the wider community on environmental values and threats, especially in this highly utilised and iconic area of Mornington.	
	M. Bellarine Catchment Network (*)	Achieved	Bellarine Coastal Community Engagement and On-Ground Works Caravan Parks, Townships, Schools and Surf Life Saving Clubs Nippers Program 2017-2018.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 2-1-2: 16 Coastcare Victoria projects Activities marked with an (*) were added to the Delivery Plan post its December 2018 publication	N. Bellarine Catchment Network (*)	Partially achieved (50%)	The Bellarine Catchment Network (BCN) and its project partners aim to continue building on their previous coastal community engagement programs. Major focuses include building awareness, understanding and ownership of the natural coastal values in hope to empower the broader community in taking a conscious and active role in reducing these pressures. This will be achieved through the delivery of various on-ground and educational activities, including BCN school programs and Nippers program.	2017-19
	O. Friends of the Hooded Plover Surf Coast (*)	Achieved	This activity aimed to increase participation of individuals and communities in a major coastal and marine conservation project, enhance conservation skills and knowledge, and raise community awareness of threatened species conservation. The group conducted community engagement events during the Hooded Plover breeding season specifically targeted at dog owners and visitors to the area to raise awareness and understanding of the vulnerability of Hooded Plovers. The project supported volunteers actively protecting Hooded Plover chicks on the beach and educating beach users, by providing them with protective clothing. Finally, the group held a full day training session for existing and new volunteers.	
	P. Conservation Volunteers Australia (*)	Partially achieved (50%)	Located along the border of the Port Phillip Heads Marine National Park, this project is designed to improve the integrity of significant coastal habitat and dune ecosystems by working in partnership with the Borough of Queenscliffe along the Point Lonsdale Foreshore. The project will also engage local volunteers and school groups accompanied by a Conservation Volunteers Team Leader in the removal of woody and non-woody weeds and then plant native coastal vegetation into the exposed areas, to create habitat for the native fauna and improve dune stability.	
ACTION 2-2: Empower the broader community to get more actively involved in caring for the Bay				
Activity 2-2-1: DELWP Promote Bay activities through online resources		Partially achieved - ongoing	Communications Plan developed, progress update provided to governance groups and community to promote the release of the Delivery Plan. The newsletter template is now developed for circulation (timed with the release of the first Annual Report) to all Bay interested parties (government, industry & community). DELWP website to be updated at key stages for example, Delivery Plan updates and annual reports - targeted to wider public audience. https://www.coastsandmarine.vic.gov.au/coastal-programs/port-phillip-bay	Ongoing from 2017
Activity 2-2-2: 11 Port Phillip Bay Fund projects	A. Port Phillip EcoCentre and Werribee Riverkeeper	Partially achieved (75%)	This project involves the delivery of a number of events around Elster Creek and Werribee River to promote the removal of litter to help improve water quality along the bay. These events will generate volunteer hours to convert into "Living Water Rebates" which can be used to deliver storm water diverting infrastructure to filter and recycle rainwater.	2017-20

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 2-2-2: 11 Port Phillip Bay Fund projects	B. Frankston City Council	Achieved	The City of Frankston undertook this program with food service outlets to educate on how storm water impacts the water quality of the Bay. The project encouraged food outlets and their patrons to get involved in keeping the Bay clean. Subsequent to the project, the City of Frankston will identify if any premises are leaching waste materials into the storm water network and will work with them to rectify any issues or take the appropriate compliance responses.	2017-20
	C. Beach Patrol Australia	Achieved	Beach Patrol undertakes a number of beach litter clean up events annually around the Bay. This project enabled a broader distribution of the message "Port Phillip marine life and plastics", targeted at children, into 100 community settings (schools, lifesaving clubs, community groups and public events).	
	D. Cardi Creek Kids	Achieved	The Cardi Creek Kids project involved revegetation, litter collection & engagement works at key sections of a Dandenong Catchment waterway. With the support of MW and the City of Casey, this project contributes to forming a biolink from creek to coast.	
	E. The Scout Association of Australia, Victorian Branch	Partially achieved (67%)	Responding to a lack of reliable data on the source of litter and pollution entering the Bay, this data and impact-driven project employs Scout Association youth to survey street litter sources at different land use areas (residential, retail, sports grounds, parks, public buildings and industrial). The aim is to develop a representative database of litter sources across the entire Port Phillip Catchment, to propose alternative solutions for litter management and to build awareness campaigns to change community behaviour. The project aims to better understand the source of the problem and inspire youth to drive change in both the community and the data to impact policy.	
	F. Yarra Riverkeeper Association	Partially achieved (67%)	Much of the litter entering the Bay is trapped in reed beds in the lower Yarra, these areas are extremely difficult to access. Furthermore, the small size of litter in these areas make litter collection time consuming and expensive. This project aims to remove accumulated waste from reed beds in the lower Yarra River using a unique approach which incorporates a boat mounted vacuum system.	
	G. School of Geography, University of Melbourne	Partially achieved (67%)	This project is aims to provide the equipment and training for local communities to embrace the latest in drone technology in citizen science monitoring. The project uses the most recent advances in coastal science to facilitate the protection of the beach and dune habitats of the Bay both now and in a future warmer world.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 2-2-2: 11 Port Phillip Bay Fund projects	H. Port Phillip EcoCentre	Partially achieved (67%)	Melbourne is global, with 2.5 million international visitors annually and 40% of residents born overseas. This project connects previously unreached residents and visitors to the Bay, by engaging 3 hostels and tourism companies, training 8 local 'Multicultural Bay Ambassadors', and producing multi-lingual films. The project involves 100 Baykeeper activities, fosters "eco-active" tourism and guides decision-making to reduce litter and other threats to water quality and biodiversity, both during Bay visits and conducting daily life and business in catchments.	2017-20
	I. Centre for Aquatic Pollution Identification and Management, University of Melbourne	Partially achieved (67%)	Most litter that ends up in the Bay comes from the catchments. The Litter Trackers program is the first study of its kind in Victoria to deploy Global Positioning System (GPS) tracked litter at 20 sites within Port Phillip Bay catchments to demonstrate the life of litter once it leaves a person's hand and reaches our waterways. This project will provide strong educational tools that can be used in schools, councils and by government.	
	J. Australian Marine Mammal Conservation Foundation	Partially achieved (67%)	This multi-faceted education and community outreach program provides a 'whole-of-catchment' approach to building community knowledge which inspires, connects and empowers local action including correct litter disposal, to improve the health of the Bay. The program fosters appreciation and connection to Bay values to better understand and protect aquatic habitats and ecosystem functions, demonstrating the link between positive local action and downstream benefits for catchment health.	
	K. OzFish Unlimited	Partially achieved (67%)	Over 614,000 recreational fishers use the Bay every year, but recreational fishers play only a very small role in reporting on and restoring the health of the Bay. The project uses proven methods of recreational fisher communication to inform fishers of the issues and opportunities for fish habitat management. The project is developing a citizen science project reporting on fish, fish habitat and biosecurity issues and is increasing engagement with on ground works restoring riparian zones, wetlands and shellfish reefs.	
Activity 2-2-3: Five Coastcare Victoria projects Activities marked with an (*) were added to the Delivery Plan post its December 2018 publication	A. Port Phillip EcoCentre	Achieved	Meaningful and sensitive engagement with Culturally and Linguistically Diverse (CALD) communities regarding coastal management and values is challenging for environmental not-for-profit organisations. This project developed the skills of 3 CALD young people/ students to be "Coast Ambassadors" with a program to champion coastal engagement events and projects among their own or another CALD community. It is intended that the long-term outcome of this project will be the engagement of more CALD volunteers in monitoring and management of beaches and coastal areas around Melbourne.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 2-2-3: Five Coastcare Victoria projects Activities marked with an (*) were added to the Delivery Plan post its December 2018 publication	B. St Columba's Primary School and Port Phillip EcoCentre	Achieved	Over one third of Victoria's bird species, as well as Australian and international migratory birds, visit or reside in the Elster Creek coastal zone. The lower creek and foreshore also provide habitat for species like the Southern Water Skink. Elster Creek still hosts a thriving eel population that underpinned the pre-settlement Boon Wurrung economy. This project inspired St Columba's families to participate in community Citizen Science activities.	2017-19
	C. Victorian Wader Study Group (VWSG) (*)	Achieved	The Mission Statement of the VWSG Inc. encapsulates the nature and purpose of this project. That is, the principal aim of the VWSG is to gather, through extensive planned fieldwork programs, comprehensive data on waders and terns throughout Victoria on a long-term basis. This scientifically collected information is intended to form a factual base for conservation considerations, to be a source of information for education of a wider audience, to be a means of generating interest of the broader community in environmental and conservation issues, and to be a major contribution to the East-Asian Australasian Flyway and worldwide knowledge of waders and terns.	
	D. VWSG (*)	Partly achieved (50%)	The principal aim of the VWSG is to gather comprehensive scientific data on waders and terns throughout Victoria on a long-term basis. This data creates the factual base for conservation and education. VWSG data is a major contribution to worldwide knowledge of waders and terns. During 2019 the VWSG will increase their profile through increased education. A tailor-made banner will be displayed on selected beaches and at other functions. Connies Collectables Cards will be purchased as an aid to engage and inform the public, including at field operations on beaches. Cards provide information about various species and their management needs.	
	E. Friends of Beware Reef (*)	Partly achieved (50%)	The Friends of Beware Reef are making significant contributions to the Port Phillip Bay area and beyond. For example, the Friends of Beware Reef, supported by PV and Coastcare developed and provided the imagery for the Port Phillip Heads Marine National Park Identification Booklet. To improve the quality of their underwater images produced for identification purposes the Friends of Beware Reef will purchase a modern digital camera and housing, plus a hard drive to improve security of stored images.	
ACTION 2-3: Support stronger partnerships across community, industry and government to ensure aims and outcomes are aligned				
Activity 2-3-1: Four Port Phillip Bay Fund projects	A. DRI	Non-Applicable	This activity was a component of Activity 2.1.1.A, however this component was removed prior to project commencement.	2017-20
	B. Loci Environment & Place	Achieved	This project involved a cross-disciplinary design competition for university students with the objective of demonstrating how multiple environment and community benefits can be achieved through "Linking by Design". In the context of delivering the key outcome of improving the health of the Bay, designs incorporated ideas for such multiple benefits as human thermal comfort, biodiversity, soil health, community placemaking, indigenous knowledge sharing, play spaces, community orchards, active transport, renewable energy, and carbon sequestration.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 2-3-1: Four Port Phillip Bay Fund projects	C. Remember the Wild	Partially achieved (67%)	This initiative brings together the Bay's various stakeholders to foster stewardship for the Bay. The project includes the co-design of priority messaging for dissemination through digital resources, a sign-up program for local businesses to voluntarily demonstrate their own environmental stewardship, and summer festivals to engage the broader community and give a positive platform for stakeholders to recruit volunteers and further educate the public.	2017-20
	D. Mornington Peninsula Shire	Achieved	This project directly assisted the work of 10 Friends Groups across the Bay who, with the Mornington Peninsula Shire, are working in partnership to protect biodiversity values and enhance community assets. The project addressed Sea Spurge (<i>Euphorbia paralias</i>) inundation; encouraged community participation; strengthened relationships with Bunurong Land Council; and targeted environmental and noxious weeds species.	
Activity 2-3-2: Friends of the Hooded Plover (Mornington Peninsula) Inc One Coastcare Victoria project		Partially achieved (80%)	Friends of the Hooded Plover (Mornington Peninsula) Inc. and BirdLife Australia's Beach-nesting Bird (BnB) team have run a successful citizen science Red-capped Plover (RCP) project since 2015. This project fosters new partnerships by organising a 'Peninsula Swap' event for Bellarine Bayside Peninsula BirdLife RCP volunteers and relevant land managers to visit Westernport to attend a BnB workshop and field trip. The aim is to foster exchange to enhance skills and knowledge, thereby keeping cohesive and consistent approaches to RCP management.	2018-19
Activity 2-3-3: DELWP Development of a marine and coastal hub or centre		Achieved	Scoping document for a hub model linking in marine and coastal policy and plans such as the Port Phillip Bay EMP. Scope informed by two key stakeholder workshops, over 50 participants and the Victorian Marine and Coastal Council (VMaCC). Workshops focussed on understanding stakeholder needs, identifying existing tools currently connecting people in the sector and the issues or gaps that need to be resolved. The workshop information resulted in a Stakeholder Needs Analysis document. For details contact via marine.coasts@delwp.vic.gov.au	2018-19
Activity 2-3-4: Deakin University Victorian Coastal Wetland Restoration		Partially achieved (30%)	A collaborative, multi-partner project, 15 organisations have been engaged: DELWP, PV, TNC, Greening Australia, University of NSW Water Research Laboratory, CoastCare Victoria, Corangamite CMA, West Gippsland CMA, MW, HSBC Australia, South Gippsland Conservation Society, Tasman Environmental Markets, Dow Chemical Company, NSW Fisheries, and Wadawurrung Wathaurung Aboriginal Corporation. Workshops with all partners have been undertaken to identify management actions to develop management plans for significant areas of wetland habitat on private and public land (including RAMSAR sites and places of Aboriginal cultural heritage significance) across the state including Port Phillip Bay. The management plan will inform on-ground works to restore degraded wetlands. http://www.bluecarbonlab.org/	2017-20

Water quality



NUTRIENTS AND POLLUTANTS

Ensure nutrient and sediment loads do not exceed current levels and pollutant loads are reduced where practicable

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
ACTION 3-1: Effectively maintain existing stormwater infrastructure and programs to mitigate loads to the Bay, or secure via equivalent means			
Activity 3-1-1: MW Stormwater assets review	Achieved	<p>Audit report & investment plan. Data collection in place to assess stormwater assets; their performance (for capturing nutrients, sediments and other pollutants e.g. toxicants and litter) against design intent. The audit report is completed, 1028 individual assets; wetland cells or sediment ponds have been reviewed to identify which require maintenance. Review has involved:</p> <ul style="list-style-type: none"> • Three-yearly assessment of vegetation cover using aerial imagery underway (to update 2014 assessment). • Inspection of physical structures impacting treatment function of wetlands undertaken for all assets in Dandenong catchment. • Inspection of physical structures impacting treatment function of wetlands undertaken for all assets in Dandenong catchment. • Collection of water levels with water depth loggers on 63 systems. • Near infrared satellite imagery processing using a proprietary algorithm to process data for hundreds of assets across the region in a very cost-effective manner. 	2017-19
Activity 3-1-2: MW Stormwater assets maintenance program	Partially achieved - ongoing	<p>Annual maintenance program developed. Over 225 stormwater quality treatment systems across the Port Phillip and Westernport region now in the program. Completion of a functional rectification program to maintain and restore functionality of stormwater assets to help assist with meeting the Bay's pollutant load target (set within SEPP (Waters)). The 2017-2018 program has been delivered, 2018-2019 program is ready for implementation from July 2019 and development of 2019-2020 program in progress. Maintenance includes sediment pond de-silt and disposal. Use of an innovative bespoke technology called a 'Dredging and Sediment Separation System' (DSSS) to increase the efficiency and safety of removal and disposal of sediments from sediment ponds.</p>	Ongoing from 2017

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 3-1-3: MW Stormwater contaminants research		Partially achieved - ongoing	<p>Over 10 research projects being delivered in partnership across research institutes, EPA and local government. A new 5-year pollution research partnership between MW and Royal Melbourne Institute of Technology (RMIT) established in 2018-2019. A program of stormwater research projects is underway through numerous partnerships with research institutes e.g. urban pollution modelling. The hydrodynamic and biogeochemical model for Port Phillip Bay especially around Western Treatment Plant and the mixing zone continues to be refined. In 2018-2019, new research projects with RMIT commenced such as:</p> <ul style="list-style-type: none"> • Synopsis of the sources and impacts of pollutants on waterways and bays from urban and rural landscapes in the Melbourne Water Region. • Identifying and managing emerging contaminants of concern. • Developing methods to increase the efficiency and effectiveness of waterway health assessment within streams, wetlands and estuaries. • Understanding the impact of litter, including microplastics, on the social and ecological values of waterways and bays. 	Ongoing from 2017
Activity 3-1-4: MW Catchment and Bay monitoring and modelling		Partially achieved - ongoing	Assessment of nutrient and pollutant loads informed by data from the annual water quality monitoring program is complete. Data from the monitoring program has been integrated to update and re-run the source modelling. The source model informs management actions in sub-catchments to improve land-use and stormwater management and reporting on loads for SEPP (Waters) requirements. Source modelling work to establish a new approach for tracking and monitoring stormwater loads to the Bay is planned for 2018-2019 in collaboration with DELWP.	Ongoing from 2017
Activity 3-1-5: Five Port Phillip Bay Fund projects	A. Richmond West Primary School	Cancelled	This activity was cancelled in 2018.	2017-20
	B. St Columba's Primary School	Partially achieved (75%)	St Columba's Primary School in Elwood is transforming its landscape, curriculum and leadership programs to assist with the improvement of the health of Port Phillip Bay. One of their projects is to address runoff water from the school property through the installation of a series of gardens including a rainwater garden to slow and filter run-off. Coupled with curriculum activities these works will highlight to students the environmental values of Port Phillip Bay. This will also be promoted to the broader community through clean up days.	
	C. Conservation Volunteers Australia	Achieved	The Point Cook Coastal Park, Spit Nature Conservation Park and adjoining lands, and the Port Phillip Heads Marine National Park, are wetlands that are critical to providing a healthy ecosystem for Port Phillip Bay. This project involved a variety of tasks to improve the foreshore vegetation and water quality in the three wetland areas. The works included weed management, appropriate planting in water retarding basins to filter nutrient run off into the Bay, enhancing species diversity, litter removal and community education campaigns.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 3-1-5: Five Port Phillip Bay Fund projects	D. White Cliffs To Camerons Bight Foreshore Reserves Committee of Management Incorporated	Achieved	This project was designed to prevent stormwater discharge from the camp ground road network into Port Phillip Bay. The previous drainage discharged into Port Phillip Bay via an outfall drain, the discharge has now been diverted into an underground soak pit.	2017-20
	E. Werribee River Association	Partially achieved (67%)	This project aims to reduce threats to Bay health by determining sources of pollutants in the Werribee River. Innovative monitoring technology will enable stakeholders such as MW, EPA and Wyndham Council to identify pollution reduction priorities within the Werribee catchment. Targeted point-source pollution reduction strategies and education and awareness programs coupled with Water Sensitive Urban Design (WSUD) and stormwater treatment to reduce pollution inputs to the bay.	
ACTION 3-1: Effectively maintain existing stormwater infrastructure and programs to mitigate loads to the Bay, or secure via equivalent means				
Activity 3-2-1: South East Water (SEW) Septic Tank Management Pilot Program		Partially achieved (70%)	A joint project is being piloted between SEW and Mornington Peninsula Shire Council aimed at improving the maintenance and performance of on-site wastewater systems. A levy for septic tank pump-out contractors to dispose of septic wastewater at a South East Water treatment plant is used to fund a technical officer for pro-active septic system monitoring. This model could be rolled out throughout Victoria providing significant public health and environmental benefits. Septic tank monitoring has been implemented including pro-active septic tank inspections, introduction of a data management system 'Septic Track' to implement a risk based matrix for identifying and monitoring septic systems, a comprehensive education and engagement program (including mail-out to residents, ongoing distribution of 'septic health facts', newsletter articles) and development of Wastewater Officer action plan for the Septic Tank Program. https://www.mornpen.vic.gov.au/Your-Property/Environment/Water/Wastewater-Sewage/Wastewater-and-Septic-Tank-Systems	2017-19
Activity 3-2-2: MW Wastewater contaminants research		Partially achieved - ongoing	Research knowledge on contaminants produced and a review of the risks was undertaken in 2017 to inform management actions and a monitoring plan. Modelling of Nitrogen discharge impacts in progress, further data within the Bay catchment is being collected to validate the model. Some of the research has been published in the scientific literature with further publications expected in 2020. MW will be working with the Water Retail Companies and internal staff to develop a suite of tools to manage contaminants in sewage for Metro Melbourne in 2018-2019.	Ongoing from 2017

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
Activity 3-2-3: MW Western Treatment Plant (WTP) improvement works (investigations)	Partially achieved (30%)	The WTP Treatment Capacity Augmentation Program is continuing to be rolled out undertaking improvement works and monitoring of nitrogen loads at the WTP to ensure the target nitrogen load, as required by SEPP (Waters), can be maintained. The new 160S Nutrient Removal Plant has been constructed and commissioned in early 2019. The plant is now in proof of performance period and is meeting its treated water quality targets. Functional design works are ongoing for the third stage of augmentation which is a new 55E activated sludge plant.	2017-24
ACTION 3-3: Ensure all urban and rural land use effectively controls impacts from stormwater and runoff, and that controls are in place to manage increases in loads			
Activity 3-3-1: EPA A review of Urban Stormwater: Best Practice Environmental Management Guidelines (BPEM) (1999)	Partially achieved (70%)	A review of urban stormwater science and standards has been completed, this involved a project to identify regulatory options and carry out cost-benefit analysis of those options. Preparation of a revised draft Best Practice Environmental Management Guideline is largely complete ahead of a detailed consultation process to be carried out with stakeholders including DELWP, MW, the Victorian Planning Authority, local government representatives and the development industry. A range of material will be prepared to support this consultation. Improved controls on urban stormwater will help to reduce the inputs of pollutants to the Bay. https://www.epa.vic.gov.au/business-and-industry/guidelines/water-guidance/urban-stormwater-bpemg	2017-21
Activity 3-3-2: DELWP Integrated Water Management (IWM) forum programs	Partially achieved - ongoing	DELWP has facilitated the establishment of 15 Integrated Water Management (IWM) Forums across the state, which have inspired a new way of working together for the water sector, local governments, Catchment Management Authorities (CMAs), Traditional Owners and the Victorian Planning Authority. 12 Strategic Directions Statements, including the four PPB catchments (Werribee, Maribyrnong, Yarra, Dandenong), have been published outlining the key objectives and IWM priorities of each Forum area. These include healthy waterways and bays, improved flood risk and wastewater management and place-based planning, healthy landscapes through urban greening and cooling and optimising alternative water sources to reduce demand on drinking water. The Government has co-invested in more than 80 IWM opportunities identified in these Strategic Directions Statements across the state. As part of DELWP's IWM Program, the Forum partners will develop place-based and catchment scale IWM plans to quantify the impact of current IWM activities on regional runoff and pollutant loads discharging into waterways, including Port Phillip Bay, and identify IWM interventions to achieve the priorities of the EMP. https://www.water.vic.gov.au/liveable/resilient-and-liveable-cities-and-towns/iwm-framework	Ongoing from 2017

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 3-3-3: MW Urban and rural land management program & delivery		Partially achieved - ongoing	Ongoing investment in education/extension programs and grants for implementing improved urban and rural land use practices. These grants are available to councils and landholders particularly farmers to support a range of on-ground works and strategic projects. In 2017-2018, 59 projects were funded by the Living Rivers program and 54 by the Rural Land program to support uptake of Water Sensitive Urban Design to manage nutrients and pollutants from urban and rural land respectively (beyond BPEM requirements for new developments). In 2018-2019, 22 local councils were awarded funding by the Living Rivers program for 46 projects that aim to achieve sustainable stormwater management outcomes. https://www.melbournewater.com.au/community-and-education/apply-funding/living-rivers-funding	Ongoing from 2017
Activity 3-3-4: Seven Port Phillip Bay Fund projects	A. Balliang Food and Fibre Group	Achieved	Commercial nutrients used for farming can find its way into our waterways and into the Bay, resulting in overstimulation of some plant life. This project is testing a prototype nutrient budgeting tool for eight trial farms with a view to refining fertiliser and seeding rates. It will also include an evaluation of the residual nitrogen levels to ensure that the nitrogen which has been applied is absorbed and the accuracy of the tool.	2017-20
	B. Mornington Peninsula Shire	Achieved	Water catchments discharge into Port Phillip Bay via natural creeks and via drainage outlet infrastructure. Mornington Peninsula Shire is host to 162 of these pieces of infrastructure. The structures in Mornington Peninsula Shire were assessed and the project undertook works to upgrade 21 existing outlets to improve the overall health of the Bay.	
	C. Yarra Ranges Council	Partially achieved (75%)	This project involves addressing pollution caused by litter, sediment run off and septic discharge, at its source (Yarra River and Dandenong Creek). The program will enable behaviour change through education, active community engagement and initiatives reducing the need for pollutants. Assessment of waterway health, via water quality and pollutant trap monitoring, will inform practical and realistic treatment and maintenance systems and ensure the ongoing effectiveness.	
	D. Friends of Westgate Park	Achieved	Westgate Park in Port Melbourne comprises a series of reclaimed sites near the mouth of the Yarra River which have been rehabilitated. This project enabled removal of litter, improvements to the drainage channel and planting the area with indigenous plants which would have been in sand belt area around the Bay.	
	E. BERG Mt Martha	Achieved	The Balcombe Estuary and Creek is the largest most intact estuary on the east side of Port Phillip Bay near Mount Martha. The project restored and enhanced the creek edge through weed control and planting of indigenous plants, removal of rubbish, pest animal control and the promotion of community awareness, with a view to improving habitat and water quality.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 3-3-4: Seven Port Phillip Bay Fund projects	F. Community Weed Alliance of the Dandenongs	Partially achieved (67%)	Water quality along Monbulk Creek in the Dandenong Ranges directly impacts on the health of the Bay. The Community Weed Alliance of the Dandenongs has been very active in recent years to raise awareness and investment in the management of weed species throughout Yarra and Dandenong Catchments. Success has been achieved through the engagement of landowners through a comprehensive neighbourhood program. This project is continuing this great work to include a section of Monbulk Creek which has over 100 landowners engaged.	2017-20
	G. Conservation Volunteers Australia	Partially achieved (67%)	This project builds on the success of a previous project which undertook improvement works and identified key focus areas for foreshore rehabilitation at sites surrounding wetlands of international significance. The project involves work to protect and improve foreshore vegetation and water quality through weed management, enhancing species diversity, litter removal, and erosion management to improve the health of the Bay. Partnering with land managers and schools to facilitate on ground action led by community members and create community awareness.	
Activity 3-3-5: DELWP Catchment modelling to quantify nutrients under existing and likely future (2030 and 2050) land uses to inform management options		Partially achieved (95%)	<p>Modelling platform to quantify runoff and pollutant loads discharging to the Port Phillip Bay. Assessment completed for quantifying runoff and pollutant loads (Total Phosphorus, Total Nitrogen and Total Suspended Solids) under different scenarios; 2018 land uses. Scenarios will be rerun for 2030 and 2050 climate conditions when application-ready climate projections are available from Victorian Climate Projections 2019 (details at: https://www.climatechange.vic.gov.au/adapting-to-climate-change-impacts/victorian-climate-projections-2019). Assessments undertaken to date have helped to identify risks and the decision-making to prioritise management actions and policy reforms aimed at improving stormwater management in catchments flowing into the Port Phillip Bay.</p> <p>Assessment of runoff and impacts to water quality based on scenarios that consider; the recent stormwater amendments approved in the Victoria Planning Provisions, revised draft Best Practice Environmental Management (BPEM), impacts of MW's Healthy Waterways Strategy 2018, rural and urban land management, and integrated water management practices have been completed. The final report is due late 2019.</p>	2017-19

**LITTER****Reduce litter loads to the Bay**

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
ACTION 4-1: Establish baseline estimate of the volume of litter entering the Bay and support clean-up activities				
Activity 4-1-1: DELWP Litter baseline assessment and annual survey program;		Partially achieved (70%)	A partnership project has been set up with the Federation University to develop a Litter Portal (LitterWatch) to enable citizen science input of litter data into a single database system. Four community groups have been engaged to support with developing the portal and partners; SV and MW, are involved to align where possible other programs such as the Victorian Litter Index. Integrated data will improve knowledge to develop a baseline of litter volume and catchment scale hot spots around the Bay. This evidence-based approach will underpin decision making to prioritise action. LitterWatch is expected to be online by end of 2019.	2017-19
Activity 4-1-2: SV Litter impact assessment (Research program)		Partially achieved (80%)	A draft Microplastics Citizen Science report has been undertaken in partnership with RMIT, adding value to existing research on micro-plastics in Victoria. The report will be accessible online following Minister approval. A behavioural and attitude-based research study into littering in Victoria is due to commence mid-2019. This study will assist in future planning to reduce litter loads to the Bay and to support capability and capacity building programs that target litter prevention, including reduction of microplastics.	2017-19
Activity 4-1-3: PV Yarra River Litter management programs		Partially achieved - ongoing	Litter management plan produced to implement ongoing program of litter removal from floating litter traps on the Yarra Estuary and maintenance to ensure litter traps continue to function effectively. These litter traps are helping to reduce litter loads entering the Bay from a major waterway in the Bay catchment area. Implementation of the program and data collection is delivered in partnership with MW, Yarra Riverkeepers and local government.	Ongoing from 2017
Activity 4-1-4: Two Port Phillip Bay Fund projects	A. Port Phillip EcoCentre	Partially achieved (75%)	The Baykeeper 'Clean Bay Blueprint' program investigates plastic pollution on Port Phillip Bay beaches and major catchments. Monthly manta-net trawls are conducted to quantify microplastics in the Yarra and Maribyrnong Rivers and Port Phillip Heads. Seven beaches around the Bay are audited every three months using a method that is representative of the whole beach condition. Substantial volunteer hours are committed to analysis of the trawl samples; and the beach method provides citizen science opportunity for a range of community partners and schools.	2017-20
	B. RMIT University	Partially achieved (67%)	The Plastics Lab at RMIT provides free services to identify types of plastics collected during community audits of litter in the Bay and catchment waterways. The Plastics Lab also screens samples for organic chemical pollutants that attach to plastic fragments and increase health risk when ingested by marine wildlife. Data shared will improve source reduction strategies, and risk assessment of marine ecological health.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
ACTION 4-2: Support capability and capacity building programs that target litter prevention, including reduction of microplastics				
Activity 4-2-1: SV Regional Litter Plans under the 2018 Victorian Litter Plan		Partially achieved (90%)	The 2018 Victorian Litter Plan will incorporate plans with the seven Waste Resource and Recovery Groups (WRRGs). Grants were available for WRRG's in April 2019 to support this work and provide an opt-in commitment for each WRRG to join and develop a Litter Plan for their particular regional area. Regional litter plans will build the capacity and capability of the state and local government, land managers and other stakeholders to address litter and illegal dumping issues. Assessment of regional Victoria's litter data is in progress to establish these key litter issues to reduce litter loads to the Bay by identifying and prioritising litter sources and pathways and undertaking preventative action at the source.	2017-19
Activity 4-2-2: SV Victorian Litter Action Alliance community-of-practice; behavioural/attitudinal research, 2018 Victorian Litter Plan		Partially achieved (40%)	In 2018 multiple Victorian Litter Action Alliance (VLAA) meetings were undertaken with over 30 organisations participating in sharing knowledge and experience with litter issues. Resources have been made accessible to support litter managers to plan and manage litter prevention projects, for example, DumpInData which is being used by 10+ local councils and the initiative Litter Champions. The Metropolitan WRRG assisted in training across metro Melbourne and SV regional Victoria to help build capability and capacity building to target litter prevention. From 2019, VLAA has been absorbed into SV however the reference group will continue to be an on-going support group with upcoming litter issues and the resources and tools developed will be accessible on the SV website. This reference group has supported research in collaboration with DELWP to inform the upcoming Plastic Bag Ban and plastic pollution work. SV will continue to host workshops and networking events for members to contribute to and build capability and capacity across the network. For example, a highly successful Plastic Pollution forum was held at the SV office in February with over 50 attendees from various councils, government organisations and industry. This activity will improve the capacity for Victorian waste managers, government and industry to tackle litter and how this interacts with the Bay.	2018-20
Activity 4-2-3: Six Port Phillip Bay Fund projects	A. Yarra Riverkeeper	Partially achieved (75%)	The project activates community groups and key stakeholders to undertake litter removal and map amounts of litter removed with the intent of promoting and educating the community as to the outcomes and how they can assist.	2017-20
	B. Friends of Merri Creek	Partially achieved (50%)	The project promotes the activation of community groups and key stakeholders to undertake rapid response to waterway clean up after a heavy rain or flood event, before plastics disintegrate into pieces too small and fragile to remove.	
	C. MW	Partially achieved (67%)	This project involved the installation of a pollutant trap on a major drain entering the Tanti creek to remove floating and vegetative litter and polluted sediment. Monitoring of other water sources into the creek identified other locations where it may be beneficial to place a trap. An erosion control structure was installed where there is active erosion to reduce sedimentation in the creek and bay.	

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 4-2-3: Six Port Phillip Bay Fund projects	D. Love Our Street	Partially achieved (50%)	This litter reduction project activates community members and facilitates the development of groups to undertake litter removal along Elster Creek and beyond, improving local amenity and the ecosystem of the Bay and educating the community on the impacts of litter.	2017-20
	E. Fishcare Victoria	Achieved	Litter Warriors - Protecting our Bay project delivered incursion and excursion activities directly related to marine litter and their impacts within the bay. Educational resources were also developed.	
	F. Friends of Westgate Park	Achieved	This project along the Yarra River within Westgate Park in Port Melbourne addressed two priorities for the Bay, improvement of coastal health by planting indigenous plants and reduction of litter loads by regular litter collections and recording of litter.	
Activity 4-2-4: Three Coastcare Victoria projects	A. Seaside Scavenge Chapter Coordinator	Partially achieved (80%)	This project enabled the Peninsula Chapter to expand annual events to bi-annual events at different locations on the Peninsula, including a Winter Scavenge for Dromana and Safety Beach. The aim of the activity is to develop the network of organisations on the Peninsula combating marine debris pollution and partner with more businesses to take plastic-free pledges.	2018-19
	B. Fishcare Victoria	Partially achieved (80%)	What's Under the Water. This project will replicate an underwater marine experience, to demonstrate how litter impacts aquatic animals and habitats, by developing an underwater education pack, complemented by an in-class session and a rubbish collection activity.	
	C. Australian Marine Mammal Conservation Foundation	Partially achieved (80%)	Marine Litter Education Project - Empowering Young People, Making A Difference provides interactive school-based education incursions designed to highlight the negative impacts of litter behaviour on marine environments and demonstrate effective strategies to minimise the litter threat through better community appreciation of the importance of coastal health.	
ACTION 4-3: Identify and prioritise litter sources and pathways, and undertake actions to prevent litter entering the Bay				
Activity 4-3-1: SV Litter hotspots identified through the National Litter Index		Partially achieved (60%)	In partnership with Keep Australia Beautiful the National Litter Index (NLI) survey was conducted across 983 national sites; the 2017-2018 report is available online. The NLI survey, along with various litter and illegal dumping data from across Victoria is being used to inform Victoria's Litter Report Card. A follow-up Report Card will be commissioned for 2020 to assess future priorities in litter. The Report Card collaborates with a range of 25 industry and government organisations to identify Victoria's priority litter issues, provide evidence for future investment, support litter clean-up activities and improve local litter measurements. This activity will develop better knowledge to assess how Victoria's litter rates are tracking and to support establishing a baseline estimate of the litter volumes entering the Bay. https://www.sustainability.vic.gov.au/Government/Litter-and-illegal-dumping/Litter-report-card	2017-19

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 4-3-2: SV Projects identified through Regional Litter Plans (2018 Victorian Litter Plan)		Partially achieved (10%)	The 2018 Victorian Litter Plan will incorporate plans with the seven WRRGs, these plans are currently still in the process of being developed. Once the Regional Litter Plans have been completed, the groups will identify actions and future projects from each plan that are targeted, measurable and evidence-based.	2018-22
Activity 4-3-3: Three Port Phillip Bay Fund projects	A. Tangaroa Blue Foundation	Achieved (100%)	Working with 7 Bayside municipalities around Port Phillip Bay to initiate a Source Reduction Plan for litter. This project will allow this organisation to monitor the original seven councils and add an additional 4 municipal areas to the program, linking all the coastal council areas in this project.	2017-20
	B. MW	Partially achieved (75%)	Working with Waterwatch to develop Community Based Litter Action Program. This project utilises existing and new Waterwatch community groups and key stakeholders to undertake litter removal and map the inputs into hotspots and priority waterways across Melbourne. These results will then form the basis of Source Reduction Action Plans to achieve a measurable reduction in litter accumulation rates and educating the community on the outcomes and how they can assist.	
	C. Tangaroa Blue Foundation	Partially achieved (67%)	Engaging community, industry and government to reduce plastic resin pellets flowing into the Bay. This project aims to build on the success of the Operation Clean Sweep program by working with community, industry and government to take the next steps in preventative measures that stop plastic resin pellets ending up in the Bay.	

**PATHOGENS****Minimise risks to human health from pathogens**

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
ACTION 5-1: Improve understanding of links between pathogen concentrations and human health for swimming and consumption of shellfish			
Activity 5-1-1: EPA Beach and waterway recreational water quality data analysis (continued)	Partially achieved (20%)	EPA Beach Report and EPA/MW Yarra Watch are developing improved end of season reporting to align with new water-based recreation objectives in SEPP (Waters). This will include adopting the risk-based approach for managing risk to recreational waters.	2019-22
Activity 5-1-2: EPA Quantitative Microbial Risk Assessments (QMRAs) for marine recreational waters	95%	These assessments have involved the monitoring of pathogen concentrations and their potential likelihood of causing illness at Altona, Elwood and Frankston beaches. The data is providing a better understanding of the health risks associated with swimming and of the key knowledge gaps. The QMRAs are now complete, with more information on the work available in a technical report to be released in 2019-2020. The assessments are already guiding further work to assess public health risks for recreational users in the Bay and improve the monitoring design for EPA's Beach Report.	2017-18
ACTION 5-2: Adopt a risk-based approach to mitigate sources of pathogens found in the Bay			
Activity 5-2-1: SEW Drainage pathogen investigation, modelling and risk assessment in Elster Creek, Elwood	Partially achieved (80%)	This study highlights methods for determining impacts from wet weather sewer overflows. A large proportion of the work has been completed in partnership with Monash University (water quality monitoring with wet weather sample collection and capturing of flow data) and a report has been provided on the impact of emergency relief structure discharges on microbial water quality during and after high rainfall events. Key findings included that the concentration of E.coli during wet weather events without sewer overflow in Elster creek was still high, suggesting other sources of faecal contamination. The study has highlighted the need for a risk-based model/approach to determine which sites should be prioritised for wastewater sewer upgrade versus management of more diffuse sources of pollution. Automatic water samplers remain in place at sites to ensure sampling can be undertaken during any future spills to enhance knowledge of impacts.	2017-19

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
Activity 5-2-2: SEW Trial of Beach Guard method for early detection of sewer spills	Partially achieved (75%)	A system has been set up including source tracking analysis, high tech multi-parameter water quality sondes at upstream and downstream locations, and low budget sensors to compare/validate data. Data has been collected over 12 months providing real-time monitoring of waterway health. The project showcases an innovative approach to the detection of sewer spills. A report has been provided focusing on new and emerging technology tested for the early detection of sewer spills from changing water quality. Beach guard probes have the potential to be used in sensitive environments and hot spot sites within waterways for the early detection of sewer spills, which reduces the potential public exposure to contaminants and risk to health. The study has identified that low cost sensors would be useful as a large-scale investigation tool within a drain network or catchment area to detect a source of contamination such as sewer overflows. Further work is still required to determine the sensitivity, reliability and effectiveness of these low budget probes.	2017-19
ACTION 5-3: Improve monitoring and reporting to better detect and communicate human health risks from pathogens			
Activity 5-3-1: EPA Improve Beach Report and Yarra Watch communication	Partially achieved -ongoing	This project undertakes activities to improve communication, broaden the audience and better promote the EPA Beach Report program. Beach Report videos have been developed featuring AFLW player Harriet Corder to encourage people to use the Beach Report Program and educating the community about the risks to swimming from poor water quality. https://yarraandbay.vic.gov.au/beach-report and https://www.youtube.com/user/EPAVictoria/videos	Ongoing from 2017
Activity 5-3-2: EPA One Port Phillip Bay Fund project	Partially achieved (67%)	EPA are delivering a citizen science program, Drain Detectives, where data has been collected by the community to determine the extent of drain flows at five beaches that may have had water quality impacted by stormwater drain pollution. The beaches targeted for monitoring in the first year of the project (2018-2019) are Sandringham, Mentone, Mordialloc, Dromana and Rye. From December 2018 to 1 March 2019, 195 reports were received from the public and EPA trained citizen scientists. Reporting continued until the end of May and will begin again in late 2019. Every report helps EPA to better understand pollution going into stormwater drains and into Port Phillip Bay. https://www.yarraandbay.vic.gov.au/drain-detectives	2018-20

Marine life



HABITAT AND MARINE LIFE

Ensure nutrient and sediment loads do not exceed current levels and pollutant loads are reduced where practicable

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
ACTION 6-1: Monitor indicator species and key habitats at priority locations			
Activity 6-1-1: DELWP Review habitat classification and models for Port Phillip Bay	Achieved	<p>A standardised classification of habitats has been developed; Combined Biotope Classification System (CBiCS) which is now the principal marine classification system used in Victoria. CBiCS unifies historical data under one classification umbrella. The scheme encompasses aquatic setting, biogeography, substrate, water column, geoforms, biotopes and morphospecies.</p> <p>CoastKit is the relational database system that has been built to centralise marine and coastal scientific projects, data, images and resources into a single database. It will provide ready access to these materials for managers and researchers. Resources within CoastKit include, improved habitat maps for the state and the Bay, the CBiCS Catalogue, an atlas of Victoria's biotopes (habitats) and a geo-bibliography consisting of Victorian citations related to marine and coastal field studies.</p> <p>This work has supported developing the Marine Knowledge Framework (activity 6-2-1) and additional resources have been committed for 2019 to develop CoastKit further, with the plan to launch the data and tools to a user-friendly web interface on DELWP's website. Development page: http://dev-coastkit.cbics.org/</p>	2017-18
Activity 6-1-2: PV Implement a targeted monitoring program for Marine Protected Areas (MPAs) within Port Phillip Bay	Partially achieved - ongoing	<p>This project involves the continuation of an extensive monitoring program across the network of MPAs (an area roughly 3580 hectares in size) and includes the Signs of Healthy Parks Program (SHP). Monitoring surveys have and are being implemented in all marine national parks and sanctuaries in the Bay. The data from monitoring indicator species and key habitats at priority locations is being used to understand long-term changes in populations, abundances, community structures and ecological processes and to improve understanding of the impacts of threats and pressures.</p> <p>The Port Phillip Heads Marine National Park monitoring program has been a focus over 2018-2019 and is now largely complete with a report due late 2019. The program included surveys of intertidal, subtidal and deep reef systems, seagrass and sediment communities undertaken by DELWP staff, Deakin University and volunteers from Reef Life Survey (RLS). A range of new technologies have been used such as Baited Remote Underwater Video Stations (BRUVS), towed video and downward/sideward facing imagery, multibeam sonar, and a successful trial Unmanned Aerial Vehicle (UAV) surveys of intertidal reefs.</p>	Ongoing from 2017

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 6-1-3: Four Port Phillip Bay Fund projects	A. VNPA	Partially achieved (75%)	ReefWatch will be strengthened to monitor the health of the Bay. It will do this by bringing together community groups, scientists and marine managers to develop new monitoring tools and methods and engaging, educating and equipping volunteers to learn about and monitor marine life utilising these tools.	2017-20
	B. Jawbone Marine Sanctuary Care	Partially achieved (50%)	<p>A beam trawl was conducted at Seaholme - a suitable location near but not within the marine sanctuary to improve knowledge of macrofauna in local seagrass beds. Samples collected are sorted by community members with supervision. An inventory of the macroinvertebrates that live in seagrass will be made.</p> <p>Posters and a community education campaign will be developed with this information. The results of the first sampling of invertebrates may be used as a monitoring tool for further sampling in later years.</p>	
	C. The Nature Conservancy	Partially achieved (67%)	OysterWatch - Enabling the community to engage in shellfish reef restoration. This project will quantify nutrient sources in the west of the Bay through partnering with community groups and government bodies to take water samples and comparing these to determine the amount of nitrogen in the water and its sources. It will also determine the effect of these nutrients on drift algae production and the cost-benefit of harvesting algae to manage excess nitrogen.	
	D. RLS	Partially achieved (67%)	<p>This project is designed to enhance a working partnership between key members of the Victorian recreational Self-Contained Underwater Breathing Apparatus (SCUBA) diving community, through the RLS program, and PV by continuing vital long-term monitoring of Bay marine life and training divers in biodiversity survey methods. Volunteer divers will be directed/resourced to fill gaps in the Victorian Sub-tidal Reef Monitoring Program; contributing to the State of the Marine and Coastal Environment report and to the management of the Bay's marine biodiversity. The project will contribute to the RLS database; providing a publicly-accessible high-quality comprehensive resource on national marine biodiversity.</p>	
Activity 6-1-4: VNPA One Coastcare Victoria project		Partially achieved (80%)	The Great Victorian Fish Count is a large event over many sites. It is the largest marine citizen science event in Victoria, engaging hundreds of divers and snorkelers to record fish sightings resulting in a large collection of data which is shared via websites, social and traditional media.	2018-19

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
ACTION 6-2: Improve understanding of ecological processes, threats and pressures			
Activity 6-2-1 - DELWP Establish marine knowledge framework, to include a coordinated marine research program	Partially achieved (70%)	A Marine Knowledge Framework (MKF) has been developed. The framework is made up of components (parts still in progress) to include; the CoastKit resources (including CBICs and integrated database system for marine science data, biotope atlas, mapping and geo-bibliography with citations), a Features Atlas (ecosystem features of high value importance), Feature Activity Sensitivity Tool (FEAST), and ecosystem modelling, which captures the following: <ul style="list-style-type: none"> ecosystem function & processes within marine bio-regions biotope condition, sensitivities & state marine values & ecosystem services activities, pressures and cumulative impacts. The MKF will identify where there are knowledge gaps, reduce uncertainties, and form the future evidence base for decision making around sustainable management priorities and evaluating management intervention. The framework will also ensure marine research and monitoring efforts are integrated and directed by policy towards knowledge gaps identified in the modelling.	2017-19
Activity 6-2-2: National Centre for Coasts and Climate (NCCC), The University of Melbourne One Port Phillip Bay Fund project	Partially achieved (75%)	Excess nitrogen causes algal blooms and can overstimulate the growth of other marine plants. This project will quantify nutrient sources in the west of the Bay through partnering with community groups and government bodies to take water samples and comparing these to determine the amount of nitrogen in the water and its sources. It will also determine the effect of these nutrients on drift algae production and the cost-benefit of harvesting algae to manage excess nitrogen.	2017-20
ACTION 6-3: Improve overall extent and condition of the Bay's natural ecosystems			
Activity 6-3-1: The Nature Conservancy Shellfish reef restoration and supporting research – stage 2 extension under the Marine Environments Targeted Actions initiative	Achieved	TNC Australia, in partnership with the Victorian Government and the Albert Park Yachting and Angling Club, has been working towards a long-term vision of restoring Port Phillip Bay's lost shellfish reefs. An initial feasibility and site assessment study was conducted by Fisheries Victoria (2013-2014) and a restoration experiment was undertaken to help determine optimal restoration methods and a medium-scale (4 x 200 metres squared reefs) reef restoration was deployed. This project (stage 2 extension) extended the work on reef restoration with a focus on trialling the use of recycled shell cultch as the primary reef base in combination with limestone rubble where appropriate onto which to deploy oysters and mussels. This work is now completed and further support is being sought for stage 3 and beyond. https://www.natureaustralia.org.au/what-we-do/our-priorities/build-healthy-cities/cities-stories/victoria-s-lost-reefs-rediscovered/	2017-19

Action, Activities and Strategic lead		Status	Deliverables and highlights	Timeframe
Activity 6-3-2: Two Port Phillip Bay Fund projects	A. The National Centre for Coasts and Climate (NCCC), The University of Melbourne	Partially achieved (75%)	This project looks at innovative ways to protect the coastline around Geelong and the Bellarine Peninsula by developing a living breakwater which is a step away from the traditional engineered sea walls and breakwaters. The scope of the project includes the rehabilitation and planting of dunes to stabilise these against storms and rising sea levels.	2017-20
	B. NCCC, The University of Melbourne	Partially achieved (75%)	There are a number of reefs in Port Phillip Bay that have become damaged over time from the over growth of native purple sea urchin. This over-population has resulted in a decline of other marine plants and animals including seaweeds which form habitats and kelp which is used to filter the water. The NCCC through this project will remove some colonies of urchin and trial some new techniques to allow for the reforestation of marine plants into these temperate reefs to improve how the reefs function. It will also include some research into the urchins to better understand their population explosion.	
Activity 6-3-3: NCCC, The University of Melbourne Optimal management of overabundant sea urchins in Victoria under the Marine Environments Targeted Actions initiative		Partially achieved (30%)	This project is being undertaken as a partnership between University of Melbourne, Deakin University and PV. The project will collate information on urchin biomass hotspots and the scale of barrens state-wide. The information gathered will be used to inform population dynamics models of purple and black-spined urchins to identify sources and dispersal/invasion pathways. Standard methods for culling and monitoring will be developed and implemented in a culling program. Marine Protected areas prioritised for culling in Port Phillip Bay are Point Cooke, Jawbone, and Ricketts Point.	2018-21








MARINE BIOSECURITY

Ensure nutrient and sediment loads do not exceed current levels and pollutant loads are reduced where practicable

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
ACTION 7-1: Prevent introduction and dispersal of marine pests			
Activity 7-1-1: DJPR Biosecurity (previously known as DEDJTR) Training, assessment & community-based partnership to manage new incursions and spread of existing species	Partially achieved (50%)	DJPR Biosecurity are working to develop better governance, guidelines and training through the following: <ul style="list-style-type: none"> • A risk assessment for high risk marine pests is underway to determine likelihood of entry, establishment, spread and impact. This has involved engagement with stakeholders, such as port managers, shipping companies, fishing and aquaculture industries, to provide guidance on marine pest monitoring activities and identify pathways for transfer and spread of marine pests. • Representation on national marine pest related governance groups to feed into and align with national initiatives being developed by the Commonwealth such as ballast water management and the recent Marine Pest Plan 2018-2023. • A communications and engagement strategy developed for marine pests to enhance the community's understanding of marine pest issues. A consultant has been engaged to implement the strategy, working with existing promotional materials such as PV's Check, Clean, Dry. • Providing online information and advice on marine pests for the state. • Funding research on early detection and monitoring of marine pests and stakeholders such as local ports and marinas groups have been engaged to better manage marine pest biosecurity. http://www.agriculture.gov.au/pests-diseases-weeds/marine-pests/ https://www.marinepests.gov.au/	2017-20
Activity 7-1-2: PV Marine pest initiative within MPAs	Achieved	PV seek to prevent the spread of marine pests from Marine Protected Areas (MPAs) in the Bay. To do this PV have developed and delivered the Check Clean Dry Campaign. The campaign was launched at the Melbourne Boat Show 2018. Promotional materials for the campaign include producing a promotional video, brochures, banners, and other materials/accessories for mobile phones. Public information sessions were delivered through boat and fishing clubs, and at major events including the Festival of Sail. It is estimated that 10,000 people have been engaged across a broad range of community, industry and agencies such as the recreational boating community, not-for-profit organisations, Non-Government Organisations (NGO's), yacht clubs, etc. https://www.youtube.com/watch?v=apb1gNel1ww	2017-18

Action, Activities and Strategic lead	Status	Deliverables and highlights	Timeframe
ACTION 7-2: Monitor priority locations for early detection of marine pest introductions			
Activity 7-2-1: DJPR Biosecurity Marine pest monitoring program	Partially achieved - ongoing	DJPR Biosecurity are leading coordination of experts and relevant agencies across the state to work with other Australian jurisdictions on the design of a Victorian integrated monitoring and surveillance program for marine pests. Implementation of the program is subject to funding. Marine pest data capture procedures have been developed and tested in the field. DJPR Biosecurity and partners are representing the state on the Marine Surveillance Task Group under the Marine Pest Sectoral Committee. There is now a single reporting line established to improve passive surveillance opportunities for marine pests (marine.pests@ecodev.vic.gov.au).	Ongoing from 2017
Activity 7-2-2: PV Marine pest monitoring and response program in MPAs	Partially achieved - ongoing	Marine pest monitoring was included within Port Phillip Heads Marine National Park monitoring program (see 6.1.2). Pest monitoring and active management is being undertaken at priority locations e.g. surveys to monitor Undaria (Japanese kelp) at Pope's Eye. It is estimated that 10 hectares of marine protected areas are monitored for pests. In addition, this program provides support for urchin (overabundant native species) management trials at Point Cook and Jawbone Marine Sanctuaries in a partnership with the University of Melbourne.	Ongoing from 2017
ACTION 7-3: Respond rapidly to new introductions of marine pests			
Activity 7-3-1: DJPR Biosecurity Develop marine pest response arrangements	Partially achieved (60%)	DJPR Biosecurity is building the capacity and capability of marine managers to respond rapidly to any new incursion of marine pests and ensure effective and efficient decision making. Victorian marine pest training needs have been identified and external training exercises have been undertaken by Departmental staff. Victorian marine pest response arrangements are being revised to reflect more up-to-date procedures and an assessment is underway to understand capability across government to respond to a marine pest incident and clarify roles and responsibilities. DJPR Biosecurity represents the state on the Emergency Response Task Group under the Marine Pest Sectoral Committee. One of the actions for this group is to review and provide input into the national emergency marine pest plan framework. Marine pest pages have been built on the Agriculture Victoria website with relevant information. www.vic.gov.au/marine-pests	2017-19

10.2 Appendix 2: EMP Framework

VISION	A healthy Port Phillip Bay that is valued and cared for by all Victorians						
GOALS	Stewardship of the Bay is fostered across community, industry and government		Water quality is improved to ensure environmental health and community enjoyment of the Bay			The Bay's habitats and marine life are thriving	
PRIORITY AREAS	Connect and inspire	Empower action (work together)	Nutrients and pollutants	Litter	Pathogens (human health)	Habitat and marine life	Marine biosecurity
STRATEGIES	Improve appreciation and understanding of Bay values and connections to catchment	Improve collaboration and partnerships across community, industry and government	Ensure nutrient and sediment loads do not exceed current levels and pollutant loads are reduced where practicable	Reduce litter loads to the Bay	Minimise risks to human health from pathogens	Conserve and restore habitats and marine life	Manage risks from marine pests
							
PRIORITY ACTIONS	<p>1.1 Work with Aboriginal groups to improve understanding of Aboriginal cultural values and interests in the Bay and support connections to Country</p> <p>1.2 Develop and deliver programs to inspire greater appreciation of the Bay's values</p> <p>1.3 Build understanding of management responsibilities and programs for the Bay and its catchment</p>	<p>2.1 Build capacity and knowledge within community and industry networks</p> <p>2.2 Empower the broader community to get more actively involved in caring for the Bay</p> <p>2.3 Support stronger partnerships across community, industry and government to ensure aims and outcomes are aligned</p>	<p>3.1 Effectively maintain existing stormwater infrastructure and programs to mitigate loads to the Bay, or secure via equivalent means</p> <p>3.2 Prevent increases in nutrient loads from wastewater systems and where practicable reduce loads of other pollutants</p> <p>3.3 Ensure all urban and rural land use effectively controls impacts from stormwater and runoff, and that controls are in place to manage increases in loads</p>	<p>4.1 Establish a baseline estimate of the volume of litter entering the Bay and support clean up activities</p> <p>4.2 Support capability and capacity building programs that target litter prevention, including reduction of microplastics</p> <p>4.3 Identify and prioritise litter sources and pathways, and take actions to prevent litter entering the Bay</p>	<p>5.1 Improve understanding of links between pathogen concentrations and human health for swimming and consumption of shellfish</p> <p>5.2 Adopt a risk-based approach to mitigate sources of pathogens found in the bay</p> <p>5.3 Improve monitoring and reporting to better detect and communicate human health risks from pathogens</p>	<p>6.1 Monitor indicator species and key habitats at priority locations</p> <p>6.2 Improve understanding of ecological processes, threats and pressures</p> <p>6.3 Improve overall extent and condition of the Bay's natural ecosystems</p>	<p>7.1 Prevent introduction and dispersal of marine pests</p> <p>7.2 Monitor priority locations for early detection of marine pest introductions</p> <p>7.3 Respond rapidly to new introductions of marine pests</p>

10.3 Appendix 3: Governance meetings

Project Control Group (PCG)

The PCG is hosted by DELWP and provides strategic direction and leadership through oversight of the Delivery Plan activities and endorsement of EMP deliverables. The PCG met twice in the first year of implementation.

On 6 August 2018 the group met to:

- convene
- identify roles and responsibilities
- clarify the implementation process
- endorse timelines for first version of Delivery Plan, the approval process and reporting
- identify the EMP deliverables – what needed to be achieved e.g. setting up partner stakeholder governance groups.

On 29 October 2018 the group met to:

- endorse the first version of the Delivery Plan
- update progress on governance and communications across partners and stakeholders
- endorse a reporting template for the annual report

- provide advice on developing the MERI strategy which will guide the five-yearly reporting of the EMP
- identify risks and risk management approaches to achieving annual deliverables.

Working Group (WG)

The EMP Working Group provides support to the PCG to enable efficient and effective progress with the Delivery Plan; MERI strategy; and annual reporting. The Working Group members also have oversight of their individual agency deliverables (designated activities within the Delivery Plan).

The working group met four times during 2018 -2019.

On 13 June 2018 the group met to:

- convene
- identify roles and responsibilities
- clarify the implementation process.

On 31 July 2018 the group met to:

- consider timelines for first version of Delivery Plan
- identify the approval process and reporting
- identify agency deliverables and provide input into draft Delivery Plan.

On 17 October 2018 the group met to:

- provide a final review and feedback on the draft Delivery Plan
- review governance arrangements and communications
- develop criteria and content for the annual report
- provide input and guidance for the stakeholder forum event program and management.

On 20 March 2019 the group met to:

- update the progress of the Delivery Plan (endorsed and online)
- discuss and obtain feedback on the outcome of the POG and SARG meetings in February which will help to guide the next stage of the Delivery Plan
- consider a transparent process for documenting feedback on the Delivery Plan, focusing on gaps and areas that need to be realigned with the goals and objectives of the EMP
- discuss the preparation of updates for the annual report.

Project Officer Group (POG)

The POG consists of delivery partners and organisations that are active in the Bay and catchment. The POG provides a mechanism for delivery partners to connect and share knowledge and to provide regular updates on current activities. The group is hosted by DELWP with support from lead organisations.

The POG came together after an annual forum on 7 February 2019 to:

- convene
- identify roles and responsibilities, and establish small technical advisory groups to be convened on an as needs basis
- introduce and update the first year of implementation
- review the first version of the Delivery Plan with reference to any major oversights or gaps in achieving actions
- undertake project evaluation and consider how these evaluations might support the development of the MERI strategy.

Senior Agency Reference Group (SARG)

SARG members are director and senior manager executives across relevant agencies and organisations. The main purpose of this group is to provide advice on the alignment and integration of relevant policies and initiatives with the EMP. The group provides a mechanism for communicating between agencies and organisations and addressing any issues of relevance that may impact the implementation of the EMP.

The group met on 8 February 2019 to:

- convene
- identify roles and responsibilities
- introduce and update the first year of implementation
- consider the work of each agency in terms of its intrinsic role in implementing the EMP
- analyse feedback from the POG and provide strategic advice on the direction of implementation in the next phase of the plan.

10.4 Appendix 4: Glossary of acronyms

AAV	Aboriginal Affairs Victoria
ACR	Avalon Coastal Reserve
AWARE	Australian Wildlife Assistance, Rescue and Education
BCN	Bellarine Catchment Network
BERG	Balcombe Estuary Reserves Group
BnB	Beach-nesting Bird team
BPEM	Best Practice Environmental Management
BRP	Biodiversity Response Planning
BRUVS	Baited Remote Underwater Video Stations
CALD	Culturally And Linguistically Diverse
CBiCS	Combined Biotope Classification Scheme
CES	Commissioner for Environmental Sustainability
CFOB	Caring For Our Bays
CMAs	Catchment Management Authorities
CoM	Committee of Management
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CWAD	Community Weed Alliance of the Dandenongs
DEDJTR	Department of Economic Development, Jobs, Transport and Resources
DELWP	Department of Environment, Land, Water & Planning
DJPR Biosecurity	Department of Jobs, Precincts and Regions - Biosecurity

DRI	Dolphin Research Institute
DSSS	Dredging and Sediment Separation System
EMP	Environmental Management Plan
EPA	Environment Protection Authority
FVTOC	Federation of Victorian Traditional Owner Corporations
GES	Good Environmental Status
GPS	Global Positioning System
IR	Infrared
IWM	Integrated Water Management
MCC	Marine and Coastal Council
MCRP	Marine Care Ricketts Point
MEAPEC	Mount Eliza Association For Environmental Care
MERI	Monitoring, Evaluation, Reporting & Improvement
MESAC	Marine Education Science And Community
META	Marine Environment Targeted Actions
MKF	Marine Knowledge Framework
MPAs	Marine Protected Areas
MPNP	Mornington Peninsula National Park
MW	Melbourne Water
MWRRG	Metropolitan Waste Resource and Recovery Group
NCCC	National Centre for Coasts and Climate
NGOs	Non-Government Organisations

NLI	National Litter Index
PCG	Project Control Group
POG	Project Officer Group
PPB	Port Phillip Bay
PPHMNP	Port Phillip Heads Marine National Park
PPWCMA	Port Phillip and Westernport Catchment Management Authority
PV	Parks Victoria
QMRAs	Quantitative Microbial Risk Assessments
RAPs	Registered Aboriginal Parties
RCP	Red-Capped Plover
RLS	Reef Life Survey
RMIT	Royal Melbourne Institute of Technology
SARG	Senior Agency Reference Group
SCUBA	Self-Contained Underwater Breathing Apparatus
SEPP	State Environment Protection Policy
SEW	South East Water
SHP	Signs of Healthy Parks
SV	Sustainability Victoria
TNC	The Nature Conservancy
TO	Traditional Owner
UAV	Unmanned Aerial Vehicle

VEAC	Victorian Environmental Assessment Council
DJPR	Department of Jobs, Precincts and Regions
VFA	Victorian Fisheries Authority
VLAA	Victorian Litter Action Alliance
VMaCC	Victorian Marine and Coastal Council
VNPA	Victorian National Parks Association
VPA	Victorian Planning Authority
VWSG	Victorian Wader Study Group
WG	Working Group
WQI	Water Quality Index
WRRG	Waste Resource and Recovery Group
WSUD	Water Sensitive Urban Design
WTP	Western Treatment Plant

