

PHCC's Ramsar Project

Wetlands and people – a community restoring the ecological character of the Peel-Yalgorup 482 Wetlands

Steve Fisher, Rick James, Sharon Meredith, Charlie Jones, Mike Griffiths, Jennie Beeson, Jo Garvey, Jesse Rowley and Kim Wilson

Ramsar 482 Technical Advisory Group

22 March 2021

Steve Fisher, PHCC Science & Waterways

Wetlands and People - A community restoring the Ecological Character of the Peel-Yalgorup Ramsar 482 Wetlands



Australian Government (Regional Land Partnerships – NLP2)

5 years (2018-2023)

\$4,996,221



Primary Outcome (1):

By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions (Peel-Yalgorup System)

Secondary Outcome (4):

By 2023, the implementation of priority actions is leading to an improvement in the condition of EPBC Act listed Threatened Ecological Communities (Thrombolites at Lake Clifton)

Ramsar 482 Wetlands and People- Program Logic

Wetlands and People - A community restoring the Ecological Character of the Peel-Yalgorup Ramsar 482 Wetlands

ASPIRATIONAL GOAL (2050)

LONG TERM OUTCOMES (2035)

The ecological character of Ramsar sites is maintained or improved

By 2050 the ecological character of the Peel-Yalgorup Ramsar System has stabilised or improved

By 2035, the condition of habitat types (open water, mudflats, samphire, sedges, paperbark) is improved

By 2035, key species and communities are managed sustainably by addressing key threats and threatening processes

Changes in asset

By 2035, community understanding of the values and uniqueness of the Peel-Yalgorup Wetland System is improved, resulting in wise use of the wetlands

By 2035, partnerships between resource managers, community and institutions are strengthened and broadened to increase the capacity to manage the Ramsar Site sustainably

Practice & attitude change

Assumption: The achievement of the 5 year outcomes will contribute to the achievement of the long-term outcomes

5 YR OUTCOMES (2023)

By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions

By 2023, 1080 ha of priority riparian and aquatic areas and associated upland habitats of the Ramsar Site has improved management that maintains or improves vegetation and stream condition and/or decreases disturbance to waterbirds and their habitat.

By June 2023, the Peel-Yalgorup System has supported at least 1% of the Flyway population of at least 4 waterbird species in three of the years.

By June 2023, the Peel-Yalgorup System has supported successful breeding of waterbirds in three of the years.

By June 2023, the Peel-Yalgorup System has supported more than 20,000 waterbirds in four of the years.

Changes in asset

By June 2023, through a collaborative management approach the Peel-Yalgorup System retains its listing as a Wetland of International Importance.

By June 2023, inform and improve management of the Peel-Yalgorup System through monitoring and reporting the status of the Peel Yalgorup System's migratory and resident waterbirds against the Limits of Acceptable Change (Management Triggers).

By June 2023, inform and improve management of the Peel-Yalgorup System through extending monitoring and reporting of the status of the System by filling priority knowledge gaps for at least five previously unmonitored components/ processes.

By June 2023, inform and improve management of the critically endangered, threatened ecological Thrombolite community at Lake Clifton, through filling knowledge gaps for salinity and other water quality and quantity measures.

By 2023, 60 Noongar people will be engaged with the delivery of Ramsar activities.

By June 2023, all local Noongar Elders and Traditional Owners are involved with the planning and delivery of Ramsar activities to embed Noongar cultural values and knowledge to improve management of the Site.

By June 2023, the skills and knowledge of our community volunteers will be improved to increase community sector stewardship for conservation and wise use of the Peel-Yalgorup wetlands through at least two citizen science programs, 15 events and 12 field days supporting 275 individuals to monitor Ramsar values.

By June 2023, the local community has an increased awareness of the Ramsar and cultural values of the Peel-Yalgorup wetlands through engagement activities, including 110 events, with at least 4300 individuals, and 40 groups, including those that use or manage the site and its catchment.

Practice & attitude change

Assumption: The implementation of identified actions will contribute to the achievement of the 5 year outcomes in accordance with Australian Ramsar Management Principles and Services

ACTIONS FOR SERVICES & OUTPUTS ACTIVITIES (2018 - 2023)

Debris removal	Access control - minimise disturbance	Community Environment Grants	Controlling pest animals	Hydrological investigations	Habitat restoration	Removing pest weeds	Acid Sulfate Soil investigations	Biological investigations	Monitoring ecological condition
Integrated site management	Community and technical input	Social marketing/ awareness raising campaigns, programs and events	Cultural knowledge sharing	Citizen science events & training	Enviro-educational programs	Training - improving skills, knowledge and management practices	Review process - update plans	Review monitoring data to determine management responses	Reporting ecological condition (Report Cards)

Outputs biophysical

Outputs non biophysical



Australian Government

National Landcare Program



PHCC Working Together

Wetlands and People: Program Logic

5 YR OUTCOMES
(2023)



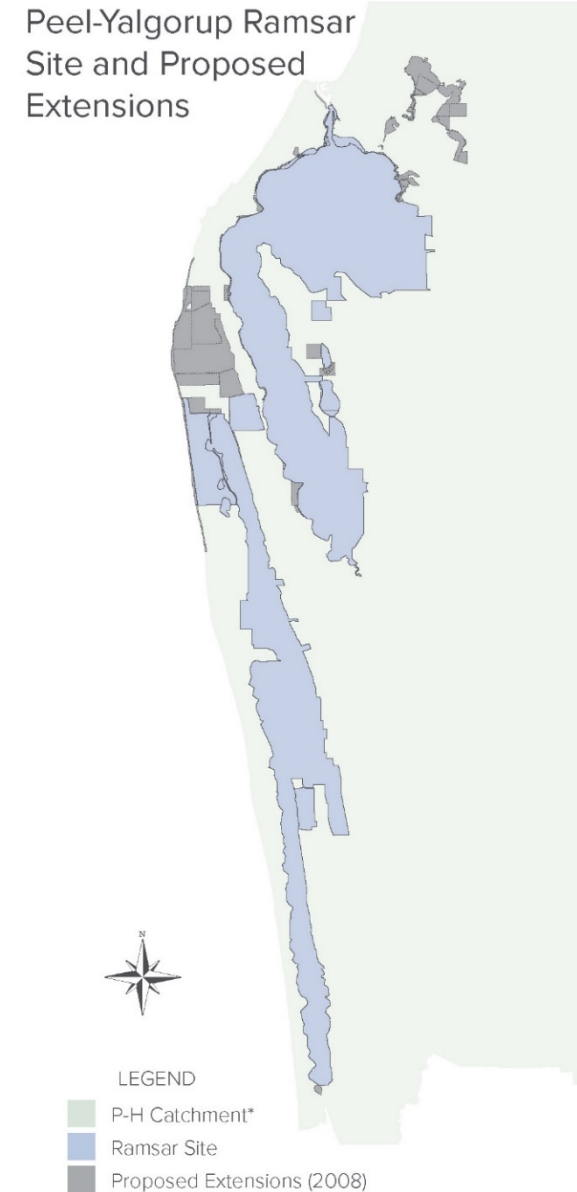
Assumption: The implementation of identified actions will contribute to the achievement of the 5 year outcomes in accordance with Australian Ramsar Management Principles and Services

ACTIONS FOR SERVICES & OUTPUTS ACTIVITIES
(2018 - 2023)



Wetlands & People: Project Actions

- 13/25** baseline data sets
- 186/321** communication materials
- 0/3** conferences/seminars
- 5/12** field days
- 9/30** on-ground works
- 62/125** training/workshops
- 56/160** ha access control
- 215/390** ha pest animal control (initial)
- 95/360** ha pest animal control (followup)
- 28/30** ha debris removal
- 7/7** monitoring regimes established
- 29/68** days maintaining monitoring regimes



*Catchment extends beyond map boundary

Wetlands & People: Project Actions (Cont.)

165/165 ha surveyed (fauna)

8/17 fauna surveys

0/1 flora survey

367/477 ha treated for weeds (initial)

76/350 ha treated for weeds (followup)

18/19 agreements

32/37 groups

30/30 ha revegetated & **5/20** ha maintained

49/77 project planning & delivery documents

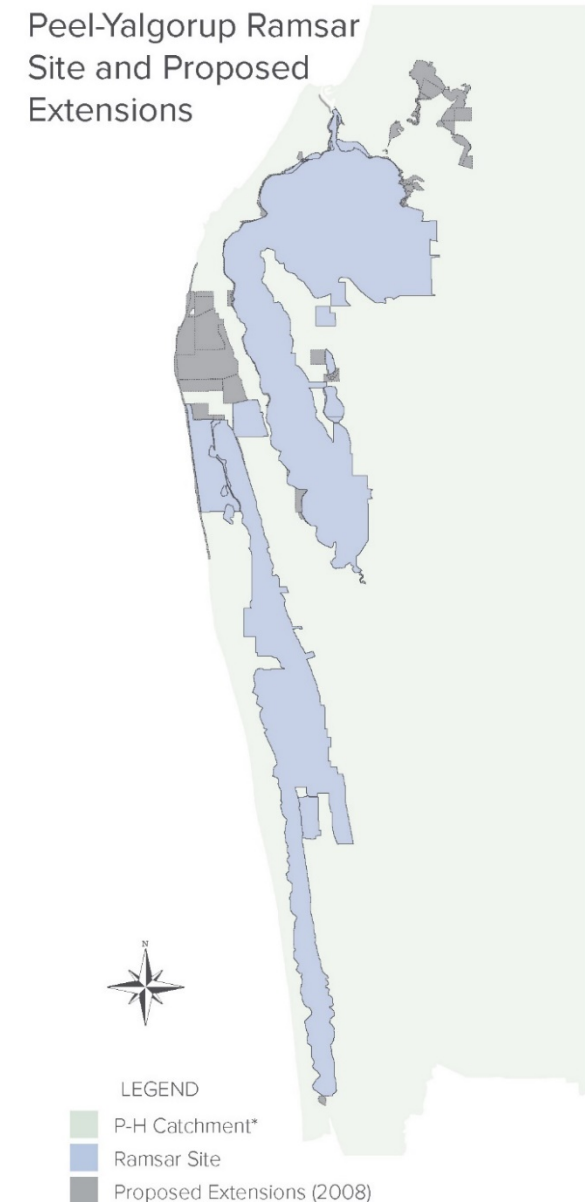
16/16 days site preparation

26/50 water quality surveys

1/2 weed distribution surveys

32/32 potential sites identified

Peel-Yalgorup Ramsar Site and Proposed Extensions



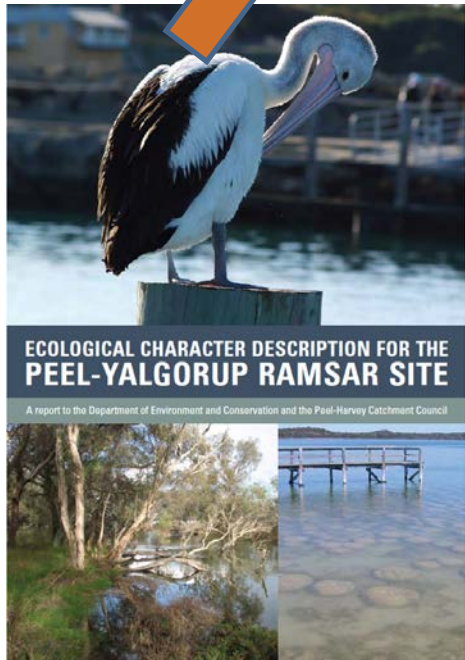
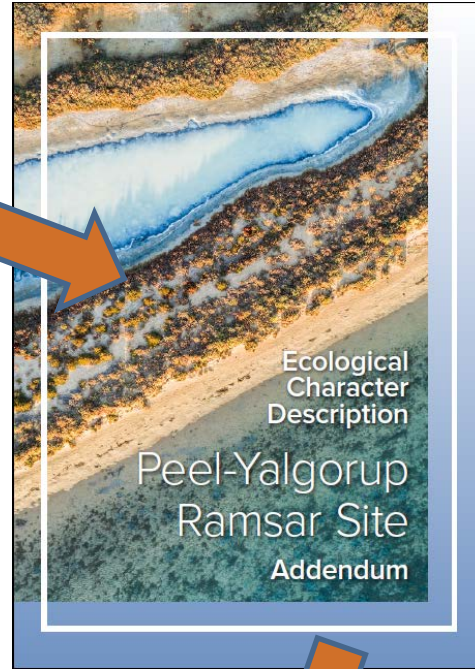
*Catchment extends beyond map boundary

Wetlands and People Delivery Model



(i) Integrated Collaborative Management

Rick James (Coordinator) & Kim Wilson



- Leading the Ramsar 482 Initiative
 - Facilitating Ramsar TAG
 - Supporting subsidiary TAGs & Working Groups
- Revising key documents:
 - ECD addendum
 - Monitoring and Evaluation Guide
 - Science Strategy

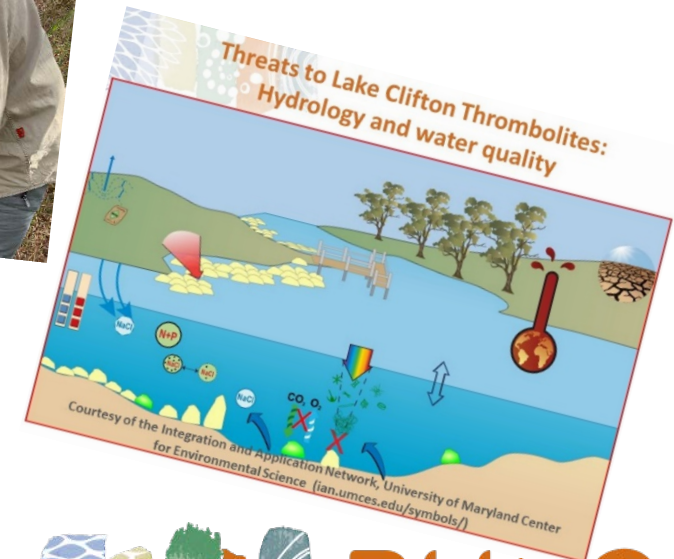
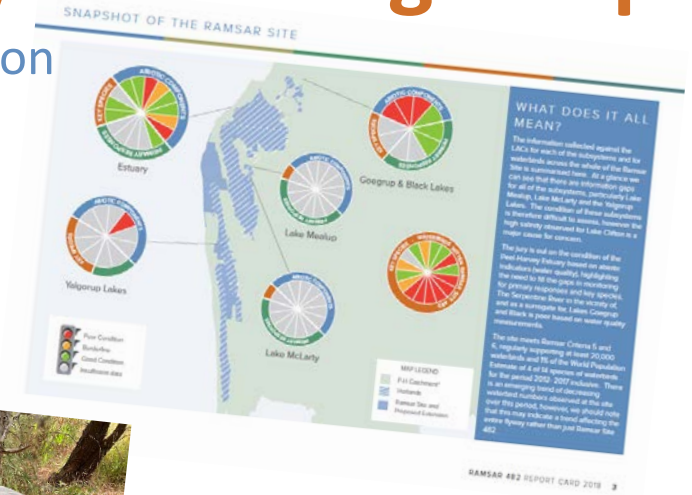
WETLANDS + WATERWAYS



(ii) Assess Ecological Character & Address Key Knowledge Gaps

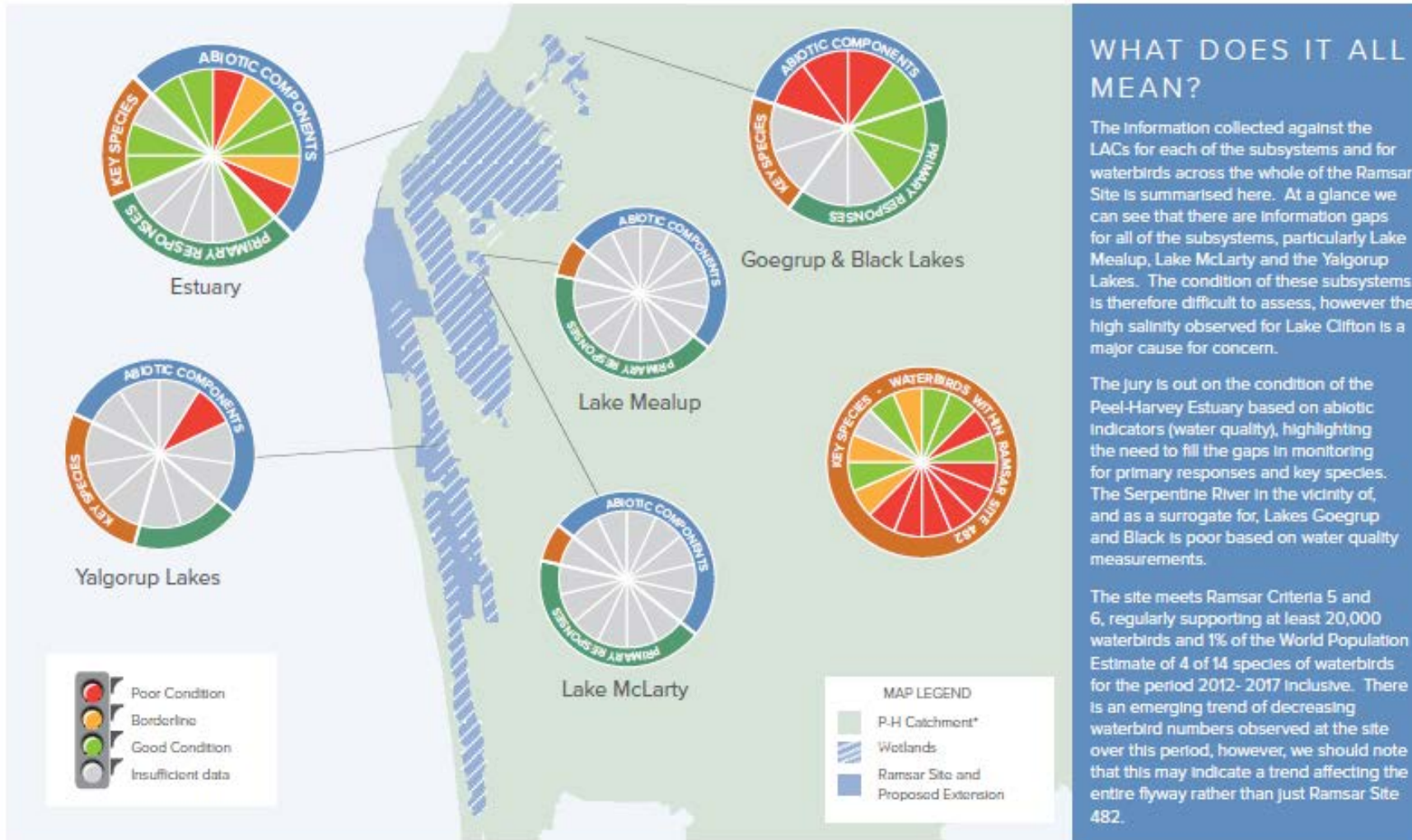
Rick James (Coordinator), Steve Fisher & Jennie Beeson

- Ramsar 482 Report Card
- Investigations
 - Literature search (Lake Clifton & Yalgorup Lakes)
 - Acid Sulfate Materials at Lake McLarty
 - Groundwater hydrology at Lake Clifton
- Plan & implement monitoring programs
 - Thrombolite Mapping
 - Water birds (Cormorants)
 - Surface Water Quality & Quantity (Yalgorup Lakes)
 - Invertebrates (Lake McLarty)
 - Groundwater quality (Lake Clifton)
 - Fish Community Index (Estuary)



Ramsar 482 Report Card: 'Baseline' 2018

SNAPSHOT OF THE RAMSAR SITE



WHAT DOES IT ALL MEAN?

The information collected against the LACs for each of the subsystems and for waterbirds across the whole of the Ramsar Site is summarised here. At a glance we can see that there are information gaps for all of the subsystems, particularly Lake Mealup, Lake McLarty and the Yalgorup Lakes. The condition of these subsystems is therefore difficult to assess, however the high salinity observed for Lake Clifton is a major cause for concern.

The jury is out on the condition of the Peel-Harvey Estuary based on abiotic indicators (water quality), highlighting the need to fill the gaps in monitoring for primary responses and key species. The Serpentine River in the vicinity of, and as a surrogate for, Lakes Goegrup and Black is poor based on water quality measurements.

The site meets Ramsar Criteria 5 and 6, regularly supporting at least 20,000 waterbirds and 1% of the World Population Estimate of 4 of 14 species of waterbirds for the period 2012-2017 inclusive. There is an emerging trend of decreasing waterbird numbers observed at the site over this period, however, we should note that this may indicate a trend affecting the entire flyway rather than just Ramsar Site 482.




- 'Condition' relative to Limits of Acceptable Change (LACs)

Ramsar 482 Report Card: Yalgorup Lakes

YALGORUP LAKES

Poor Condition
Borderline
Good Condition
Insufficient data



		COMPONENT	LIMIT OF ACCEPTABLE CHANGE	2016	2017	
 Abiotic Components	Nutrients	Y1	Phosphate as phosphorus (PO_4^{3-} as P) median concentrations < 0.010 mg/L	●	●	
		Y2	Ammonium as nitrogen (NH_4^+ as N) median concentrations < 0.040 mg/L	●	●	
		Y3	Nitrate and nitrite as nitrogen (NO_x as N) < 0.100 mg/L	●	●	
		Salinity	Y4	Lake Clifton salinity < 35 ppt maximum and < 25 ppt during winter and spring	●	●
		pH	Y5	pH > 7 at all times	●	●
		Groundwater discharge	Y6	A surrogate based on water levels in the lakes may be able to be developed	●	●
 Primary Responses	Phytoplankton	Y7	Baseline must be set before limits can be made	●	●	
	Macroalgae	Y8	No sustained epiphytic macroalgal growth on the thrombolites at Lake Clifton	●	●	
 Key Species & Communities	Invertebrates	Y9	Limit of acceptable change not able to be set. However, invertebrate populations sufficient to sustain waterbird populations should be maintained	●	●	
	Fish	Y10	Baseline must be set before limits can be made	●	●	
	Thrombolites	Y11	No loss of thrombolites at Lake Clifton	●	●	

Stay tuned for Rick James presentation.....

The salinity of Lake Clifton has increased more than threefold over the past three decades from 14-28 g/L in 1992 to 60 - 85 ppt in 2015 (Lane, pers. comm). The salinity continues to exceed the LAC in 2016 and 2017. Some other information relating to the ecological condition of the Yalgorup Lakes has been collected by various sources, however the data needs to be verified, consolidated and interpreted before comparison can be made against the LACs.





(iii) Community Engagement

Capturing the Hearts and Minds of the Community

Sharon Meredith & Charlie Jones (Coordinators)

- Increasing skills, knowledge and awareness for wise use of wetlands
 - > 60 events, workshops & field days
 - > 13,500 participants from 98 unique groups
 - Festivals (Wetlands Weekender, Dandjoo Gabi Wonga Sundowner)
 - Art Exhibitions
 - Citizen Science Initiatives
 - Shorebirds ID training & National Shorebird Count
 - Dolphin Watch Training support
 - School excursions and incursions
 - Microplastics
 - ‘Stints are Rad’
 - Wetland Tours & Ramsar 101
 - Cleanup Peel Waterways



(iv) On-Ground Priority Actions

Mike Griffiths, Rick James & Jo Garvey (Coordinator)

It's not just about the watery bits!

- Australia has obligations under Ramsar 'to promote the conservation of wetlands and waterfowl by establishing nature reserves on wetlands'
- Our project logic says... '1080 ha of *priority riparian and aquatic areas and associated upland habitats* of the Ramsar Site has improved management that *maintains or improves vegetation and stream condition....*'
- Actions include
 - control of weeds, pest animals, human access
 - revegetation
 - debris removal
 - community engagement



Wetlands and People

On-ground works restoring Ramsar 482

367ha
treated
for weeds

including grassy weeds, annual winter weeds, bulbous weeds and woody weeds controlled



28ha

bushland cleaned up
Historical debris, illegally dumped rubbish, garden prunings and marine debris removed



215ha
protected from
feral animals

Foxes, rabbits, feral cats and feral pigs controlled



56ha

bushland protected
from illegal access by vehicles through control with security gates and fencing



4

groups supported

Local community groups consulted and supported



9

Landholder
Works
Agreements

negotiated to formalise works on private properties, adding total of >450 ha to Ramsar treated area



30ha
revegetated

Local native species planted to restore wetlands and bushland



Priority Actions (to 31 Dec 2020)



PHCC
Working Together

Saving Lake McLarty Phase 1

Addressing Acidification, Hydrology and Habitats



We acknowledge the Noongar people as Traditional Custodians of this land and pay our respects to all Elders past and present



natural resource management program



PHCC

Peel-Harvey Catchment Council

Working Together

Saving Lake McLarty (Phase 1)

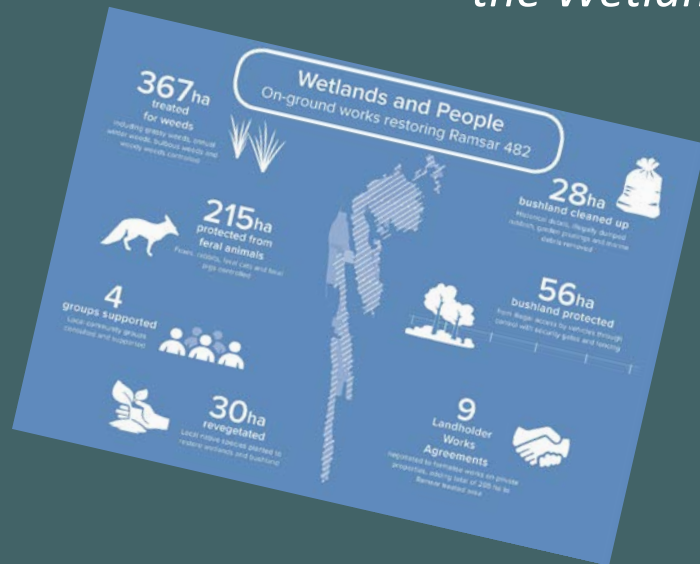
- State NRM Community Stewardship Grant
 - 3 years (Apr 2019- June 2022)
 - **\$350,859 (Cash, State NRM)**
 - \$773,882 in-kind* (DWER, DBCA, PHCC, FoLM, Lake McLarty TAG, BirdLife)
- Outputs to March 2021
 - **Draft Flow Augmentation Feasibility Study**
 - **Lake bed sediment and groundwater investigations (ASS)**
 - *Feral animal and weed control ('Wetlands & People')
 - *Living Stream Project (DBCA & 'Wetlands & People')
 - *Monitoring of:
 - Vegetation (FoLM)
 - Macroinvertebrates (DBCA)
 - Waterbirds (various)



Thank you for your time today



Everyone has a role in the management and 'wise use' of the Wetlands. To protect and conserve the valuable cultural and environmental heritage of the Wetlands and the social and economic outcomes they provide to our communities across the Catchment.



We acknowledge the
of this land and pay oi



'Wetlands and People'



PHCC Working Together
Peel-Harvey Catchment Council

Connecting Corridors and Communities: Restoring the Serpentine River

Jo Garvey (Coordinator) & Jesse Rowley

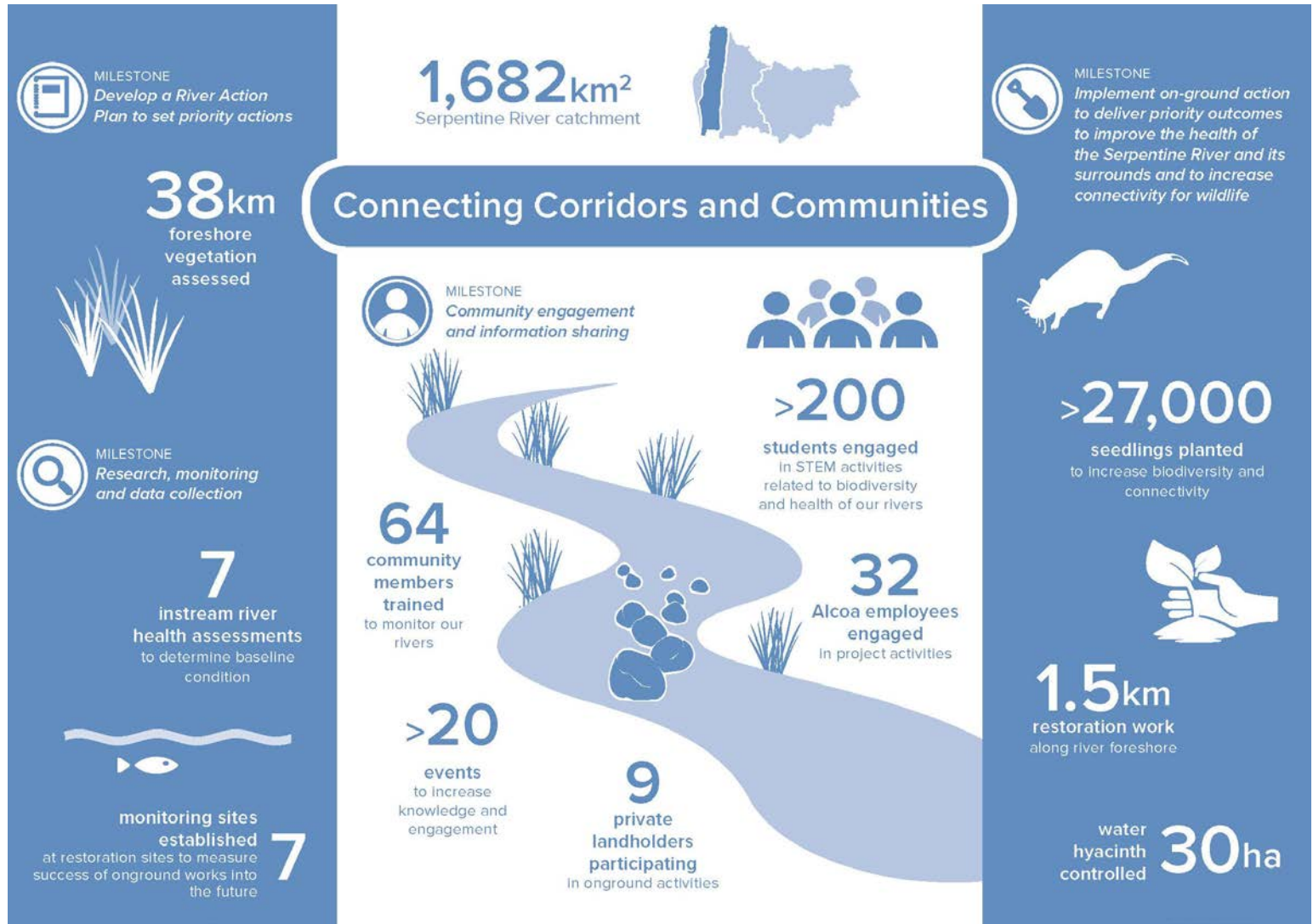
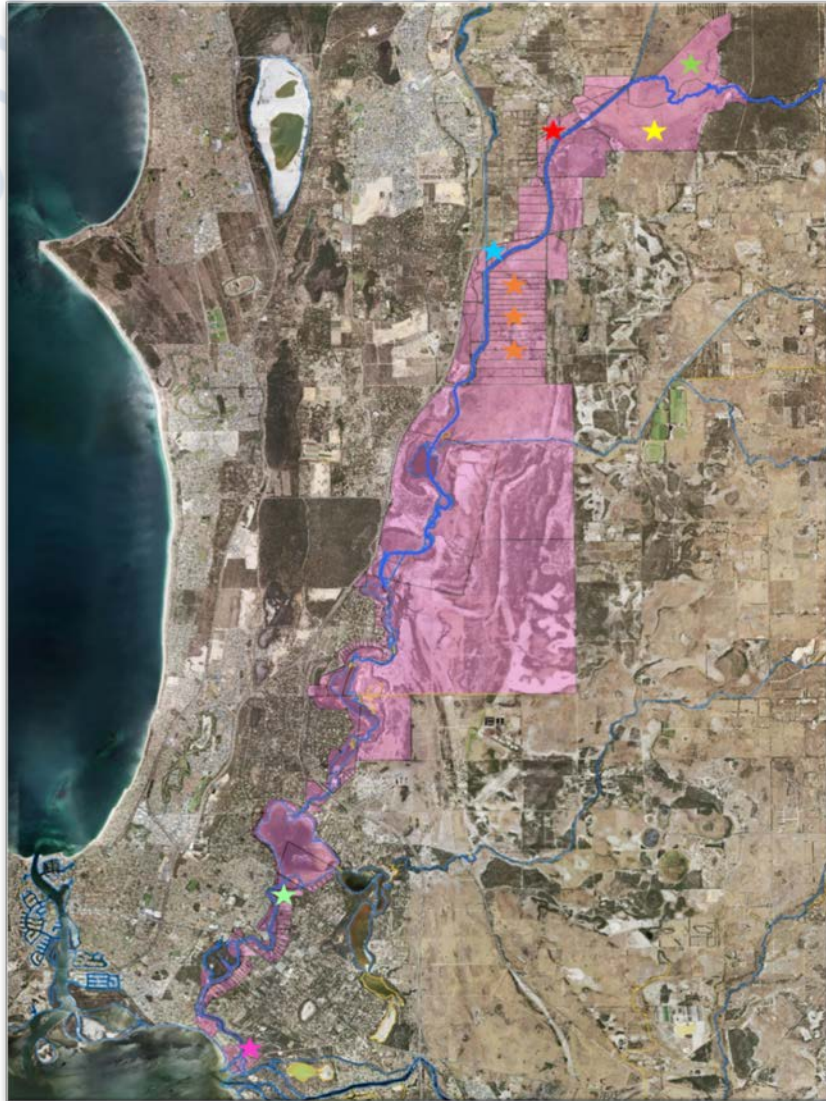
- Funded by Alcoa Foundation as part of the Three Rivers, One Estuary Initiative
- US \$750,000 over 3 years (2018-2020)

We acknowledge the Noongar people as Traditional Custodians of this land and pay our respects to all Elders past and present



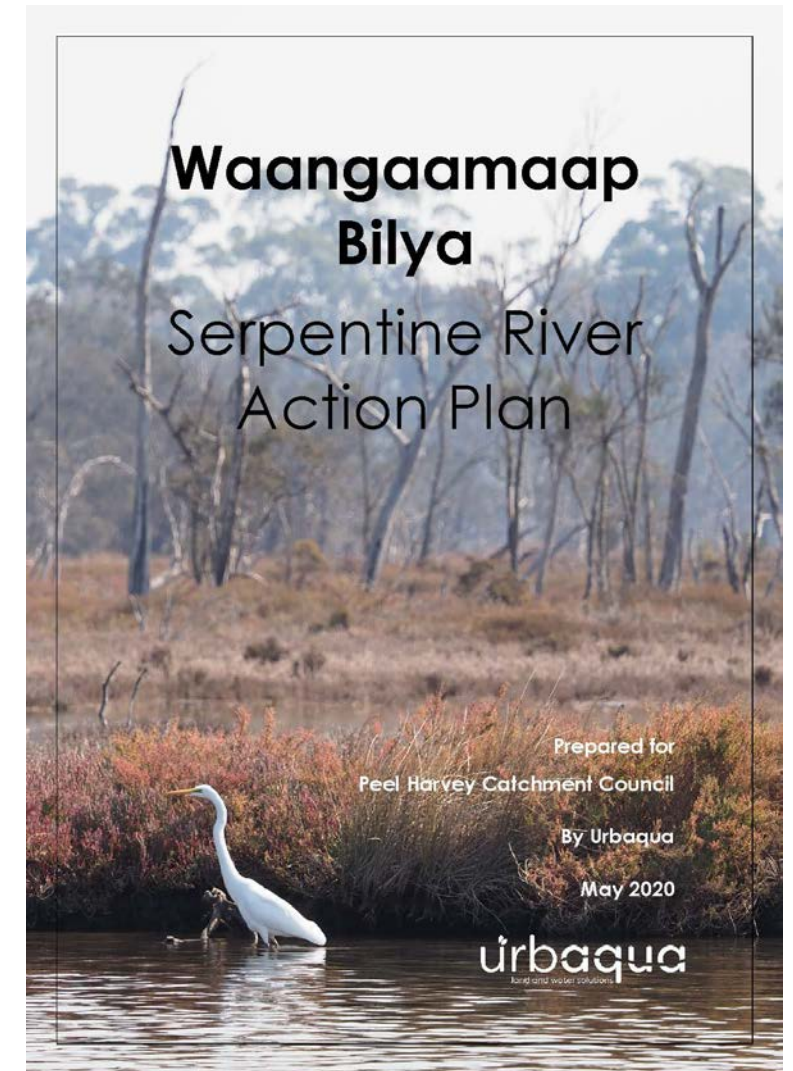
PHCC | Working Together
Peel-Harvey Catchment Council

Restoring the Serpentine River



Alcoa Foundation, Three Rivers, One Estuary Initiative

River Action Plan: Our Roadmap for the Future



Black Bream - Indicators of Estuary Health



- Black bream complete their life cycle in estuary of birth
- Exposed throughout to environmental conditions of estuary
- Degraded conditions can affect bream growth & recruitment



Photo of black bream courtesy of Steve Anderson

Breaming with Opportunities

Stock Enhancement of Black Bream in the Murray River (2017 State Election Commitment)

Jo Garvey & Jessie Rowley



Photo Courtesy of Steve Anderson

*We acknowledge the
of this land and pay o*



Department of
**Primary Industries and
Regional Development**



PHCC

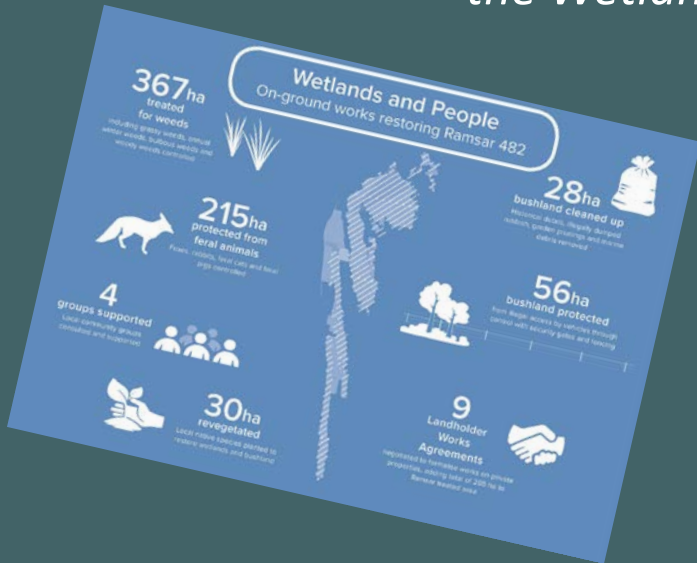
**Working
Together**

Peel-Harvey Catchment Council

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'Wetlands and People'



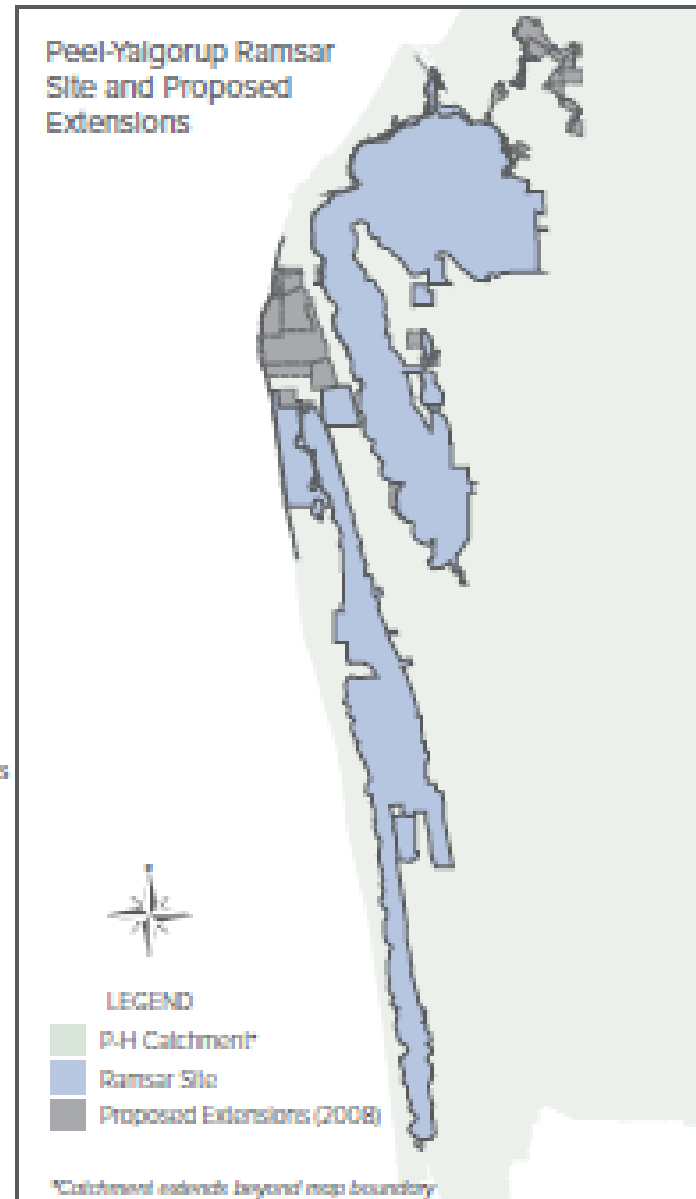
Courtesy of Jarrod Boord - Streamline Media



Ramsar 482: Project Brief

PROJECT ACTIONS

- 25 baseline data sets collected and/or synthesised
- 321 communication materials published
- 3 conferences / seminars
- 12 field days
- 30 on-ground works
- 125 training / workshop events
- 160 ha access control
- 390 ha (initial) and 360 ha (followup) pest animal control
- 30 ha debris removal
- 7 monitoring regimes established
- 68 days maintaining monitoring regimes
- 165 ha surveyed (fauna)
- 17 fauna surveys
- 1 flora survey
- 477 ha (initial) and 350 ha (followup) treated for weeds
- 19 agreements established and maintained
- 37 groups negotiated with
- 30 ha revegetated
- 20 ha revegetated habitat maintained
- 77 project planning and delivery documents
- 16 days site preparation
- 50 water quality surveys
- 2 weed distribution surveys
- 32 potential sites identified



PROJECT CODE: RLP-MU35-P1
2019-2023



Wetlands and People
A community restoring the ecological character of the Peel-Yalgorup Ramsar 482 Wetlands

REGIONAL GOALS

- People
- Biophysical
- Knowledge

By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions.

The 26,530 ha Peel-Yalgorup System is one of the largest and most diverse Ramsar-listed wetland systems in Australia. It meets seven of the nine criteria for Ramsar listing, and meets four of the criteria multiple times, but these values are threatened by the rapidly growing urban population and land-use practices.

Wetlands and People, a community restoring the Ecological Character of the Peel-Yalgorup System's wetlands, will improve over 1,000 ha of Ramsar habitat.

On-ground priority actions will address key threats, and associated direct and indirect stresses placed on the Wetlands, including the Threatened Ecological Community (TEC) of thrombolites at Lake Clifton and priority waterbird habitats.

We will build momentum and support through:

- Significant volunteer contributions including citizen science activities
- Filling vital gaps in knowledge of the condition of our Ramsar Site
- Integrated Collaborative management including embedding Noongar cultural values and knowledge to improve Ramsar values
- Onground works

FUNDING

Australian Government's National Landcare Program \$4,996,221

PARTNERS

Ramsar Technical Advisory Group (refer to back page for members)

PROJECT TEAM

Steve Fisher
Rick James
Sharon Meredith
Mike Griffiths
Kim Wilson
Julie MacMio

STEERING COMMITTEE

Science
Waterways
Community Engagement (refer to back page for members)

REGIONAL COVERAGE



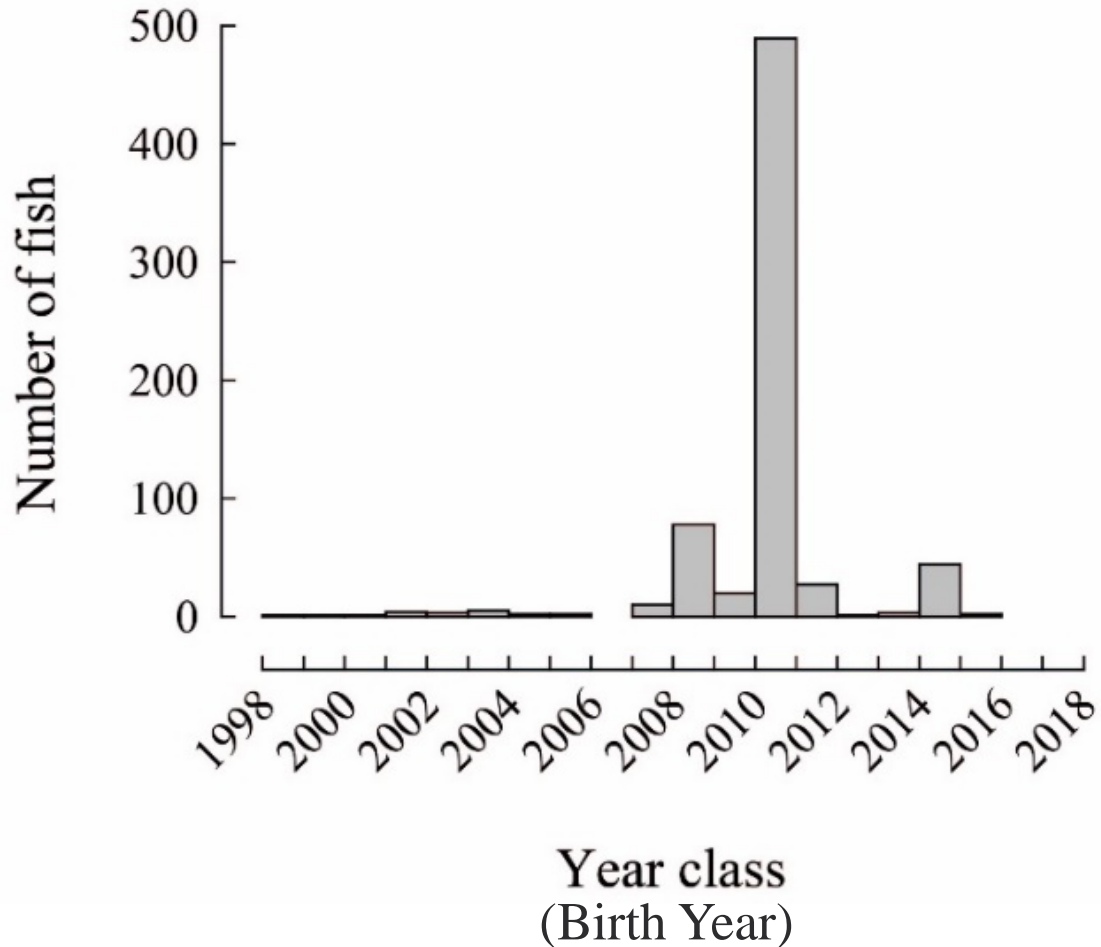
This project is supported by PHCC through funding from the Australian Government's National Landcare Program



PHCC
Working Together

Black Bream Research

Courtesy Alan Cottingham (Murdoch University)



Concerning signs

- Recruitment of black bream has failed except 2010
- Catch rates of adult black bream also declined:
 - only 1 caught during the 2017/18 sampling

Why?

- Poor environmental conditions during spawning
- Fish kills depleting adult population
- Limited egg production

Connecting Communities



MILESTONE
Develop a River Action Plan to set priority actions

38km
foreshore vegetation assessed

MILESTONE
Research, monitoring and data collection

7
instream river health assessments to determine baseline condition

7
monitoring sites established at restoration sites to measure success of onground works into the future

1,682km²
Serpentine River catchment

Connecting Corridors and Communities

MILESTONE
Community engagement and information sharing

>200
students engaged in STEM activities related to biodiversity and health of our rivers

64
community members trained to monitor our rivers

>20
events to increase knowledge and engagement

32
Alcoa employees engaged in project activities

9
private landholders participating in onground activities

MILESTONE
Implement on-ground action to deliver priority outcomes to improve the health of the Serpentine River and its surrounds and to increase connectivity for wildlife

>27,000
seedlings planted to increase biodiversity and connectivity

1.5km
restoration work along river foreshore

water hyacinth controlled **30ha**



Connecting Communities

Building community capacity

School Excursions



Citizen Science



Training Workshops



Field Days



Noongar Consultation



Community Forums

On-ground Actions



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Monitoring & Evaluation

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Vegetation Condition Monitoring



River Health Assessments



Fish Community Index

River Health Assessments: Establishing a Baseline

Serpentine River at Lowlands (Near Pristine)

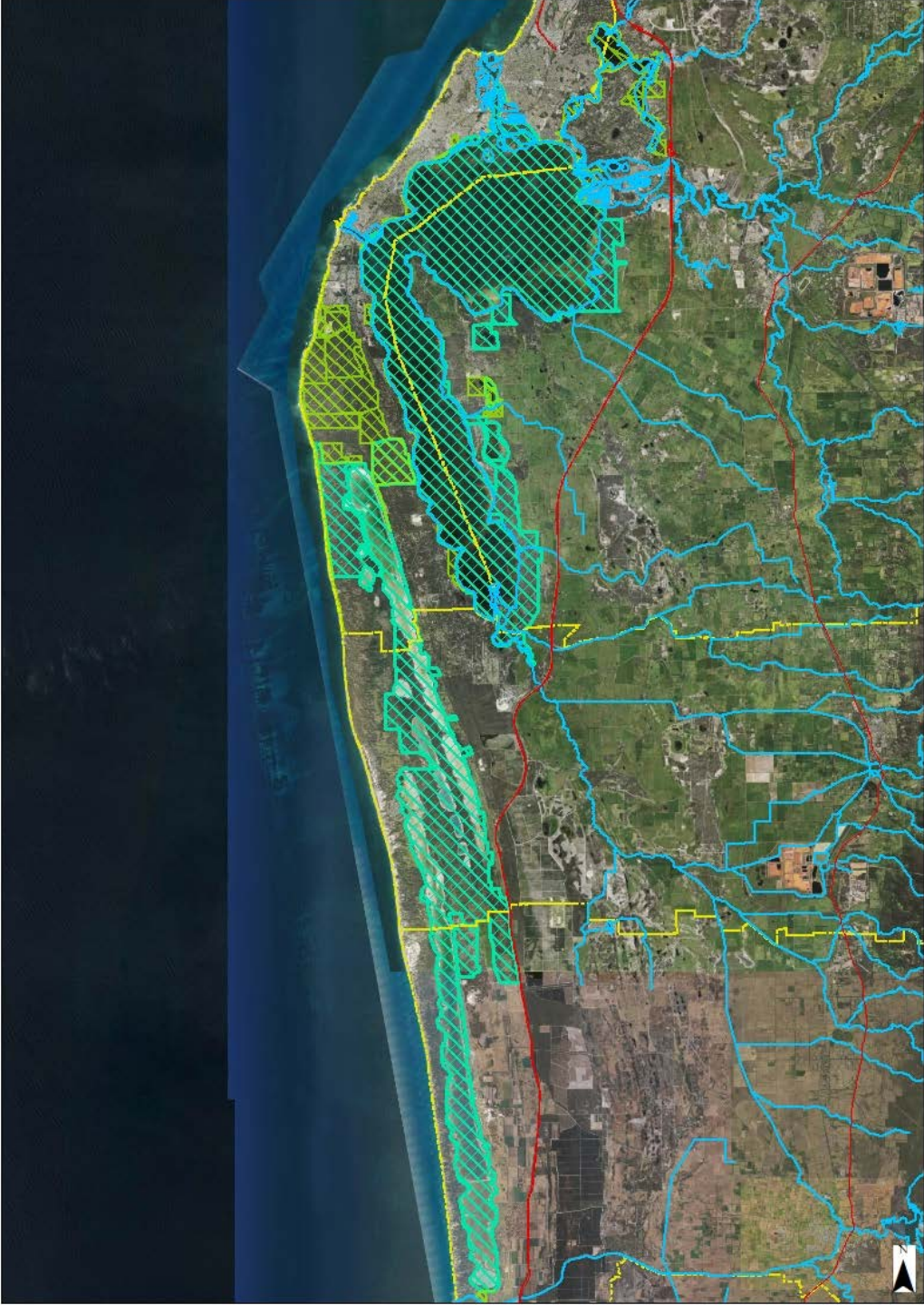


River Health Assessments: Establishing a Baseline

Serpentine River below Peel Main Drain (Degraded)



Ramsar 482 On-ground



Ramsar Activities

Ramsar On-ground



Weed control



Revegetation



Controlling access
(4WDs, motorbikes etc)



Controlling pest animals



Community & landholder engagement



Essential ingredients

Ramsar On-ground



Connectivity across broad
catchment landscape, across
boundaries

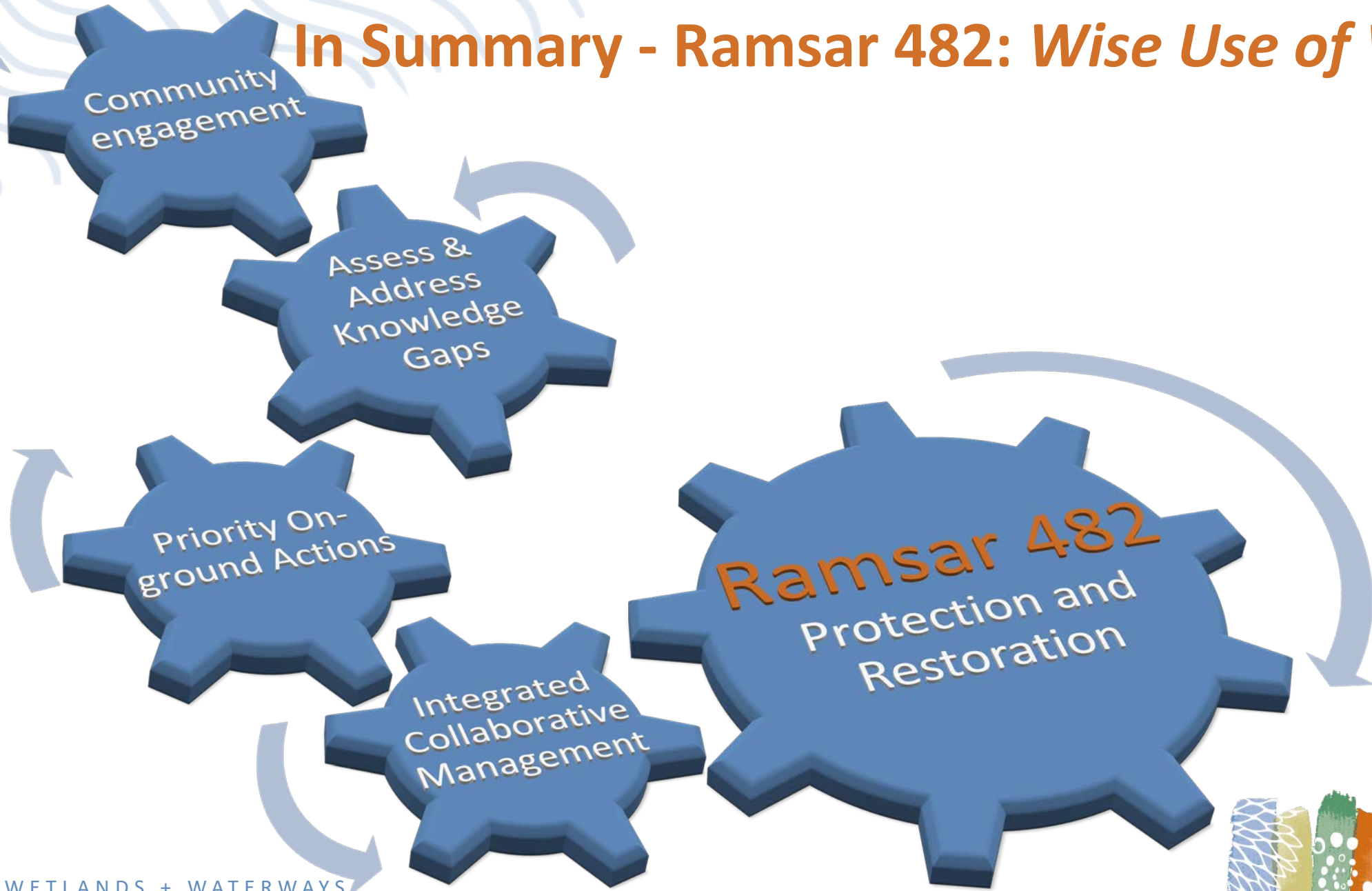
In-kind contributions
from project partners

Monitoring and evaluation

Value-adding
to other environmental works



In Summary - Ramsar 482: *Wise Use of Wetlands*

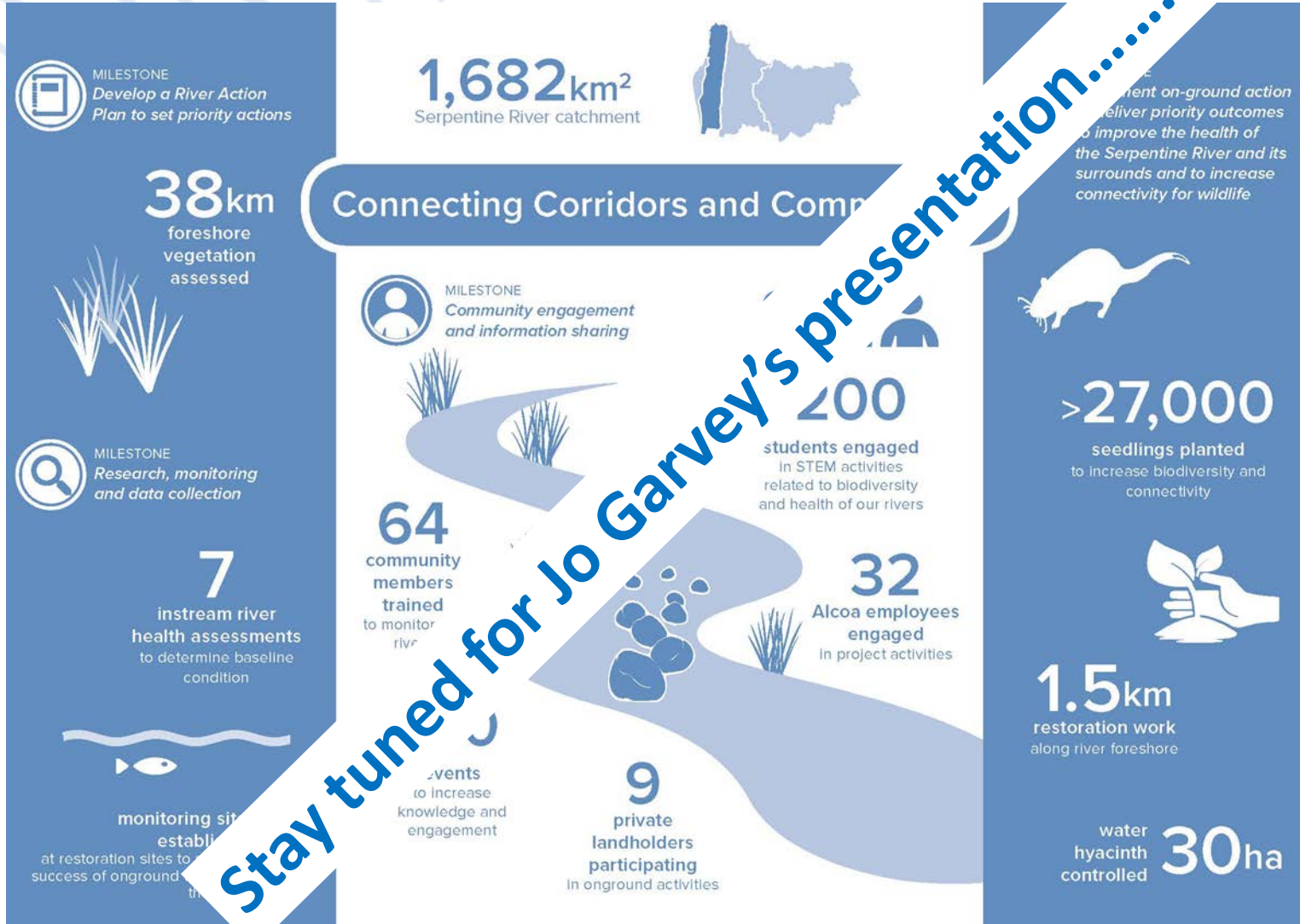


Connecting Corridors and Communities: Restoring the Serpentine River

Jesse Rowley & Jo Garvey (Coordinator)



US\$750 K, 2018-2020



- Improving health, biodiversity & ecosystem function of the Serpentine River (and estuary)
- Part of 3 Rivers, 1 Estuary Initiative
 - The Nature Conservancy
 - Greening Australia
 - Alcoa