

# Science & Waterways Project REPORT



PHCC General Meeting – 20 August 2020

Steve Fisher, Program Manager, Science & Waterways

**RLP – Wetlands and people: A community restoring the ecological character of the Peel-Yalgorup Ramsar 482 Wetlands (The Ramsar Project) Nov 2018 – June 2023 \$4,996,221**

## Year 2 Quarter 4 Reporting

Coordinated by Steve Fisher

- Submitted the Year 2 Quarter 4 Outputs Report and the Annual Progress Report for Year 2 in MERIT
- The team delivered all of the outputs for Year 2 (2019/20) of the project with the exception of approximately 15 ha of revegetation works. In recognition of the difficulties that the COVID-19 pandemic presented to project delivery, the Australian Government allowed us what is in effect an extension to complete this work without any financial implications. The remaining 15 ha have since been completed in July and August.
- Services completed in Year 2 are as follows:
  - ✓ 6 baseline data sets collected and/or synthesized
  - ✓ 75 communications material published
  - ✓ 2 field days held
  - ✓ 6 on-ground works on private land (weed control to complement works within Ramsar Site)
  - ✓ 50 ha controlling access
  - ✓ 74 ha treated for pest animals, initial
  - ✓ 90 ha treated for pest animals, follow up (monitoring, baiting & trapping foxes, feral cats)
  - ✓ 7 agreements established (Contractor and Landholder Works Agreements)
  - ✓ 2 monitoring regimes established
  - ✓ 17 monitoring regimes maintained
  - ✓ 165 ha area surveyed for fauna
    - 3 fauna surveys conducted
    - 1 additional fauna survey specific to cormorant breeding conducted
  - ✓ 5 negotiations with community, landholders, farmers, traditional owners, industry groups
  - ✓ 260 days of project planning and delivery
  - ✓ 20 planning and delivery documents for delivery of the project services
  - ✓ 114 ha of initial weed removal
  - ✓ 70 ha of follow-up weed removal
  - ± 15 ha revegetated ± (preparation, planting and fencing at 6 sites within Ramsar Site and catchment)

## **Component 1: Science and Collaborative Management**

**Managed by Rick James, Coordinator Wetlands Science and Management**

### **Yalgorup Lakes Surface Water Quality Monitoring (YLSWQM) Program**

- **19 sites are being assessed** covering the 17 discrete waterbodies that comprise the Yalgorup Lakes system.
- **Regular monthly monitoring continued** (June & July).
  - July round included DBCA involvement with Mike Venarsky, Ramsar Wetland Ecologist, assisting with sampling.

- The July assessment also included the **collection of water samples for analysis** by Chemistry Centre of WA to **determine ionic balance** against which we can **calibrate our in situ measurements of electrical conductivity**.



#### ***Revegetation work at Lake McLarty***

- **Delivering On-ground component: implementing the Year 2 revegetation program:**
  - **Revegetation work completed on 12 August.**
  - A total of **34,548 plants were put in over six revegetation areas:** NW Lake Clifton, E Lake Clifton, Lake McLarty, Herron Point, Coodanup foreshore (Nairns bird hide) and Hexham Wetlands property on the west side of the Harvey Estuary).
  - Eighteen individual planting sites contained within these six main areas.
  - **18,702 biodegradable (cardboard) guards installed.**
  - **1,016m of fencing erected.**
- **Aerial Survey of the Lake Clifton Thrombolite Community**
  - Survey complete and **high resolution mapping of Lake Clifton and thrombolites provided** (3cm pixel resolution).
  - Final report received in August
- **Preliminary groundwater assessments at Lake Clifton**
  - The recently purchased “spear probe” (a portable piezometer) has been **tried at Lake Clifton.**
  - Results show that the **groundwater just below the lake surface at the shoreline is significantly fresher than the lake surface water** e.g. surface water conductivity = 118 mS/cm (~ twice that of seawater) whereas groundwater at a depth of 1.4 m below surface at the same location was 33 mS/cm (~ half that of seawater).
  - It’s important for the development and health of thrombolites **that significant fresh / brackish groundwater springs exist near the shoreline.** These preliminary results are encouraging as they indicate that this process is ongoing.

– **Welcome Jennie Beeson!**

- Jennie commenced work as a casual employee of PHCC on 11 August for approximately 3 months to help deliver the Lake McLarty Project (State NRM Program) and assist with other water quality sampling programs. Jennie has helped PHCC in the past as a volunteer and we are thrilled to welcome her to the team where we will put her engineering experience to good use.



*Jennie Beeson and friends at the 2019 Wetland Weekender*

**Component 2: Wetlands & People (Community Engagement)**

**Managed by Sharon Meredith, Coordinator, Ramsar Community Engagement**

- **Shorebird Mentor Program (23 July)**
  - Hosted the first workshop for **BirdLife’s Shorebird Mentor Program**. Five mentors have now signed up to the program which teams up local expert birders with local intermediate birders. Through a series of workshops and site surveys, **this program aims to improve the skills and confidence of intermediate volunteers so they can be involved in leadership roles for the National Shorebird Count.**
  - Over the next four months, the **Community Engagement Coordinator will support 2 workshops and 10 field days.** The next workshop is scheduled for 30 October.
- **Fairy Tern Site Managers Workshop (30 July)**
  - Attended the online workshop convened by the Conservation Council of Western Australia. **Stakeholders are considering setting up a secondary sanctuary site for Fairy Terns in Mandurah on Boundary Island.**

- **Clean Waterways Working Group (6 August)**
  - Supported the **City of Mandurah's Clean Waterways Working Group**. The objectives of the working group are to:
    - Create a framework to assist in **transitioning the community and local businesses away from plastic** and create a community campaign to do so.
    - Engage several local businesses and community groups to **create a local campaign that promotes keeping Mandurah waterways clean and reducing litter**.
  - Plastic Free Mandurah was launched on the City of Mandurah's website on 6 August and will be accompanied by a tool kit that list of sustainable options to replace plastics.
- **Science Week event - "Breaming with opportunities" (18 August)**
  - Supported Peel Bright Minds to host a seminar "**Breaming with Opportunities**" that showcases the **innovative aquaculture project "Stock enhancement of black bream in the Murray River"** to celebrate National Science Week 2020. The event premiered the screening of Peel Bright Minds' **mini-documentary on the project followed by a panel discussion**. The event took place at John Tonkin College in front of an audience of approx. 50 people, and **was recorded so it could be viewed after the event** by those who couldn't attend.
- **Dolphin Watch Training (September)**
  - Met with Jason Menzes (DBCA) on 6 August to discuss **rescheduling Dolphin Watch Training for 2020**. Due to restrictions under the COVID-19 pandemic the **2020 March event was cancelled** until further notice. **The event, supported by PHCC is now likely to take place during September**.
  - PHCC provided funding to DBCA to produce a new **(4th) edition of the Fin Book Mandurah**. This identification guide will **be distributed to new volunteers** on the night of the event.
  - Based on previous years, we **expect more than 100 people to attend** the event in 2020
- **The Wetlands Weekender (10 & 11 October)**
  - Met with an internal **Working Group** on 16 June and 9 July which provided recommendations and a framework for the festival.
  - The **Wetlands Weekender is scheduled for 10 and 11 October**. The event program includes:
    - Estuary Tour by boat from Mandurah to Mariners Cove (10 Oct pm)
    - Nature Walk at Creery Wetlands (10 Oct pm)
    - Sunset Cruise – return journey to Mandurah (10 Oct sunset)
    - Movie night – at Reading Cinemas (10 Oct evening)
    - Pave the Way Clean Up at Coodanup foreshore (11 Oct am)
    - A Dog's breakfast (Coodanup foreshore am)
    - Cultural storytelling (Coodanup foreshore am)
    - Arts Market's and Entertainment (Coodanup foreshore am)
  - Consulted and confirmed the following stakeholders:
    - BirdLife WA
    - City of Mandurah
    - Mandurah Cruises
    - John Tonkin College
    - Harry Nannup

- Tangaroa Blue.
- Engaged the Pinjarra Mens Shed to create 200 flock stencils.
- Contacted potential coordinators for arts markets and sent out a request to quote.
- **Reel it In Clean Up Event (24 & 25 October)**
  - Met with Jason Menzes (DBCA) on 6 August discussed potential dates to schedule the **Reel it In Clean-Up Event**.
  - DBCA has scheduled the cleanup event for the **24 and 25 October to avoid clashing with the Wetlands Weekender**. The event works with local stakeholders to clean up two sites in Mandurah across one weekend. **Last year over 200 people attended the event** that involved PHCC, Mandurah Cruises, Tangaroa Blue, Coastal Waste Warriors, City of Mandurah, Mandurah Volunteer Dolphin Rescue Group and Tackle World.
- **World Wetlands Day Conference (2 February 2021)**
  - Cockburn Wetlands Centre accepted PHCC's invitation to host the **World Wetlands Day conference at Mandurah Performing Arts Centre in February 2021**. PHCC has offered to support the conference through hiring the Boardwalk theatre, provision of wetland tours, presentations for the conference, and aligning festival events to celebrate:
    - World Wetlands Day
    - **30<sup>th</sup> Anniversary of the listing of the Peel-Yalgorup Wetlands** as Ramsar 482 (1990) and
    - **50<sup>th</sup> Anniversary of the Ramsar Convention** (1971).
- **Online Education Hub**
  - The Educational Hub aims to capture the **educational programs currently being delivered by PHCC** make them **available for students and teachers to interact with online**. This includes educational videos and worksheets.
  - **Collaborating with Charlie Jones and others at the Children's University at UWA** to develop resources including worksheets.
  - Confirmed videographer to develop a series of educational videos.

### **Component 3: On-Ground**

**Managed and delivered by Mike Griffiths, Wetlands Restoration Officer with support from Rick James and Steve Fisher**

- **Weed control**
  - "Phase 2" **cottonbush control completed south of Ellis Road, Myalup, covering 94 ha of new area**, building on from previous work (Phase 1, 2019) and **complementing previous cottonbush control work on two adjoining private properties**.
- **On-ground works on privately-owned land**
  - Targeted Landholder Works Agreements (LWAs) used for weed control on private properties to complement control measures on adjoining Ramsar Site. **Cottonbush removal/treatment was added**

to follow-up previous control of Brazilian Pepper and Wild Fig, **having proliferated** after these woody weeds were removed. This was **completed by indigenous workers** on one property (see photo below).

- Negotiations underway with four new landholders for proposed on-ground works and LWAs.
- Weed control works completed under a LWA for **additional property near Harvey Estuary targeting woody weeds, cottonbush and thistles.**



***Workers from Indigenous Management Services removing seeding cottonbush on private property***

- **Access Control**
  - **Fencing at McLarty Nature Reserve** completed with objective of **managing illegal four-wheel-drive vehicle access** to the reserve, **thus protecting over 70 ha of conservation land.**



***Contractors fit a gate to complete a fence line managing vehicle access into McLarty Nature Reserve near Harvey Estuary.***

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Managed by Jo Garvey, Coordinator Healthy Waterways, supported by Jesse Rowley

- **Communications**
  - **Three articles featured** in Edition 9 of *Wattle and Quoll*. **Suellen Jerrard (Alcoa Corporate Affairs) congratulated the team on the great coverage and promotion of the project.**
  - **Draft versions of the short films promoting the project have been compiled for review** by the PHCC Communications team to ensure that the films align with PHCC style guidelines and that funders are acknowledged appropriately.
  - **Alcoa Media Release featured in the Mandurah Mail** promoting the Three Rivers One Estuary Initiative planting season activities **to align with National Tree Day** on 2 August)
  - As part of the **“Spotlight on River Health” series** an article was published in the Mandurah Mail titled, “PHCC team hard at work during COVID-- 19 to protect and restore local waterways”.
  - **Jesse Rowley and Steve Fisher attended The Nature Conservancy’s “Shellfish Reef Restoration” project community forum**, to support the project and promote and raise awareness of the **‘Three Rivers, One Estuary initiative’** – see also 1 FTE Science Advisor below.
  - **Quotation from PHCC regarding our Restoring the Serpentine River Project and water sustainability cited and published in the Alcoa (Global) Sustainability Report - see page 80 & 83 of the report at <https://www.alcoa.com/sustainability/en/pdf/2019-Sustainability-Report.pdf>.**
- **Karu Bilya Wetlands Restoration Project**
  - **12,000 native plant species have now been planted over 7 hectares** under direction of Grant Pronk from GP Forestry. Gambara Environmental Company and the Noongar community from Perth as well as the **Bindjareb Middars who assisted Grant Pronk in planting the native species.**
  - **860m of fencing has been installed** to protect 5.7 hectares of revegetation.
  - ‘Restoring the Serpentine River’ and ‘Revegetation in Progress’ signs have been installed within the site to notify individuals and other organisations restoration works are taking place.
  - Continuing to work collaboratively with organisations such as Water Corporation, Main Roads and Department of Water and Environmental Regulation to **help reduce illegal access into the Karu Bilya site.**
- **Hymus Creek Restoration Project planting and cultural knowledge sharing event, Lowlands Farm**
  - On 12 August, **2000 native species were planted by a team of volunteers including Alcoa staff** to help bring back biodiversity to Hymus Creek which was severely impacted by bushfires in January 2020.
  - Bindjareb Middars, a local Noongar group headed by Theo Kearing provided a **Welcome to Country, Smoking Ceremony and storytelling session and planted with the team.**
  - This revegetation project was **funded jointly by the Australian Government (NLP2 Ramsar Project) and the Alcoa Foundation**
- **Serpentine River Action Plan (RAP)**
  - **The RAP has now been finalised** and we are using it to **strategically plan on-ground works** at priority sites identified in the plan to improve the condition of the Serpentine River.



- We are currently working through a process to **produce Concept Plans for works at three sites following recommendations from the RAP.**

- **Dung Beetle Project**

- **A field day was held on 13 August to create a greater awareness of the fascinating world of dung beetles, bringing together the community and other stakeholders for the PHCC region and beyond.** The event was attended by approximately **20 interested landholders and other stakeholders.**
- Guest speakers included **John Allen, a dung beetle expert** and Agricultural Coordinator at Coodanup College and **Jacob Berson, a Research Associate at the School of Biological Sciences, University of Western Australia,** provided an insight into their roles in the dung beetle industry as well as **share their knowledge on the potential environmental benefits of dung beetles.**



***Karu Bilya Wetlands Restoration***



***Hymus Creek smoking ceremony***



***Hymus Creek planting***



***Dung Beetle Field day at Lowlands***

Managed by Jo Garvey, Coordinator Healthy Waterways, supported by Jesse Rowley

- **Stock Enhancement of Black Bream in the Murray River (see also 1FTE Science Advisor Report)**
  - **17 mature black bream** captured from the Murray River (see photo below) will be used to **breed the next generation of baby bream fingerlings**, which will be raised by John Tonkin College students under the guidance of the Murdoch University.
  - The black bream **broodstock spawned naturally on 7 August**
  - The project was **showcased through the “Breaming with Opportunities”** event (18 August) , organised by Peel Bright Minds to coincide with National Science Week – see Ramsar Community Engagement and 1-FTE project reports.



*Ben Roennfeldt (Murdoch University / DPIRD) angling for black bream on the Murray River.*

- **Harvey River Demonstration Reach / Marron, more than a meal**
  - The team has been busy planting with community and Greening Australia.
  - **A series of short films promoting the Harvey River and the ‘Marron, more than a meal’ project**, have been produced and are available to view via the HRRT facebook page – see <https://m.facebook.com/groups/155774684632567?view=permalink&id=1383395358537154>
- **Fish Friendly Farms**
  - PHCC is supporting several projects occurring in the Peel Catchment that align with the Fish Friendly Farms initiative with the **aim to have a landscape scale impact rather than an ‘ad-hoc’ approach**.
    - Enhancing fish habitat (1) - **supporting TNCs Shellfish Gardening Project** in the Peel-Harvey Estuary (see also 1 FTE Science Advisor below)

- Enhancing fish habitat (2) – investigating **occurrence of black pygmy mussels in the Murray River**
- **Carter’s freshwater mussels in farm dams** – with Alan Lymbery (Murdoch University)
- **Riparian habitat restoration** – on hold until we learn more about the fate of our grant application to the Alcoa Foundation for our Healing Bilya – Restoring the Serpentine and Murray Rivers - see 1 FTE Science Advisor report below.
- The Project’s ‘Delivery Components’ are tracking well with meetings and planning sessions to discuss future works with Murdoch University, the Nature Conservancy and community.

**Royalties for Regions / City of Mandurah / PHCC 1FTE Science Advisor    May 2018 – Oct 2021**  
**\$468,000**

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**Managed by Steve Fisher, Program Manager, Science and Waterways (in addition to oversight of the projects above)**

- **Attended the following key meetings with:**
  - The ‘**Stock enhancement of black bream in the Murray River**’ project team i.e. **Kim Savins, Barb Sing, (John Tonkin College, JTC)**, Jo Garvey and Jesse Rowley (**PHCC**) on 23 June where we decided that the program would proceed in 2020, with a **release of bream fingerlings again in December 2020** (see also Royalties for Regions: Peel-Harvey Estuary Grants project summary above).
  - **Alex Hams, Fiona Valesini, Theo Kearing (TNC)** and **Jesse Rowley and Jo Garvey** on 23 June to **progress collaboration** on TNC’s **Shellfish Gardening Program** and **PHCC’s Fish Friendly Farms** project (see also Peel-Harvey Estuary Grants project summary above).
  - Justin Fromm (Peel Development Commission) and Jane O’Malley on 2 July to discuss the status of the **Business Case for the Water Research Infrastructure Project** we prepared in December 2019. It is likely that the **business case will be presented to the State Government (DPIRD) as a package with the business case for the City of Mandurah’s Data Array**
  - Stefan Chappell (PDC) and **Sundave Sidhu (DPIRD)** on 9 July to give more **detail and context to the annual progress report for the Science Integration (1FTE) project.**
  - Jane Meriwether, Mindy Blaise (Edith Cowan University) and Brad Gobby (Curtin University) on 9 July to explore opportunities to collaborate on early childhood learning activities based on the ecological character and landscapes of the Ramsar 482 Site
  - The community at the **Shellfish Gardening Program forum**, hosted by the nature conservancy on 3 August to recruit community members living in marinas and canal estates to participate in a program of **growing and maintaining blue mussels in baskets installed under privately owned jetties** – see also Provision of Advice, Shellfish Reef TAG Meeting below.
- **Made the following presentations**
  - **“Breaming with Opportunities”** to approx. 50 attendees at the National Science Week event on 18 August hosted by Peel Bright Minds and funded by Inspiring Australia and PHCC. The presentation complemented a short film and a panel discussion describing the **Stock Enhancement of Black Bream in the Murray River** component project of the Peel-Harvey Estuary Grants.
  - Interviewed on 16 July for **short films promoting the Connecting Corridors and Communities - Restoring the Serpentine River Project.** These will be used to showcase the project to the

community as well as by Alcoa to **promote the Healing Bilya – Restoring the Serpentine and Murray Rivers to the Alcoa Foundation.**

- Interviewed on 16 July and 1 August for a **short film promoting the Stock Enhancement of Black Bream in the Murray River** project for screening at the “Breaming with Opportunities” National Science Week Event.
  
- **Provision of Advice / driving projects to assist in the restoration of Peel Waterways**
  - Attended the **Technical Advisory Group of the Peel-Harvey Shellfish Reef Project** on 3 August to discuss progress and provide advice on this project delivered by The Nature Conservancy. The project involves two components: **establishment of a shellfish reef in the Peel-Harvey Estuary comprising ~ 1.5 million blue mussels** and a **shellfish gardening project, involving community members growing ~50,000 mussels** to seed onto the reef.
  
  - With Jo Garvey, on 16 July submitted the final **full application for *Healing Bilya-Restoring the Murray and Serpentine Rivers* project Dec 2020 – Dec 2023** (i.e. the next Phase of the **Connecting Corridors and Communities – Restoring the Serpentine River** - see Alcoa Foundation project report above). **Alcoa will present it to the Alcoa Foundation for their consideration at their August Board Meeting. We will know if we are successful by late 2020.**
  
  - Participated in the first meeting of the **Stakeholder Reference Group** for the ***Predicting the Impacts of Fire on Water Quality (PIFWaQ)*** project held on 21 July. This project is led by Pierre Horwitz (ECU) funded by the Water Corporation and will examine the impacts of fire on water quality in drinking water catchments in southwest WA.
  
  - Provided information to Peel Development Commission about achievements by PHCC to update the **Peel Blueprint Scorecards for 2019/20** (7 August)
  
  - Provided input to **PHCC’s submission to the Australian Government** regarding the impact of the proposed expansion of the **Alcoa Huntley Bauxite Mine on the Ramsar Site** (14 August).
  
- **Other**
  - Helped collect (i.e. went fishing for) **black bream broodstock** from the Murray River 1 August with Ben Roennfeldt (DPIRD), Alan Cottingham (Murdoch University) and others.

### Events (PHCC sponsoring or presenting)

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- **Previous events 18 June to 20 August:**
  - 23 July 2020                      **Shorebird Mentor Program - Workshop1**  
(see Wetlands & People Community Engagement)
  
  - 12 August 2020                      **Planting Day at Hymus Creek, Serpentine River**  
(see Alcoa Foundation – Restoring the Serpentine River)
  
  - 13 August 2020                      **Dung Beetle Field Day**  
(see Alcoa Foundation – Restoring the Serpentine River)
  
  - 18 August 2020                      **Science Week “Breaming with opportunities”**  
(see Wetlands & People Community Engagement and 1-FTE Science Advisor)

- **Future events (after 20 August):**
  - September 2020      **Dolphin Watch Training (TBC)**  
(see Wetlands & People Community Engagement)
  - 10/11 October 2020    **Wetlands Weekender**  
(see Wetlands & People Community Engagement)
  - 24/25 October 2020    **Reel it In Clean-Up**  
(see Wetlands & People Community Engagement)
  - 30 October 2020        **Shorebird Mentor Program - Workshop2**  
(see Wetlands & People Community Engagement)
  - February 2020         **World wetlands Day Conference (TBC)**  
(see Wetlands & People Community Engagement)

### **Work Health and Safety**

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- **No incidents or near-misses to report**