

VML:MB  
Vicki Lukritz  
3810 6221

12 July 2018

Sir/Madam

Notice is hereby given that a Meeting of the **CONSERVATION AND ENVIRONMENT COMMITTEE** is to be held in the **Council Chambers** on the 2nd Floor of the Council Administration Building, 45 Roderick Street, Ipswich commencing at **10.30 am or 10 minutes after the conclusion of the Works, Parks and Sport Committee, whichever is the earlier** on **Monday, 16 July 2018**.

<b><u>MEMBERS OF THE CONSERVATION AND ENVIRONMENT COMMITTEE</u></b>	
Councillor Silver ( <b>Chairperson</b> ) Councillor Bromage ( <b>Deputy Chairperson</b> )	Councillor Wendt ( <b>Acting Mayor</b> ) Councillor Morrison Councillor Martin

Yours faithfully

**CHIEF EXECUTIVE OFFICER**

## CONSERVATION AND ENVIRONMENT COMMITTEE AGENDA

10.30 am or 10 minutes after the conclusion of the Works, Parks and Sport Committee, whichever is the earlier on **Monday, 16 July 2018**  
Council Chambers

Item No.	Item Title	Officer
1	<a href="#">Continuation of Contributions to the Bremer River Fund</a>	WIO
2	<a href="#">Small Creek Naturalisation Project Progress Update</a>	WIO
3	<a href="#">Environment and Sustainability Community Grant Applications for the 2017–2018 Round and Ongoing Program</a>	PO
4	<a href="#">2018 Peaks to Points Festival Events</a>	PO
5	<a href="#">2018–2019 Conservation Visitor Management Program</a>	CVMO
6	<a href="#">Fish Barrier Removal on Bundamba Creek at Worley Park, Raceview – Division 4</a>	WHO
7	<a href="#">Flying-Fox Weed Control Subsidy and Local Management Plans</a>	PO(B)
8	<a href="#">Upper Black Snake Creek Improvement Project – Division 10</a>	WHO

\*\* Item includes confidential papers

**CONSERVATION AND ENVIRONMENT COMMITTEE NO. 2018(07)**

**16 JULY 2018**

AGENDA

1. **CONTINUATION OF CONTRIBUTIONS TO THE BREMER RIVER FUND**

With reference to a report by the Waterway Improvement Officer dated 28 June 2018 regarding the continuation of funding to support a project officer through the Bremer River Fund.

**RECOMMENDATION**

- A. That Council approve the continuation of funding of \$27,000.00 to the Bremer River Fund, as auspice by the International RiverFoundation, in order to continue the employment of the Bremer River Fund Project Support Officer in support of the Bremer River Network.
  - B. That Council continue to provide hosting arrangements for the Project Support Officer through the provision of office space, desk and computer access.
  - C. That Council's nominated representatives, Councillor Morrison and Councillor Pahlke, in consultation with the Chairperson of the Conservation and Environment Committee engage with the Chief Executive Officer of the International RiverFoundation to discuss the current and future direction of the Bremer River Fund.
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2. **SMALL CREEK NATURALISATION PROJECT PROGRESS UPDATE**

With reference to a report by the Waterway Improvement Officer dated 30 May 2018 providing a progress update of the Small Creek Naturalisation Project.

**RECOMMENDATION**

That the report be received and the contents noted.

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3. **ENVIRONMENT AND SUSTAINABILITY COMMUNITY GRANT APPLICATIONS FOR THE 2017–2018 ROUND AND ONGOING PROGRAM**

With reference to a report by the Partnerships Officer dated 11 June 2018 concerning funding allocations for the Environment and Sustainability Community Grant program 2017–2018 round and proposal for future rounds of the program.

**RECOMMENDATION**

- A. That the recommended funding for the applicants in the 2017–2018 round of the Environment and Sustainability Grant program be approved.

- B. That the Environment and Sustainability Community Grant Program review as outlined in the report by the Partnerships Officer dated 11 June 2018, be adopted with the grant program being open for two rounds of applications in the 2018–2019 financial year.
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4. 2018 PEAKS TO POINTS FESTIVAL EVENTS

With reference to a report by the Partnerships Officer dated 26 June 2018 concerning the 2018 Peaks to Points Festival and the inclusion of Ipswich events within the festival.

RECOMMENDATION

That Council support two events as outlined in the report by the Partnerships Officer dated 26 June 2018 to be included as part of the 2018 Peaks to Points festival.

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5. 2018–2019 CONSERVATION VISITOR MANAGEMENT PROGRAM

With reference to a report by the Conservation Visitor Management Officer dated 22 June 2018 concerning the Conservation Visitor Management program for 2018–2019.

RECOMMENDATION

That the 2018–2019 Conservation Visitor Management Program as outlined in Attachment B to the report by the Conservation Visitor Management Officer dated 22 June 2018, be approved.

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5. FISH BARRIER REMOVAL ON BUNDAMBA CREEK AT WORLEY PARK, RACEVIEW – DIVISION 4

With reference to a report by the Waterway Health Officer dated 12 June 2018 concerning the removal of a fish barrier on Bundamba Creek at Worley Park, Raceview.

RECOMMENDATION

That the report be received and the contents noted.

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6. FLYING-FOX WEED CONTROL SUBSIDY AND LOCAL MANAGEMENT PLANS

With reference to a report by the Planning Officer (Biodiversity) dated 25 June 2018 concerning the creation of a weed control subsidy for flying-fox colonies and timelines and engagement strategies for development of local roost management plans.

## RECOMMENDATION

- A. That Council develop local management plans following the schedule and consultation process as outlined in the report by the Planning Officer (Biodiversity) dated 25 June 2018.
  - B. That an environmental weed subsidy be included as a management action at appropriate locations and included within and subject to the relevant local management plan.
  - C. That where required, any future use of an environmental weed subsidy through implementation of a local management action is coordinated by Council using its as-of-right authority under the *Nature Conservation Act 1992*.
  - D. That the local management plans be developed in consultation with the Chairperson of the Conservation and Environment Committee and relevant divisional Councillors.
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## 7. UPPER BLACK SNAKE CREEK IMPROVEMENT PROJECT – DIVISION 10

With reference to a report by the Waterway Health Officer dated 13 June 2018 concerning the delivery of the Upper Black Snake Creek Improvement Project which is funded via the South East Queensland Council of Mayors Resilient Rivers Initiative.

## RECOMMENDATION

- A. That Council enter into an amended funding agreement with Council of Mayors (SEQ) for the Black Snake Creek project as outlined in Attachment B to the report by the Waterway Health Officer dated 13 June 2018.
  - B. That Council enter into a contract with Healthy Land and Water for the Black Snake Creek project for the sum of \$120,000 (excl. GST of \$12,000) for a period of twelve months.
  - C. That the Chief Executive Officer be authorised to negotiate and finalise the terms of the contract to be executed by Council and to do any other acts necessary to implement Council's decision in accordance with section 13(3) of the *Local Government Act 2009*.
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\*\* Item includes confidential papers

and any other items as considered necessary.

<b>Conservation and Environment Committee</b>	
Mtg Date: 16.07.18	OAR: YES
<b>Authorisation:</b> Bryce Hines	

BW: BW

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28 June 2018

### **MEMORANDUM**

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: WATERWAY IMPROVEMENT OFFICER

RE: CONTINUATION OF CONTRIBUTIONS TO THE BREMER RIVER FUND

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#### **INTRODUCTION:**

This is a report by the Waterway Improvement Officer dated 28 June 2018 regarding the continuation of funding to support a project officer through the Bremer River Fund.

#### **BACKGROUND:**

Since 2011, Ipswich City Council has provided funding to the Bremer River Fund under the auspice of the International River Foundation to facilitate a project officer position for the improvement of the Bremer River.

At the Council Ordinary Meeting held on 28 January 2016 it was resolved:

- A. *That Council continue to support the Bremer River Fund through officer time on the Bremer River Fund Steering Committee.*
- B. *That Council continue to support the Bremer River Project Officer through the provision of desk space and resources.*
- C. *That Council provide part funding of \$30,000.00 in 2016–2017 for the Bremer River Project Officer to support the Bremer River Initiative Network obtain further grant funds and manage on-ground projects.*

A copy of this report is shown in Attachment A.

### **RECENT ACHIEVEMENTS:**

Over the last financial year the project officer has focused on the formation and growth of the Bremer River Network (the Network) to provide a central coordination and communication point for various volunteers and not for profit groups throughout the Bremer River Catchment. This has resulted in:

- the Network's social media following increasing by 500%
- participating groups showing a 20% increase in membership
- increased exposure and a rallying point for community members wishing to make a contribution to the Bremer River Catchment
- a subsequent increase in volunteering hours

A full summary of the achievements of the Network in 2017 are detailed in Attachment B.

The Network is a valued conduit between Ipswich City Council, some of the key volunteer groups such as West Moreton Landcare and Bremer Catchment Association, and the wider community. It has further acted as a key facilitator and support mechanism for bushcare groups in the Ipswich; currently supporting four active groups on the Bremer River and Deebing Creek.

### **CONTINUATION OF FUNDING AND PROGRAM OUTLOOK:**

As the Bremer River Network continues to grow, Council has received requests from the International RiverFoundation to provide further funding of \$27,000.00 for an extension of the Project Officer position (Attachment C and D).

In addition to building on its current function and reach, the Project Officer will play a crucial role in facilitating the outcomes of the recently completed Bremer River Catchment Action Plan in June 2018.

Benefits to Council and the community of continuing the Bremer River Network and Project Officer role will be:

- to continue to access external funding that Council would otherwise not be able to gain as a local government body for use on catchment improvement projects.
- assist to facilitate outcomes on private land heavily reliant on partnerships
- act as a key player in the delivery of the actions in the Bremer River CAP
- be a conduit of information between community groups, other NRM bodies and Ipswich City Council

The importance of the network and its role is highlighted in the letters of support from Native Plants Queensland and the West Moreton Landcare Group (Attachments E and F).

Funding for the Bremer River Fund Project Support Officer will be covered within Council's Integrated Water Management operational budget.

**COUNCIL REPRESENTATION ON THE STEERING COMMITTEE:**

The Bremer River Fund corporate governance document 2016 – 2019 provides the arrangements for the administration, decision-making and membership of the Fund (Attachment G). Under the corporate governance, Council would be considered as being a ‘Member Council’ and/or a ‘Funding Member’. As such Council can nominate at least 1 and no more than 2 representatives on the committee. A representative from a Member Council is a nominated person which may be an elected representative and/or a nominated Council officer.



Following the election in 2016, Council nominated Councillor Morrison and Councillor Pahlke as representatives to the Bremer River Fund Steering Committee (Attachment H). During this time, the International RiverFoundation which hosts the Bremer River Fund, has undergone a series of changes including the appointment of a new Chief Executive Officer (CEO). The new CEO is Dr Eva Abal. It is recommended that Council engages with the new CEO to discuss the current and future direction of the Bremer River Fund and membership on the Steering Committee.

**CONCLUSION:**






The International RiverFoundation has sought continuation of contributions to the Bremer River Fund of \$27,000.00 from Ipswich City Council. The contribution will continue to support the project officer position and by extension the Bremer River Network. The network has become an integral part of the Natural Resource Management community over the last two (2) years.

As the Network grows from strength to strength, it has become an important conduit between Ipswich City Council and the wider Natural Resource Management community including volunteers and not for profit groups. It is envisaged that the network will play a key role in the coordination and delivery of outcomes to be achieved under the Bremer River CAP. Council’s financial support will ensure the continuation of the project officer position which will continue working towards waterway health outcomes by promoting the growth of the volunteer base and accessing funding for on-ground action.

**ATTACHMENTS:**

Name of Attachment	Attachment
<a href="#">Environment and Conservation Committee 2016(01) of 20 January 2016 Report</a>	 Attachment A
<a href="#">2017 Bremer River Network Report</a>	 Attachment B
<a href="#">Request for Funding from International RiverFoundation</a>	 Attachment C



Letter seeking support from the Bremer River Fund	 Attachment D
Letter of Support Native Plants Queensland	 Attachment E
Letter of Support West Moreton Landcare Group	 Attachment F
Bremer River Fund Corporate Governance 2016-2019	 Attachment G
Letter dated 6 May 2016 advised Council representation on the Bremer River Fund Steering Committee	 Attachment H

**RECOMMENDATION:**

- A. That Council approve the continuation of funding of \$27,000.00 to the Bremer River Fund, as auspice by the International RiverFoundation, in order to continue the employment of the Bremer River Fund Project Support Officer in support of the Bremer River Network.
- B. That Council continue to provide hosting arrangements for the Project Support Officer through the provision of office space, desk and computer access.
- C. That Council’s nominated representatives, Councillor Morrison and Councillor Pahlke, in consultation with the Chairperson of the Conservation and Environment Committee engage with the Chief Executive Officer of the International RiverFoundation to discuss the current and future direction of the Bremer River Fund.

Ben Walker  
**WATERWAY IMPROVEMENT OFFICER**

I concur with the recommendation contained in this report.

Kaye Cavanagh  
**ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation contained in this report.

Bryce Hines  
**ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

<b>Environment and Conservation Committee</b>	
Mtg Date: 20.01.16	OAR: YES
<b>Authorisation:</b> Craig Maudsley	

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## **ITEM 4**

16 November 2015

### **MEMORANDUM**

TO: SPORT, RECREATION AND NATURAL RESOURCES MANAGER

FROM: WATERWAY HEALTH OFFICER  
BREMER RIVER FUND PROJECT OFFICER

RE: UPDATE ON THE OXLEY CREEK AND BREMER RIVER TWINNING PROGRAM AND  
THE RESULTING BREMER RIVER INITIATIVE NETWORK

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#### **INTRODUCTION**

This is a joint report by the Waterway Health Officer and Bremer River Fund Project Officer dated 16 November 2015 concerning an update on the progress and future plans of the Twinning Program between Oxley Creek and Ipswich City Council.

#### **BACKGROUND**

On 2 July 2014 Ipswich City Council signed a Statement of Understanding with The Oxley Creek Catchment Association which represented the beginning of a Twinning relationship and work program funded through the International River Prize, as outlined in the report to Environment and Conservation Committee on 11 March 2014 (Attachment A). This was followed by a launch event on the banks of the Bremer River, attended by members of Ipswich City Council, Oxley Creek Catchment Association and other local Natural Resource Management groups and interested parties.

Since its inception, the Bremer River Fund (BRF) has sourced and invested approximately \$400,000 of funding into the Bremer Catchment. The vast majority of which has been spent in the Ipswich LGA and was obtained through sources otherwise inaccessible to local governments, such as the Queensland Government's Everyones Environment Grants, community grants and corporate investment.

Funding obtained by the BRF through successful grant applications and the Oxley Creek Twinning partnership, as well as the in-kind support of Ipswich City Council, enabled the employment of a Project Officer for two days a week (0.4 Full Time Equivalent). Realising the value in this role, OCCA has since increased financial contribution for the Project Officer

who is now employed four days a week (0.8 Full Time Equivalent). Having the project officer positioned at Council has been extremely beneficial for the efficient delivery of on ground projects in Ipswich and communications between Twinning partners and relevant stakeholders.

### **PROGRESS TO DATE:**

Since the previous report to the Environment and Conservation Committee on 20 May 2015 (Attachment B), the following activities have been achieved through the Bremer River Fund and Oxley-Bremer Twinning Program:

- A successful partnership bid for funding through the Bremer River Fund for the third Round of Everyone's Environment Grant Funding focusing on an area within the Flinders - Goolman Conservation Estate for \$65,000. On ground works have commenced to remove weed species in an identified restoration site and community planting days have been planned for 2016.
- The Bremer River Fund was successful in obtaining funding from the Queensland Government for a project to restore urban wetland biodiversity in Bundamba Creek. The grant of \$100,000 has been committed to revegetation work along Bundamba Creek and the Lorikeet Street Reserve Project that has been driven by the Ipswich Creek Catchment Group.
- Community lead projects at David Coultas Park, Rotary Park and Tite Family Park have been completed as part of the Better Bundamba Creek Project funded by the first and second Rounds of the Everyone's Environment Grant Program.
- The Bremer River Fund has continued its relationship with Thiess Services through a corporate planting day on Bundamba Creek for Thiess employees, as a part of World Rivers Day 2015.
- The Project Officer has worked to build relationships with local community groups by attending group meetings and continuing communications around knowledge sharing and exploring partnership opportunities in the Bremer Catchment.
- The Bremer Catchment Partnerships Workshop was held on the 21 July 2015 to explore the possibility of developing a sustainable partnerships model within the Bremer Catchment. The workshop was attended by representatives and members from various groups and organisations. At this event, the idea of a Bremer River Initiative (BRI) was proposed - to provide overarching support and a collective network of local environmental groups within the catchment.
- From the information gathered at the Partnerships Workshop, a written proposal for the Bremer River Initiative (BRI) Network was developed (Attachment C). This initiative is aimed to enable catchment wide collaboration between groups and continue on ground works after the completion of the Twinning Program and grant funded projects.

The Oxley Creek Catchment Association has produced Milestone Reports summarising the progress of the Twinning Project to date (Attachments D and E).

### **LOOKING FORWARD:**

A key outcome of the Twinning Program has been a greater understanding of the value and workings of existing community groups within the Bremer River catchment. Whilst these groups provide a valuable contribution on an individual basis; there is often a level of competitiveness in sourcing limited funding and delivery of projects is uncoordinated. The Twinning Program has resulted in the proposed Bremer River Initiative to bring the groups together in a collaborative network, and to make use of the Bremer River Fund to leverage funds direct to on-ground delivery by the groups. The Initiative also works to empower the groups to lead community action.

As the Twinning Program is due to reach its conclusion in January 2016, it is proposed that ongoing funding be considered in order to support the existing Bremer River Project Officer role. The proposal is that this role will continue to be administered under the auspice of the International River Foundation on behalf of the BRF but can physically reside at or with any partner to the Fund including Ipswich City Council (as is currently the case). The extension of this role will enable continued partnerships and delivery of high quality project management for on-ground delivery of waterway health projects in Ipswich and the broader Bremer River catchment area. It is proposed that Council part-funds the position through an annual contribution of \$30,000. This can be covered within the operational budget for integrated water management for 2016–2017.

The funding will be subject to annual review and the position will be assessed against the delivery of successful outcomes and ability to leverage further funding to support the position and associated projects. Scenic Rim Regional Council is considering a contribution of \$10,000 to support the future direction and to act as leverage for future funding. Without this funding and with the conclusion of the current partnership arrangements, the BRF will need to scale back operations and actions as it will be dependent upon the voluntary time and contribution of committee members and Council officers.

The BRF governance structure is currently under review to reflect the new direction and to support the BRI Network. A BRF committee meeting in December discussed the future of the Fund and agreed to focus on continued stakeholder and community engagement to establish a partnership agreement for the BRI Network.

### **BENEFITS OF THE BREMER RIVER INITIATIVE TO COUNCIL, THE COMMUNITY AND CUSTOMERS:**

The Bremer River Fund has continued investment into river and catchment improvement on Council land above and beyond what is achievable in Council's day to day business, contributing approximately \$400,000 in the form of on ground works across the whole of the Bremer Catchment. To this Council has contributed in-kind support through the provision of a desk and resources for the BRF Project Officer as well as staff time to support projects that align with the current business objectives.

The BRI Network provides the following benefits:

- Enhanced collaboration with community groups and Scenic Rim Regional Council
- Coordinated voice for the Catchment
- Central point of communication
- Raising the profile of community groups and projects
- Pooled resources and expertise
- Strategic planning for whole of catchment management
- Increased opportunities to engage with wider community

Providing ongoing support for the employment of a Project Officer will enable this Initiative to be established and on-ground works in Ipswich to continue. The Project Officer will also be tasked with sourcing further funding from Government and corporate sources in line with the current objectives of the Bremer River Fund.

### **CONCLUSION**

The Oxley Creek and Bremer River Twinning program has provided a knowledge, skill and resource sharing opportunity, from which the Project Officer was able to develop a vision and plan for the future of the Bremer River Fund in the form of the Bremer River Initiative Network. This initiative has the potential to facilitate catchment wide strategic direction and communication for environmental community groups and land care organisations. Council can continue to be involved as a member of the BRF committee and as an active member of the Network. In supporting the BRF through a financial contribution for a project officer, Council could see a continued return on investment into catchment improvement actions greater than 10:1 for a \$30,000 investment.

### **ATTACHMENTS**

Name of Attachment	Attachment
<a href="#">Committee Report on Project Officer and Twinning Proposal (11 March 2014)</a>	 Attachment A
<a href="#">Update on the Oxley Creek Catchment Association and the Bremer River Twinning Program (20 May 2015)</a>	 Attachment B
<a href="#">BRI Proposal</a>	 Attachment C
<a href="#">Oxley Creek Catchment Association Inc. TWINNING Milestone Report 2</a>	 Attachment D
<a href="#">Oxley Creek Catchment Association Inc. TWINNING Milestone Report 3 DRAFT</a>	 Attachment E

**RECOMMENDATION:**

- A. That Council continue to support the Bremer River Fund through officer time on the Bremer River Fund Steering Committee.
- B. That Council continue to support the Bremer River Project Officer through the provision of desk space and resources.
- C. That Council provide part funding of \$30,000.00 in 2016–2017 for the Bremer River Project Officer to support the Bremer River Initiative Network, obtain further grant funds and manage on-ground projects.

Philip Smith  
**WATERWAYS HEALTH OFFICER**

Hannah Collins  
**BREMER RIVER FUND PROJECT OFFICER**

I concur with the recommendation/s contained in this report.

Bryce Hines  
**SPORT, RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation/s contained in this report.

Craig Maudsley  
**CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

<b>Environment and Conservation Committee</b>	
Mtg Date: 14.04.14	OAR: YES
<b>Authorisation:</b> Craig Maudsley	

PS: PS  
H:\departmental\committee reports\1402PS Project support officer CR

## **ITEM 8**

11 March 2014

### **MEMORANDUM**

TO: INFRASTRUCTURE PLANNING AND PARTNERSHIPS MANAGER  
FROM: PLANNING OFFICER (WATERWAY HEALTH)  
RE: PROJECT SUPPORT OFFICER FOR THE BREMER RIVER FUND

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#### **INTRODUCTION:**

This is a report by the Planning Officer (Waterway Health) dated 11 March 2014 concerning a Project Support Officer for the Bremer River Fund.

#### **BACKGROUND:**

The Bremer River Fund (BRF) continues to successfully source funding and deliver waterway rehabilitation projects within the Bremer River catchment, specifically focused on Bundamba Creek. At present, the BRF has no allocated staff and is run and decisions are passed through a steering committee of representatives from partnering organisations including local industry and Scenic Rim Council. Ipswich City Council currently has no elected members on the committee but does support the fund through the provision of a secretarial function and expert officer advice.

#### **FUNDING AVAILABLE FOR A BREMER RIVER PROJECT OFFICER:**

In January 2014 the Bremer River Fund received a second round of funding from the Queensland Government through the Everyone's Environment Grant. Part of this funding is to be used for the employment of a Project Support Officer. The value of this funding is \$17,000.

Further to this, a secondary source of project funding has become available through a joint venture between Oxley Creek Catchment Association (OCCA) and the International River Foundation (IRF) for the purposes of supporting a partner organisation in catchment management, through their internationally recognised Twinning Program. This money can be used to fund a project officer for 1 day per week to facilitate this partnership. The value of this funding is \$25,000.

As a result the Bremer River Fund has funding to employ an officer for two days a week (0.4 Full Time Equivalent) for the duration of the project(s) for up to twelve months. As beneficiaries and members of the Bremer River Fund, it has been suggested by the steering committee that the Project Support Officer be positioned at Ipswich City Council offices to support the delivery of projects on Bundamba Creek and to increase the awareness of the Bremer River Fund within the Ipswich and Scenic Rim areas. All administration and human resource management requirements for the project support officer will remain the responsibility of the International River Foundation. Council will only be required to provide in-kind support, through the provision of desk space and computer.

Council has previously provided the funding for a Bremer River Project Officer at one day per week in 2011–2012 and 2012–2013.

#### **BENEFITS TO COUNCIL TO HOST THE PROJECT SUPPORT OFFICER:**

Hosting this position will provide benefits to Council by enabling easy and efficient communication with Council officers in regards to projects that are to be delivered along waterways in Ipswich. It will also value-add to Council's in-house workforce and provide an additional skill set at no direct cost to Council. The administration for the project support officer is being carried out by the International River Foundation who will also be responsible for all employment matters.

#### **CONCLUSION:**

The International River Foundation has received funding of \$42,000 to employ a Project Support Officer for the Bremer River Fund at two days per week for up to twelve months. A proposal has been presented by the Steering Committee for Ipswich City Council to host the Project Support Officer within council offices through the provision of desk space and computer access.

This proposal presents a valuable opportunity to Council, to support existing resources, and to continue to facilitate the delivery of waterway rehabilitation projects along Bundamba Creek and other waterways.

The International River Foundation will be responsible for all administration and human resource management requirements with no budget requirements from Council.



**RECOMMENDATION:**

That Council provide support to the International River Foundation for the employment of a Project Support Officer for the Bremer River Fund as detailed in the report by the Planning Officer (Waterways Health) dated 11 March 2014.

Philip Smith  
**PLANNING OFFICER (WATERWAYS HEALTH)**

I concur with the recommendation/s contained in this report.

Bryce Hines  
**INFRASTRUCTURE PLANNING AND PARTNERSHIPS MANAGER**

I concur with the recommendation/s contained in this report.

Craig Maudsley  
**CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

<b>Environment and Conservation Committee</b>	
Mtg Date: 22.06.15	OAR: YES
<b>Authorisation:</b> Craig Maudsley	

## **ITEM 2**

PS:PS

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20 May 2015

### **MEMORANDUM**

TO: SPORT, RECREATION AND NATURAL RESOURCES MANAGER

FROM: PARTNERSHIPS OFFICER (NATURAL RESOURCES)

RE: UPDATE ON THE OXLEY CREEK CATCHMENT ASSOCIATION AND THE BREMER RIVER TWINNING PROGRAM

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#### **INTRODUCTION:**

This is a report by the Partnerships Officer (Natural Resources) dated 20 May 2015 updating committee on the progress and plans of the Twinning Program between Oxley Creek and the Bremer River Catchment.

#### **BACKGROUND:**

In 2009 the Oxley Creek Catchment Association (OCCA) was awarded the Thies Australian River Prize in recognition of the partnerships they had formed with industry in the catchment over a thirteen year history.

The Oxley Creek and Bremer River Catchments face similar pressures and challenges such as urban and industrial land use and a history of flooding, as well as having similar values. As such an opportunity to facilitate and partake in knowledge sharing between OCCA and Council was identified, to learn of the lessons and successes of Oxley Creek, through the Twinning Program. The Twinning Program is facilitated on a national and international scale by the International River Foundation and supported through funding from the National River prize fund.

On 2 July 2014 Ipswich City Council signed a statement of understanding with The Oxley Creek Catchment Association which represented the beginning of a twinning relationship and work program funded through this prize. This was followed by a launch event on the banks of the river, attended by members of Council, Oxley Creek Catchment Association and other local Natural Recourse Management groups and interested parties

### **PROGRESS TO DATE:**

The launch event was successful in collecting and collating data and information on key areas of interest in the Bremer Catchment including known issues, relevant businesses and locations of known value. This was used to identify constraints and opportunities and for OCCA to develop their understanding of the catchment.

Since the official launch in July 2014 the Twinning project has produced an engagement and communications plan and held a number of meetings with relevant officers to discuss commonalities in challenges and project ideas that can be achieved collaboratively. To date the program has achieved the following:-

- Appointment of a Twinning Officer by Oxley Creek Catchment Association who is hosted two days a week at Ipswich City Council's Natural Resources Team
- A successful partnership bid for funding through the Bremer River Fund for 3<sup>rd</sup> Round of Everyone's Environment Grant Funding focusing on an area within the Flinders - Goolman Conservation Estate for \$75,000.
- Consultation and monitoring with Sandy Gallop Golf Course with a view of replicating the successful working relationship Oxley Creek Catchment Group have with Oxley Golf Club where they worked to develop a land management program focusing on the health of the creek.
- Inspired by a project in the Oxley Catchment there are funding applications in process focused on developing suitable methodology to collect litter and corresponding data in an urban area of Bundamba Creek. This project has already successfully linked with a few enthusiastic community groups.
- The Twinning Officer and Dr Nick Schofield (CEO of the International River Foundation) recently attended the Ipswich Enviroforum and presented jointly around the concept and progress of the Twinning Program to date

The Oxley Creek Catchment Association has produced a Milestone Report summarising the progress to date (Attachment B).

### **LOOKING FORWARD**

The Twinning Program has a stakeholder workshop planned for June to develop some collaborative working programs in the catchment. The workshop will bring together catchment stakeholders with a view to identifying opportunities for collaboration in existing

and potential future projects. One proposed idea that will be tabled at the workshop is for a collaborative “Bremer River Trail” booklet and trail markers which will identify and showcase historic and natural features and places of interest along the Bremer River from source to sink.

**BENEFITS TO COMMUNITY AND CUSTOMERS:**

The program encourages the delivery of proven catchment management techniques and shared experiences from professionals and acknowledges leaders in the field of river and catchment recovery. The intention of the program is to instil nationally recognised skills and knowledge into other similarly challenged areas.

As well as sharing knowledge about ways of engaging with local business and industry, the Twinning Program has funded a part time Twinning Officer for the Oxley Creek Catchment Association who sits part time in the Natural Resources Team in Council. This officer works at imparting knowledge and developing and sharing engagement methods.

**CONCLUSION:**

The Oxley Creek and Bremer River Twinning program continues to facilitate learning and knowledge sharing through workshops, meetings and project delivery and through the work of the Twinning Project Officer and collaboration between officers and community groups.

**ATTACHMENT/S:**

Name of Attachment	Attachment
<a href="#">Report on Project officer and Twinning - Environment and Conservation Committee No. 2014(04) of 14 April 2014 - Council Ordinary Meeting of 22 April 2014</a>	 Attachment A
<a href="#">Oxley Creek Catchment Association Inc. TWINNING Milestone Report 1</a>	 Attachment B

**RECOMMENDATION:**

That the report be received and the contents noted.

Philip Smith  
**PARTNERSHIPS OFFICER - NATURAL RESOURCES**

I concur with the recommendation/s contained in this report.

Bryce Hines

**SPORT, RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation/s contained in this report.

Craig Maudsley

**CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

Your attention is drawn to the following recommendation adopted by Council at its meeting held on 22 April 2014.

Refer: Environment and Conservation Committee No. 2014(04) of 14 April 2014 - Council Ordinary Meeting of 22 April 2014.

**Dept Head/s**

Would you please take the necessary action in relation to this clause.

Vicki Lukritz

ADMINISTRATION SUPPORT MANAGER

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8. [PROJECT SUPPORT OFFICER FOR THE BREMER RIVER FUND](#)

With reference to a [report by the Planning Officer \(Waterway Health\)](#) dated 11 March 2014 concerning a Project Support Officer for the Bremer River Fund.

RECOMMENDATION

That Council provide support to the International River Foundation for the employment of a Project Support Officer for the Bremer River Fund as detailed in the report by the Planning Officer (Waterways Health) dated 11 March 2014.



Item 8

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<b>Environment and Conservation Committee</b>	
Mtg Date: 14.04.14	OAR: YES
<b>Authorisation:</b> Craig Maudsley	

PS: PS  
H:\departmental\committee reports\1402PS Project support officer CR

## **ITEM 8**

11 March 2014

### **MEMORANDUM**

TO: INFRASTRUCTURE PLANNING AND PARTNERSHIPS MANAGER  
FROM: PLANNING OFFICER (WATERWAY HEALTH)  
RE: PROJECT SUPPORT OFFICER FOR THE BREMER RIVER FUND

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#### **INTRODUCTION:**

This is a report by the Planning Officer (Waterway Health) dated 11 March 2014 concerning a Project Support Officer for the Bremer River Fund.

#### **BACKGROUND:**

The Bremer River Fund (BRF) continues to successfully source funding and deliver waterway rehabilitation projects within the Bremer River catchment, specifically focused on Bundamba Creek. At present, the BRF has no allocated staff and is run and decisions are passed through a steering committee of representatives from partnering organisations including local industry and Scenic Rim Council. Ipswich City Council currently has no elected members on the committee but does support the fund through the provision of a secretarial function and expert officer advice.

#### **FUNDING AVAILABLE FOR A BREMER RIVER PROJECT OFFICER:**

In January 2014 the Bremer River Fund received a second round of funding from the Queensland Government through the Everyone's Environment Grant. Part of this funding is to be used for the employment of a Project Support Officer. The value of this funding is \$17,000.

Further to this, a secondary source of project funding has become available through a joint venture between Oxley Creek Catchment Association (OCCA) and the International River Foundation (IRF) for the purposes of supporting a partner organisation in catchment management, through their internationally recognised Twinning Program. This money can be used to fund a project officer for 1 day per week to facilitate this partnership. The value of this funding is \$25,000.

As a result the Bremer River Fund has funding to employ an officer for two days a week (0.4 Full Time Equivalent) for the duration of the project(s) for up to twelve months. As beneficiaries and members of the Bremer River Fund, it has been suggested by the steering committee that the Project Support Officer be positioned at Ipswich City Council offices to support the delivery of projects on Bundamba Creek and to increase the awareness of the Bremer River Fund within the Ipswich and Scenic Rim areas. All administration and human resource management requirements for the project support officer will remain the responsibility of the International River Foundation. Council will only be required to provide in-kind support, through the provision of desk space and computer.

Council has previously provided the funding for a Bremer River Project Officer at one day per week in 2011–2012 and 2012–2013.

#### **BENEFITS TO COUNCIL TO HOST THE PROJECT SUPPORT OFFICER:**

Hosting this position will provide benefits to Council by enabling easy and efficient communication with Council officers in regards to projects that are to be delivered along waterways in Ipswich. It will also value-add to Council's in-house workforce and provide an additional skill set at no direct cost to Council. The administration for the project support officer is being carried out by the International River Foundation who will also be responsible for all employment matters.

#### **CONCLUSION:**

The International River Foundation has received funding of \$42,000 to employ a Project Support Officer for the Bremer River Fund at two days per week for up to twelve months. A proposal has been presented by the Steering Committee for Ipswich City Council to host the Project Support Officer within council offices through the provision of desk space and computer access.

This proposal presents a valuable opportunity to Council, to support existing resources, and to continue to facilitate the delivery of waterway rehabilitation projects along Bundamba Creek and other waterways.

The International River Foundation will be responsible for all administration and human resource management requirements with no budget requirements from Council.



**RECOMMENDATION:**

That Council provide support to the International River Foundation for the employment of a Project Support Officer for the Bremer River Fund as detailed in the report by the Planning Officer (Waterways Health) dated 11 March 2014.

Philip Smith  
**PLANNING OFFICER (WATERWAYS HEALTH)**

I concur with the recommendation/s contained in this report.

Bryce Hines  
**INFRASTRUCTURE PLANNING AND PARTNERSHIPS MANAGER**

I concur with the recommendation/s contained in this report.

Craig Maudsley  
**CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

# Oxley Creek Catchment Association Inc.

## TWINNING Milestone Report 1

SUBMISSION TO THE INTERNATIONAL RIVERFOUNDATION  
January 2015

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## 1. Program Overview

The Oxley Creek Catchment Association Inc. (OCCA) is a not-for-profit community environment group committed to bringing about positive outcomes for the natural environment and resources of the catchment of Oxley Creek through partnering, educating, advocating and participating in catchment management.

In January 2014, OCCA commenced a Twinning program with the Bremer River Catchment and later signed a Statement of Understanding (SoU) with Ipswich City Council (ICC). The program has a focus on sharing knowledge, skills and ideas for engaging industry and encouraging community involvement in waterway health projects. This program has been running for approximately 12 months. The Twinning program has both demonstrated achievements and faced challenges.

This report will discuss items for Milestone One reporting for the International RiverFoundation (IRF) as per the OCCA Twinning Business Plan.

## 2. Summary of Milestones

Below is the table of milestones and measures of success for this Twinning partnership. Milestone One has been achieved and is detailed below.

Several components of Milestone Two have also commenced.

Milestone	Date	Funds (Excluding GST)	GST	Deliverables	Measure of success
1	January/May 2014	\$14,895	\$1489.50	Approval of Business Plan for OCCA IRF Twinning Program	<ul style="list-style-type: none"> <li>• Overview of catchment issues &amp; needs <b>(Completed)</b></li> <li>• Business Plan <b>(Completed)</b></li> <li>• Signed SoU between Twinning partners, OCCA and ICC <b>(Completed)</b></li> <li>• Appointment of Oxley Bremer Twinning Officer <b>(Completed)</b></li> </ul>
2	August 2014	\$10,505	\$1050.50	Progress Report to IRF	<ul style="list-style-type: none"> <li>• Launch Event (July 2014) <b>(Completed)</b></li> <li>• Communications Plan</li> <li>• Risk Management Strategy</li> <li>• Community &amp; corporate engagement</li> <li>• Presentation at 2014 International Riversymposium (September) <b>(Completed)</b></li> <li>• Initial workshop to explore key issues</li> <li>• Some stakeholder consultation undertaken</li> </ul>
3	June 2015	\$10,000	\$1000	Progress Report to IRF	<ul style="list-style-type: none"> <li>• Workshop to explore key issues</li> <li>• Strategic Plan</li> <li>• Stakeholder consultation</li> </ul>

					<ul style="list-style-type: none"> <li>• Industry Engagement Proposal</li> <li>• Industry Engagement Program</li> <li>• Events as planned</li> </ul>
4	June 2016	\$14,600	\$1460	Final report on Twinning project.	<ul style="list-style-type: none"> <li>• Events as planned</li> <li>• 2015 International Riversymposium (September)</li> <li>• Final Report</li> <li>• Twinning Case Study</li> <li>• Partnership Agreement Jan 2016 &amp; beyond</li> </ul>
	<b>Total</b>	\$50,000	\$5000		

## 2.1 Milestone One Achievements

### 2.1.1 Overview of Catchment Issues and Needs

The Oxley-Bremer Twinning Officer from Oxley Creek Catchment Association (OCCA) worked closely with SEQ Catchments to gain an understanding of the Bremer Catchment and was supplied with maps showing the large scale of the catchment. Using the website of the Bremer Catchment Association (BCA) (<http://www.bremercatchment.org.au/>) which is sponsored by SEQ Catchments, Healthy Waterways, Ipswich City Council and Scenic Rim Regional Council, the major tributaries of this catchment of 2032 km<sup>2</sup> were able to be identified as Purga, Upper, Mid and Lower Warrill, Upper, Mid and Lower Bremer, Western, and Reynolds Creeks. Further research produced a summary of the sub-catchments, land uses and related waterway health issues in the form of an information sheet. This information sheet enhanced the overall preliminary understanding of the catchment of the Bremer, located the towns, and gave an idea of the types of industry that might exist in the region. Thus an overview of the catchment was achieved and it was seen that there might be opportunities to find meaningful names for some of the smaller tributaries as more understanding of relationships is gained.

Due to the large scale nature of the catchment, it was important to identify focal areas within the Bremer Catchment. This has been accomplished through a number of workshop sessions to discuss opportunities for engagement with local groups and industry, taking advantage of existing network connections and potential synergies between the work of OCCA and partners in the Bremer Catchment. A desktop mapping study and on ground investigations were conducted, in which a number of potential target organisations and localities were identified including local golf courses, the Citiswich industrial area and the Lobb Street precinct. By sharing learning experiences and applying strategies of OCCA's existing CreekWatch program, it is hoped that successful engagement with industry and community can be achieved.



Figure 1: Map of the identified industry alongside the Bremer River at Lobb Street, Churchill

### 2.1.2 Business Plan

Through extensive discussion between the Twinning partners about the major objectives, measures of success and a proposed timeline of events, a series of drafts were developed and revised for the Twinning Program Business Plan. The Statement of Understanding (SoU) with ICC was signed on the 4<sup>th</sup> of July 2014, to initiate the commencement of project activities.

### 2.1.3 Signed LoI between Twinning partners

Further Letters of Intent are to be signed with other relevant partners as the project continues.

### 2.1.4 Appointment of Oxley Bremer Twinning Officer

A Twinning officer was employed to liaise between Ipswich City Council (ICC), OCCA and other partners, aiding in the transfer of knowledge and ideas for future projects, events and engagement strategies. The role also involves developing new initiatives for community involvement, organising events and monitoring the progress of the program to reach specific goals. Retaining a committed officer for the role was an issue for the first few months of the program, causing the delay of some deliverables. However, the current Oxley -Bremer Twinning Officer, Hannah Collins, is now actively involved in planning upcoming events with Twinning partners and is excited to push ahead with new initiatives for waterway health and industry partnerships in the Bremer River Catchment. The officer will also attend networking events such as the Innovate Symposium 2015 with Volunteering Queensland (<http://volunteeringqld.org.au/web/index.php/policy-research/menu/innovate/innovate-symposium/innovate2015>) and the Ipswich EnviroForum 2015 held by ICC, to connect with like-minded

people within the community. Through the work of the Twinning Officer, the relationship between Twinning partners is constantly growing and changing as new opportunities arise for the transfer of relevant knowledge from the work of OCCA to the Bremer Catchment.

## 2.2 Milestone Two achievements

### 2.2.1 Launch Event – Peaks to Points

The Twinning Program launch was held in July at the beautiful River Heart Parklands in the centre of Ipswich, overlooking the city reach of the Bremer River, which certainly seemed the perfect location for the commencement of the program. It was promoted as part of the Peaks to Points Festival 2014 (<http://www.peakstopoints.com.au/>) and was attended by guests from government and the community. Several organisations and members of the community were engaged in creative learning and mapping activities and discussion of catchment issues. These included participants from many organisations, the International RiverFoundation, Director, Nick Schofield, Officers, Melanie Ryan and Patricia Dalby, and board members of the IRF, Alec and Mary Peden, SEQ Catchments Chairman, Simon Warner and Officer Jean Bray, and Heather Morrow, Chair of the ICC Environment and Conservation Committee. State Member for Ipswich, Ian Bell, officers from ICC, local volunteers from the Ipswich Environment Centre led by Ruth Thomson, members of OCCA, President, Lynn Whitfield and Executive Officer, Anne Clarke, and the local Yagara People consisting of the Jagera and Ugarapul Clans also attended the event.



Figure 2: River Heart Parklands, Bremer River

Participants enthusiastically participated in a Quiz, and also in answering history questions on the Bremer River, the answers to which were placed along the Boardwalk; in addition they partook in an Asset Mapping Exercise where they placed stickers on locations: blue for areas of use, green for natural beauty and yellow for areas of risk. Local business was represented by Masters from Springfield who provided the barbecue lunch, using donations from Summerville Butcher at Booval and Our Bakery Rules. Prizes for the Quiz and other competitions were donated by Healthworks Fitness Centre, Brassal, and Gemutlich Kitchen Homeware and Design, and coffee from Cactus Espresso Bar. It was a most successful day as members of industry and the community present demonstrated their commitment and willingness to invest in improving the health of the catchment of the Bremer River.



Figure 3: Masters Springfield Employees preparing the free BBQ lunch at the Launch



### 2.2.2. 2014 International Riversymposium



Anne Clarke, Executive Officer of OCCA, attended the 17<sup>th</sup> International RiverSymposium on behalf of the Oxley- Bremer Twinning Project and presented this poster. It demonstrates the impacts from industry and the community following the January 2011 flooding in Brisbane. The area outlined covers approximately 500 hectares of the flood plain of Oxley Creek and the red dots indicate the 3 million items that were deposited by the flooding. Of those items, namely shipping containers, portaloos, rubbish bins, fuel containers, 2049 were highly hazardous and had to be removed by a specialist crew at a huge cost. Items are still being uncovered in this area 3 years later. This presentation emphasized the importance of engaging the community and industry in protection of our waterways, where an abundance of prawns naturally occur.

The Bremer Catchment Association (BCA) held their final meeting for the year in November 2014, and Anne Clarke, Executive officer of OCCA was invited to attend. At this meeting, reports were presented from the leaders of the following projects: Upper and Lower Warrill Weed Management, and the Upper Mt Walker Hillslope Erosion. Andrew McLaughlin from Scenic Rim Regional Council outlined the projects occurring within his council and indicated a partnership was planned with the Bremer River Fund to improve water quality in Purga Creek by decreasing the salinity. Anne was invited to provide information about the Oxley-Bremer Twinning project and attendees expressed their pleasure that OCCA had begun this initiative and hoped that in 2015, a closer working relationship with BCA would be achieved. The next meeting of the BCA will be held on 19<sup>th</sup> February, 2015.

### 2.3 Planning and upcoming events

Planning is currently underway to engage local organisations and industry through events and programs focused on improving the health of the Bremer River Catchment, such as involvement in Healthy Waterway's Connect to your Creek Week (<http://healthywaterways.org/initiatives/cem/connecttoyourcreek>) on the 21<sup>st</sup> to the 29<sup>th</sup> of March 2015. It is hoped that these events will lead to opportunities for community engagement and long term partnerships with industry within the catchment.

There will be a presentation at the Ipswich EnviroForum on May 1<sup>st</sup>, 2015, on this project which will generate exposure for the program and provide networking opportunities with members of the community.

Further engagement with organisations such as the Bremer Catchment Association and SEQ catchments is also in progress.

### 2.3.1 Future Initiatives

In addition to the work that has already been accomplished in the Bremer Catchment, a substantial amount of time has been put into a range of future initiatives including organisation of workshops with members of ICC, and other local councils and catchment groups from surrounding areas. These will brainstorm strategies: for engaging industry and learning experiences for the wider community; for education and training programs for industry that directly influence water quality; for planting workshops with hardware stores (e.g. Bunnings) and local nurseries; for involving schools in litter pick-ups and water quality monitoring; for creating an online forum for community input about catchment issues; and for introducing a program that emphasizes the use and values of the Bremer River and aims to engage rural landholders and the Scenic Rim Regional Council by connecting the upper and lower reaches of the catchment.

OCCA is working towards a project in the catchment of Oxley Creek to engage industry more closely through the management of litter and illegal dumping of waste and is applying to the State Department of Environment and Heritage Protection for a Grant. This idea is to be applied to the Bremer Catchment with extensive research devoted to the issue of litter and illegal dumping in Ipswich, which will provide an approach to engage business in industrial areas. It is hoped that this will ultimately reduce the level of litter and industrial waste that ends up in our waterways, particularly after flood events.

## 2.4 Conclusion

Although it is only early stages of the Oxley-Bremer Twinning Program, ongoing efforts to engage with Twinning partners and members of the community has enabled all measures of success to be achieved for Milestone One. Further planning is currently underway to achieve the remaining targets for Milestone Two and to put the various future ideas and projects into action, working together with council, industry and other passionate community members towards a healthier catchment for the Bremer River.

## Contact us

Contact the Oxley Creek Catchment Association regarding the project, our vision, and possible partnerships.

### Oxley Creek Catchment Association Inc.

#### Postal address

PO Box 217  
Sherwood Qld 4075

#### OCCA Office

Brisbane Markets Shopping  
Complex  
Unit 20, 385 Sherwood Road  
Rocklea Qld 4106

#### Phone/fax

(07) 3278 2899

#### Email/website

info@oxleycreekcatchment.org.au  
<http://oxleycreekcatchment.org.au>



# A Proposal for

# THE '*BREMER RIVER INITIATIVE*'

## 2015

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### 1.0 INTRODUCTION

#### 1.1 REGIONAL CONTEXT

There are many people in South East Queensland who devote much time and energy in caring for their waterways, land and native vegetation. Within the large catchment of the Bremer River, the existing stakeholder groups would gain much benefit from improved communication and greater interaction. This would enhance their individual efforts and would minimise the issues associated with perceived competition, and mistrust between groups and within the political sphere. Therefore, forming a collective voice for the Bremer Catchment is long overdue and vital for strategic success.

Within the Bremer Catchment there are two main local government authorities, Ipswich City Council (ICC) and Scenic Rim Regional Council (SRRC), so cross boundary collaboration is essential (Figure 1).

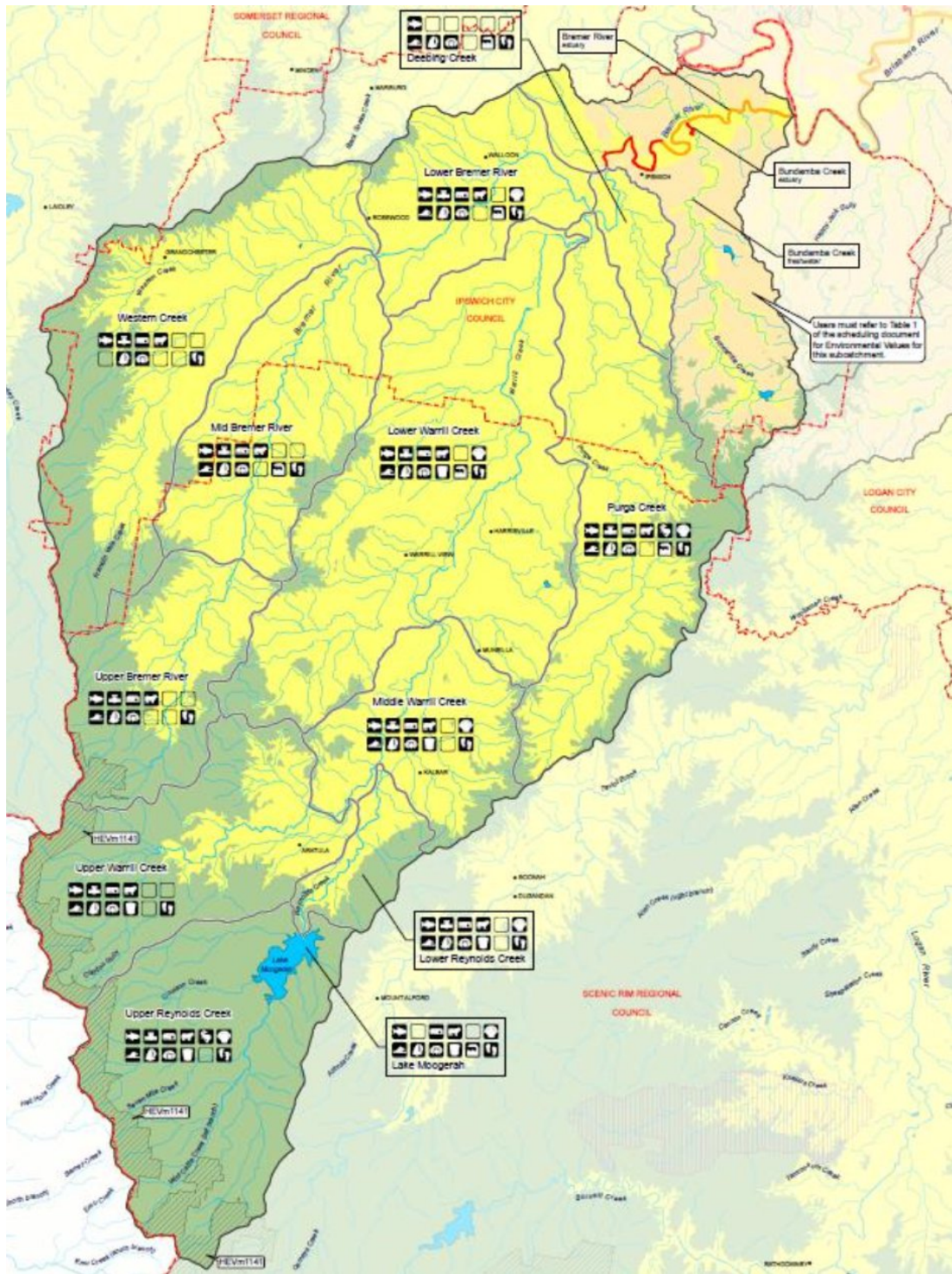


Figure 1: Map of the Bremer Catchment and local government boundaries

## **1.2 Background**

One collective which already exists is the current Bremer River Fund (BRF). It was established in 2010, as a ground-breaking outcome of the inaugural Bremer River Forum. A foresight of the Ipswich City Council Mayor and the Managing Director of the International RiverFoundation (IRF), the fund was established to support the implementation of practical solutions to restore the Bremer River as the lifeblood of the Ipswich region. It is managed by a committee representing stakeholders who are corporate funders, Local government, namely Scenic Rim Regional Council and Ipswich City Council and International RiverFoundation. The BRF is managed and administered by the International RiverFoundation. As a part of the establishment process, the following guidelines were developed in order to set a direction and objective for the fund and the work it would like to pursue and facilitate. These were coupled with an initial governance structure (2012- 2015) that has now run its course and is up for review.

### **1.2.1 Bremer River Fund Guidelines and Investment**

The below principles and vision were developed, and it is timely that these be reviewed based upon the current and future direction of Bremer River Fund (and Bremer River Initiative).

#### **OVERARCHING GUIDING PRINCIPLE**

*To improve the health of the Bremer River, act with audacity and with a vision that exceeds current expectations. In particular, act to animate, activate and integrate the river with its cities, lands and communities.*

#### **BREMER RIVER FUND VISION**

*An active and healthy river, integrated with its lands, cities, and communities of the Western Corridor of SEQ.*

#### **10 POINT SOLUTIONS STATEMENT**

1. There will be one agreed plan for management of the Bremer River.
2. All new urban developments must incorporate water sensitive urban design in construction and operation phases with enforcement.
3. Protect and conserve remaining high conservation value aquatic ecosystems and adjacent lands.
4. Improve vegetation within 25m of 2000km streams on both sides.
5. Remove significant point source pollution.
6. Boost participation, communication and capacity building within broader community.
7. Ensuring the integration and connectedness of the river with the city.
8. More detailed investigation of aeration possibilities for dissolved oxygen improvement.
9. A greater range of funding sources need to be identified (both willing private and public).
10. Improve environmental flows.

The BRF seed funding was initially provided by a group of private sector bodies from across South East Queensland who saw value in investing in the Bremer waterways. Since then, the majority of funds have been derived from State Government grants, donations and in-kind from partner organisations. The original seed funding has been used as a co-contribution to these grants, has funded community engagement and communications activities and supported opportunities for local schools and education. The Fund, as a mechanism from cross-sector collaboration and investment, is unique within South East Queensland. However, it's limited in its ability due to its dependence upon volunteer staff time and lack of resourcing available for marketing and developing partnerships and funding. The BRF steering committee has been very conscious of not spending all the seed investment money and has already managed to make it last five years. Currently, the committee is considering how the success of this model could have a long term resourcing strategy.

Through this investment, the BRF has supported various successful projects within the Bremer Catchment such as the MyRiver Bremer Program 2014. This program was a community lead initiative run by OzGreen that involved students from various schools in Ipswich who coordinated their own actions towards improving the health of the Bremer River. The group received substantial recognition, presenting at the International RiverSymposium in Canberra. The MyRiver Bremer Group requires sustainable funding to continue each year; grass roots projects like this can be a fantastic opportunity for corporates to become involved in their community and receive acknowledgement.

### **1.2.2 Present Status**

The Bremer River Fund is currently involved in several active projects focussed on the restoration of tributaries of the Bremer River, such as Bundamba Creek.

#### *The Oxley Bremer Twinning Project*

The Oxley Bremer Twinning Project is an International RiverFoundation sponsored program in which Oxley Creek Catchment Association chose to partner with organisations of the Bremer River Catchment, to share knowledge and experience in catchment management. Building successful partnerships has been a major focus of this knowledge transfer with the hope that a stronger partnerships model including industry, business, schools and catchment and Landcare groups might be developed in the Bremer River Catchment for the future. In order to work towards this goal, the Bremer Catchment Partnerships Workshop was organised to explore the possibility of developing a sustainable partnerships model within the Bremer Catchment, which brought together all with an interest in the health of our waterways.

#### *Bremer Catchment Partnerships Workshop*

On the 21<sup>st</sup> of July 2015, 18 representatives and members from various organisations attended this workshop, showing a keen interest in the health of our natural environment and willingness to participate in valuable discussion about the future of networking within the Bremer Catchment. The organisations represented at the workshop included Bremer Catchment Association, Oxley Creek Catchment Association, International RiverFoundation, Ipswich Creeks Catchment Group, Native

Plants Queensland (Society for Growing Australian Plants), SEQ Catchments, West Moreton Landcare, the Fassifern Field Naturalists, Ipswich City Council and Scenic Rim Regional Council.

At this event, members of Ipswich City Council's Natural Resources Team proposed the idea of a Bremer River Initiative (BRI) to provide overarching support and a collective voice for the network of local environmental groups within the catchment. As an outcome of the partnerships workshop, a draft proposal to define the possible structure and functionality of this Initiative has been developed. However, only after extensive consultation with the group representatives will this Initiative be finalised.

## **2.0 THE BREMER RIVER INITIATIVE**

### **2.1 What is it?**

The Initiative has the potential to serve as a banner under which catchment management programs and projects, groups and organisations can sit and communicate with single clear vision and objective. The Initiative would facilitate communications through regular meetings, e-communications, site visits and field days and support collaboration through dedicated project support staff. It would have access to the BRF through which grant applications could be made and distributed and corporate funding channelled, in order to support works that align with the goals and aims of the Initiative. While the original guidelines of the BRF were primarily focused on Ipswich City, this Initiative is aimed to be catchment focused.

This proposal for the BRI is based on the ideas gathered at the workshop and other feedback provided by the involved groups. Some of the phrases used to describe this prospective Initiative are:

- **Coordinated voice on regional arrangements**

With many groups active in the area of land and catchment management, a single voice advocating for change, action or funding and that demonstrates cohesive strategic thinking will potentially have more weight and influence on matters of a catchment level or regional significance.

- **Central point of communication through a project officer**

A single point of communication for catchment management actions, information and advice can increase efficiency and coordination within and between groups. Many local groups rely on grant funding and may be unknowingly competing for funds to run similar projects when collaboration may be more effective and efficient and be more appealing to grant providers. There is a vast range of differing skills and resources amongst local groups that could be shared or aligned. A single point will also allow for strategic visions and planning for targeted works and projects across the catchment.

- **Administrative support for grants**

A project officer for the Initiative would support groups in the time intensive process of grant applications and coordinate collaborative reporting and acquittals, freeing up groups to concentrate on the passionate on ground delivery of their works and projects. (This cost can be built into project funding and not affect or cost the group/members directly)

- **Raise profile of groups and projects**

The Initiative would be used to attract new members by promoting the work of the groups through online social marketing and networking events. The groups would also be put in contact with like-minded parties and volunteers, who seek information through the network.

- **Proven successes and working relationships with State and Federal government**

Working alongside other organisations with long-term working relationships with the State Government and Federal Government and with proven success in river restoration and Landcare projects, would have a significantly stronger basis for gaining future funding.

- **Pooling funds and leveraging additional resources**

The BRF has DGR (Deductible Gift Recipient) Status, meaning that corporate funders can claim tax on their donations to the Fund, making it an appealing donation avenue for businesses. These funds can then be pooled for strategic whole of catchment use, rather than being restricted to individual projects. As the Initiative gains greater recognition through the collective of groups and projects, this will provide opportunities to leverage additional resources from government and industry.

In summary, the following are seen as potential benefits that can be derived through the Bremer River Initiative:

- overarching support
- communication network
- collective voice for regional actions
- community group support at catchment wide scale
- collaboration and coordination between groups
- social marketing
- funding mechanism
- central coordinating organisational structure

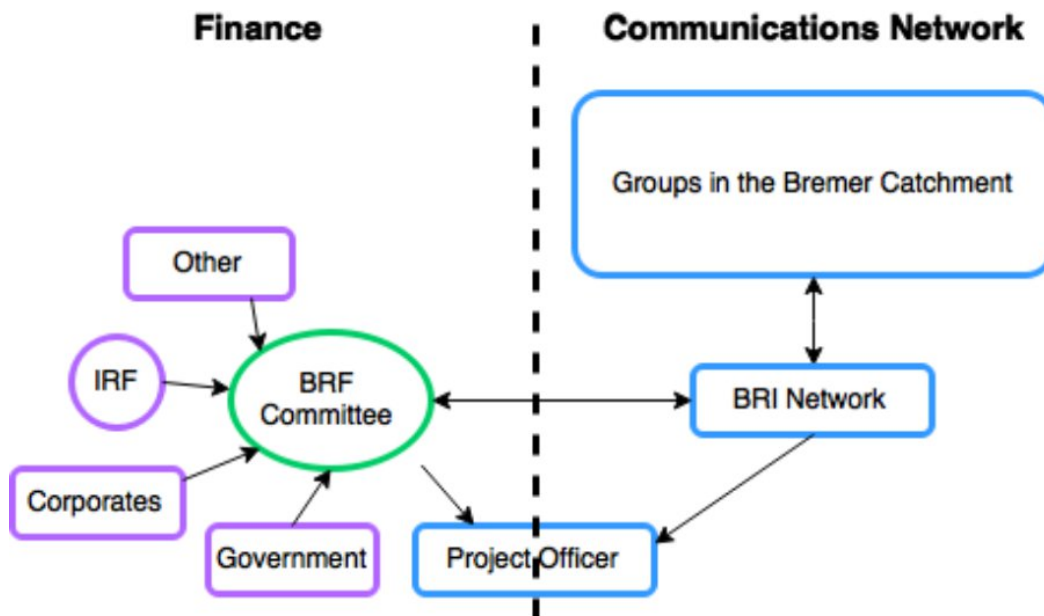
The aim of this proposal is to combine these ideas to develop a realistic and clear model for the BRI.



## 2.2 Proposed BRI Model

A basic structure for the BRI has been proposed that incorporates the BRF as a financial aspect of the Initiative to support the network of groups (Figure 2). Although the Finance side and Communications Network are separate units, they are connected through the project officer and the distribution of funds from the BRF to the BRI and the various on ground projects.

Figure 2: The Bremer River Initiative (BRI) Model



### 2.2.1 Network Communications

#### Groups in the Bremer Catchment

The BRI would be made up of the various groups in the Bremer Catchment who have decided to become members of this Initiative. These groups may still function autonomously, while having the opportunity to work collaboratively with other groups and having input into the direction of BRF funds through the BRI Network. No monetary investment would be required to be a part of the Initiative, however, it would be most beneficial to all groups if the vast range of skills and expertise in differing areas related to land and catchment management could be shared throughout the network.

#### BRI Network

The various groups in the BRI may choose to assign a representative to attend a six monthly meeting to discuss group projects, marketing, and partnerships and to evaluate the direction of the BRI and BRF funds. Open network meetings could also be held to open up communications to all members of the various groups.

#### Project Officer

The Project Officer would work under the direction of the BRI Network by supporting BRI projects through a central point of communication. The role could include applying for grants, writing project reports and grant acquittals, distributing marketing material, responding to community requests and potentially managing a website. The Project Officer would be hosted by Ipswich City Council.

#### **2.2.2 Finance**

The BRF committee could continue to function with members of Council, corporate members and administered by the International RiverFoundation. However, it could also be opened up to representatives of the BRI Network to align the direction of projects and funds. The BRF committee can continue to seek corporate sponsorship and other sources of funding to support the vision of the BRI.

This process would not restrict groups from applying for grant funding directly, however it could be beneficial for some groups having the support of the Project Officer throughout the grant process. BRI group members would also have access to the pool of corporate funding.

#### **2.3 MEMBERSHIP**

The BRI would be inclusive of all the natural resource management groups (or any others with a relevant drive or inherent) and authorities within the Bremer Catchment, who will have the opportunity to become members. These groups would be the equivalent of shareholders in the Initiative, with access to a communication network, support and funding allocations for community projects within the Bremer Catchment.

The BRI Network would consist of representatives nominated by each group. The number of representatives can be determined through further consultation with the various groups.

#### **3.0 FUNDING**

The BRF has been successful in the past in gaining corporate funds and sponsorship to fund local river restoration projects. However, this has become scarce in recent years and it would be great to see corporate funding increase through a new focus around the BRI and the replication of successful existing models, such as that seen at OCCA.

OCCA's model for industry engagement demonstrates the benefits of corporate partnerships through its successful CreekWatch Program. It demonstrates that corporates are interested in showcasing their Corporate Social Responsibility (CSR) and gaining recognition for their good deeds in the community and local environment.

Corporate investment in the BRF would be made available to community groups and various local projects through the BRI. This would provide a simple and attractive vehicle for corporates to contribute with little time or effort and knowing that their money is making a difference. The BRF in its current form, under the IRF with DGR status, further enhances the attractiveness of the investment. The BRI is an opportunity to make the most of this valuable mechanism, which has a massive potential, if and when it can source stable and reliable funding.

#### **4.0 PROJECT MANAGEMENT**

BRI projects would be managed and delivered by member groups with support of the Project Officer and under the guidance and direction of the BRI Network. The BRF committee would be responsible for: the financial management and administration of funds through the International RiverFoundation and the sourcing of corporate partnership funding or local government support.

#### **5.0 A NEW VISION**

Based on the presented proposal for the BRI, a number of the original BRF 10 point solutions have been highlighted as relevant and achievable through this Initiative.

##### **10 POINT SOLUTIONS STATEMENT**

1. There will be one agreed plan for management of the Bremer River.
2. All new urban developments must incorporate water sensitive urban design in construction and operation phases with enforcement.
3. Protect and conserve remaining high conservation value aquatic ecosystems and adjacent lands.
4. Improve vegetation within 25m of 2000km streams on both sides.
5. Remove significant point source pollution.
6. Boost participation, communication and capacity building within broader community.
7. Ensuring the integration and connectedness of the river with the city.
8. More detailed investigation of aeration possibilities for dissolved oxygen improvement.
9. A greater range of funding sources need to be identified (both willing private and public).
10. Improve environmental flows.

With feedback and suggestions from group members, a new vision with the BRI can be achieved and lead to more effective and efficient improvements and better out comes for the Bremer River and the Catchment as a whole.

# Oxley Creek Catchment Association Inc.

## TWINNING Milestone 2 Report

SUBMISSION TO THE INTERNATIONAL RIVERFOUNDATION  
For up to June 2015

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## 1. Program Overview

The Oxley Creek Catchment Association Inc. (OCCA) is a not-for-profit community environment group committed to bringing about positive outcomes for the natural environment and resources of the catchment of Oxley Creek through partnering, educating, advocating and participating in catchment management.

In January 2014, OCCA commenced a Twinning program with the Bremer River Catchment and later signed a Statement of Understanding (SoU) with Ipswich City Council (ICC). The program has a focus on sharing knowledge, skills and ideas for engaging industry and encouraging community involvement in waterway health projects. This program has been running for approximately 12 months. The Twinning program has both demonstrated achievements and faced challenges.

This report will discuss items for Milestone Two reporting for the International RiverFoundation (IRF) as per the OCCA Twinning Business Plan.

## 2. Summary of Milestones

Below is the table of milestones and measures of success for this Twinning partnership. Milestone Two has been achieved and is detailed below.

Milestone	Date	Funds (Excluding GST)	GST	Deliverables	Measure of success
1	January/May 2014	\$14,895	\$1489.50	Approval of Business Plan for OCCA IRF Twinning Program	<ul style="list-style-type: none"> <li>• Overview of catchment issues &amp; needs (Done)</li> <li>• Business Plan (Done)</li> <li>• Signed SoU between Twinning partners, OCCA and ICC (Done)</li> <li>• Appointment of Oxley Bremer Twinning Officer (Done)</li> </ul>
2	August 2014	\$10,505	\$1050.50	Progress Report to IRF	<ul style="list-style-type: none"> <li>• Launch Event (July 2014) (Done)</li> <li>• Presentation at 2014 International Riversymposium (September) (Done)</li> <li>• Initial workshop to explore key issues (Done)</li> <li>• Communications Plan (Done)</li> <li>• Risk Management Strategy (Done)</li> <li>• Community &amp; corporate engagement (Done)</li> </ul>
3	June 2015	\$10,000	\$1000	Progress Report to IRF	<ul style="list-style-type: none"> <li>• Twinning Workshop to explore key issues and engage NRM groups in the Bremer (planning underway)</li> <li>• Strategic Plan</li> <li>• Stakeholder consultation</li> <li>• Industry Engagement Proposal</li> <li>• Industry Engagement Program</li> <li>• Corporate Clean Up Bundamba Creek Event</li> </ul>

4	June 2016	\$14,600	\$1460	Final report on Twinning project.	<ul style="list-style-type: none"> <li>• Events as planned</li> <li>• 2015 International Riversymposium (September)</li> <li>• Final Report</li> <li>• Twinning Case Study</li> <li>• Partnership Agreement Jan 2016 &amp; beyond</li> </ul>
	<b>Total</b>	\$50,000	\$5000		

## 2.1 Milestone Two Achievements

### 2.1.1 Launch Event – Peaks to Points

The Twinning Program launch was held in July at the beautiful River Heart Parklands in the centre of Ipswich, overlooking the city reach of the Bremer River, which certainly seemed the perfect location for the commencement of the program. It was promoted as part of the Peaks to Points Festival 2014 (<http://www.peakstopoints.com.au/>) and was attended by guests from government and the community. Several organisations and members of the community were engaged in creative learning and mapping activities and discussion of catchment issues. These included participants from many organisations, the International RiverFoundation, Director, Nick Schofield, Officers, Melanie Ryan and Patricia Dalby, and board members of the IRF, Alec and Mary Peden, SEQ Catchments Chairman, Simon Warner and Officer Jean Bray, and Heather Morrow, Chair of the ICC Environment and Conservation Committee. State Member for Ipswich, Ian Bell, officers from ICC, local volunteers from the Ipswich Environment Centre led by Ruth Thomson, members of OCCA, President, Lynn Whitfield and Executive Officer, Anne Clarke, and the local Yagara People consisting of the Jagera and Ugarapul Clans also attended the event.



Figure 1: River Heart Parklands, Bremer River

Participants enthusiastically participated in a Quiz, and also in answering history questions on the Bremer River, the answers to which were placed along the Boardwalk; in addition they partook in an Asset Mapping Exercise where they placed stickers on locations: blue for areas of use, green for natural beauty and yellow for areas of risk. Local business was represented by Masters from Springfield who provided the barbecue lunch, using donations from Summerville Butcher at Booval and Our Bakery Rules. Prizes for the Quiz and other competitions were donated by Healthworks Fitness Centre, Brassal, and Gemutlich Kitchen Homeware and Design, and coffee from Cactus Espresso Bar. It was a most successful day as members of industry and the community present demonstrated their commitment and willingness to invest in improving the health of the catchment of the Bremer River.



Figure 2: Sharing knowledge of the Bremer River Catchment at the Twinning Launch in July 2014

### 2.1.2 2014 International Riversymposium

Anne Clarke, Executive Officer of OCCA, attended the 17<sup>th</sup> International RiverSymposium on behalf of the Oxley- Bremer Twinning Project and presented this poster. It demonstrates the impacts from industry and the community following the January 2011 flooding in Brisbane. The area outlined covers approximately 500 hectares of the flood plain of Oxley Creek and the red dots indicate the 3 million items that were deposited by the flooding. Of those items, namely shipping containers, portaloos, rubbish bins, fuel containers, 2049 were highly hazardous and had to be removed by a specialist crew at a huge cost. Items are still being uncovered in this area 3 years later. This presentation emphasized the importance of engaging the community and industry in protection of our waterways, where an abundance of prawns naturally occur.



The Bremer Catchment Association (BCA) held their final meeting for the year in November 2014, and Anne Clarke, Executive officer of OCCA was invited to attend. At this meeting, reports were presented from the leaders of the following projects: Upper and Lower Warrill Weed Management, and the Upper Mt Walker Hillslope Erosion. Andrew McLoughlin from Scenic Rim Regional Council outlined the projects occurring within his council and indicated a partnership was planned with the Bremer River Fund to improve water quality in Purga Creek by decreasing the salinity. Anne was invited to provide information about the Oxley-Bremer Twinning project and attendees expressed their pleasure that OCCA had begun this initiative and hoped that in 2015, a closer working relationship with BCA would be achieved.

**2.1.3 Initial Workshop to explore key issues**

Due to the large scale nature of the catchment, it was important to identify focal areas within the Bremer Catchment. This has been accomplished through a number of workshop sessions to discuss opportunities for engagement with local groups and industry, taking advantage of existing network connections and potential synergies between the work of OCCA and partners in the Bremer Catchment. A desktop mapping study and on ground investigations were conducted, in which a number of potential target organisations and localities were identified including local golf courses, the Citiswich industrial area and the Lobb Street precinct. By sharing learning experiences and applying strategies of OCCA's existing CreekWatch program, it is hoped that successful engagement with industry and community can be achieved.

Another workshop session with several council members and SEQ Catchments Officer, Jean Bray, was recently undertaken to further discuss opportunities for engagement with industry through the avenue of environmental health and development regulations and compliance mechanisms. This was very useful in highlighting the need for cross-departmental coordination in waterway health projects in Ipswich.





Figure 3: Map of the identified industry alongside the Bremer River at Lobb Street, Churchill

### 2.1.4 Ipswich EnviroForum Presentation

The Oxley Bremer Twinning Officer, Hannah Collins, attended the Ipswich EnviroForum 2015 on the 1<sup>st</sup> of May at the Brookwater Golf and Country Club, presenting on the Twinning Program and spoke about her experiences and progress of the project thus far. The presentation, titled *Sharing Catchment Knowledge and Connecting Communities*, was introduced by Nick Schofield, CEO of the International RiverFoundation with a brief background description of the River Recovery and Twinning Programs linking in with the Australian Riverprize and how OCCA became winners in 2009. The presentation received encouraging feedback and interest in the project from various attendees of the EnviroForum, which showed to be a great opportunity to meet people in similar fields of work and make important network connections. The PowerPoint presentation can be accessed via the Ipswich City Council website ([http://www.ipswich.qld.gov.au/\\_\\_data/assets/pdf\\_file/0007/39049/Sharing-Catchment-Knowledge-and-Connecting-Communities\\_Hannah-Collins.pdf](http://www.ipswich.qld.gov.au/__data/assets/pdf_file/0007/39049/Sharing-Catchment-Knowledge-and-Connecting-Communities_Hannah-Collins.pdf)).



Figure 4: Twinning Project PowerPoint Presentation

### 2.1.5 Communications Plan

The Twinning Project Communications Plan was developed to guide how information should be communicated between those involved with the project, avoiding any potential problems that may arise due to communication issues. Effective communication is critical to the success of the Twinning Project, particularly in relation to the transfer of knowledge and ideas between twinning partners. Therefore, it's important to follow the procedures put in place to manage all forms of project communications.

A matrix was developed to guide the transfer of information based on the communication type, the objective and who is involved and a team directory has been included so that all team members contact details are readily available. Using this plan, the Oxley Bremer Twinning Project has been assigned the role of managing communications between the project team and various related stakeholders and has found that organising regular scheduled meetings between team members has been extremely important for enabling project progression and coordination, particularly when meeting face-to-face. It has also been critical to the stakeholder engagement process as face-to-face interactions allow relationship building and a better understanding of the intent of the project that may otherwise be misunderstood through other forms of communication, such as email, phone or simply reading a newspaper article about the project.

### 2.1.6 Risk Management Strategy

In order for the Twinning Project to be successful, it is important that all potential risks are managed accordingly through a thorough risk assessment. The Risk Management Strategy was developed to ensure that all potential risks were identified and prioritised, and suitable procedures were put in place to prevent and mitigate such risks.

### 2.1.7 Community and Corporate Engagement

Through a range of avenues for networking and engagement, a major focus for the project for the last few months has been working towards making vital connections and building relationships with stakeholders within the Bremer Catchment. Anne Clarke has had several meetings and discussions with people of expertise and experience in the Bremer Catchment, such as Councillor Heather Morrow of Ipswich City Council and Jean Bray of SEQ Catchments, in order to gain a better picture of the history and future of development and management of the catchment of the Bremer River. The Twinning Officer, Hannah Collins, on her search for knowledge of the catchment was pleased to attend the Bremer Catchment Association's (BCA) general meeting for May this year. She provided a brief report on the Twinning project

and was able to learn about the various projects and activities that BCA has been working on within the catchment. The group members expressed their interest in the project and also working alongside other Landcare and catchment groups in the Bremer, leaving with a very positive outlook on the possibility of future partnerships.

For the purpose of showcasing the CreekWatch partnership program as a part of the EnviroForum presentation, Hannah conducted video interviews with representatives from several corporate partners involved with the CreekWatch Program, including Sims Metal Management and BMI Group. These interviews were useful for sharing the motivations of business to participate in environmental projects and the positive outcomes that corporate volunteering can have to local business, the surrounding community and the environment.

Liaising with the Bremer River Fund and Ipswich City Council has also lead to an opportunity to secure the support of Scenic Rim Regional Council, which would be a great way to extend the reach of the project into the Upper Bremer Catchment as the project has been primarily Ipswich focussed up until now.

## 2.3 Planning and upcoming events

The next stage of the project has been working towards uniting the various Landcare, community and catchment groups within the Bremer Catchment, to share experiences and local knowledge and to encourage collaborative works aimed at improving the health of the Bremer River. This will be done through a planned workshop event that brings together catchment groups and authorities to actively participate in collaborative thinking activities. The event will comprise of a short presentation to showcase OCCA's experiences and model for working with industry, followed by an afternoon tea and a workshop session in which topics of discussion are proposed to spark alternative ways of thinking within the various attended groups about a whole catchment view of management.

### 2.3.1 Future Initiatives

In light of being unsuccessful in acquiring the grant for the litter monitoring program at Bundamba Creek, we are now re-scoping the project to involve a corporate clean-up day that lines up with National Recycling Week in November to audit litter in the area, with a follow up audit planned for Clean-up Australia Day in March 2016 to compare results. We also intend to reapproach the Department of Environment and Heritage Protection based on the methodology already developed, and to pursue a data collection project and a marketing campaign targeted at the issue.

The International RiverFoundation's 18<sup>th</sup> *Riversymposium* in Brisbane is just around the corner, presenting a great opportunity to network and promote the Twinning Project. The event is scheduled for the 21<sup>st</sup>-24<sup>th</sup> of September at the Brisbane Convention Centre with the theme for 2015, 'Healthy Rivers – Healthy Economies', which ties in perfectly with the project objectives to develop an industry engagement program for the Bremer River Catchment (<http://riversymposium.com/>).

Adding to the original idea for Healthy Waterway's Connect to your Creek Week to engage local business in waterway appreciation by developing interpretive signage that showcases the native species that exist on their property, plans for 2016 will replicate this idea by engaging a range of landholders and coordinating events at several locations. A bird and vegetation survey was conducted on a local golf course that entwines Deebing Creek in Ipswich, and this survey can be used to develop interpretive signage that aims to educate and connect local golfers with their environment, with potential for a planting day to improve the riparian vegetation coverage.

It is hoped that through the Twinning Workshop event, a basic strategy for a sustainable industry partnership program will arise in collaboration with the various catchment groups and authorities in the Bremer Catchment. However, this is expected to be an ongoing process.

## 2.4 Conclusion

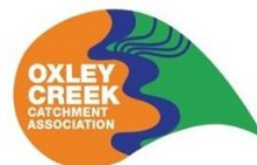
Ultimately as a part of the twinning project, we are working towards developing robust and ongoing programs for industry and community engagement in the catchment of the Bremer River that can continue after the completion of the Twinning Project.

## Contact us

Contact the Oxley Creek Catchment Association regarding the project, our vision, and possible partnerships.

### Oxley Creek Catchment Association Inc.

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Phone/fax	(07) 3345 5541
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Oxley Creek Catchment Association Inc.

TWINNING Milestone Report 3

SUBMISSION TO THE INTERNATIONAL RIVERFOUNDATION  
December 2015



## 1. Program Overview

The Oxley Creek Catchment Association Inc. (OCCA) is a not-for-profit community environment group committed to bringing about positive outcomes for the natural environment and resources of the catchment of Oxley Creek through partnering, educating, advocating and participating in catchment management.

In January 2014, OCCA commenced a Twinning program with the Bremer River Catchment and later signed a Statement of Understanding (SoU) with Ipswich City Council (ICC). The program has a focus on sharing knowledge, skills and ideas for engaging industry and encouraging community involvement in waterway health projects. This program has been running for approximately 18 months. The Twinning program has both demonstrated achievements and faced challenges.

This report will discuss items for Milestone Three reporting for the International RiverFoundation (IRF) as per the OCCA Twinning Business Plan.

## 2. Summary of Milestones

Below is the table of milestones and measures of success for this Twinning partnership.

Milestone	Date	Funds (Excluding GST)	GST	Deliverables	Measure of success
1	July 2014	\$14,895	\$1489.50	Approval of Business Plan for OCCA IRF Twinning Program	<ul style="list-style-type: none"> <li>• Overview of catchment issues &amp; needs <b>(Done)</b></li> <li>• Business Plan <b>(Done)</b></li> <li>• Signed SoU between Twinning partners, OCCA and ICC <b>(Done)</b></li> <li>• Appointment of Oxley Bremer Twinning Officer <b>(Done)</b></li> </ul>
2	February 2015	\$10,505	\$1050.50	Progress Report to IRF	<ul style="list-style-type: none"> <li>• Launch Event (July 2014) <b>(Done)</b></li> <li>• Presentation at 2014 International Riversymposium (September) <b>(Done)</b></li> <li>• Initial workshop to explore key issues <b>(Done)</b></li> <li>• Communications Plan <b>(Done)</b></li> <li>• Risk Management Strategy <b>(Done)</b></li> <li>• Community &amp; corporate engagement <b>(Done)</b></li> </ul>
3	September 2015	\$15000	\$1500.00	Progress Report to IRF	<ul style="list-style-type: none"> <li>• Partnerships Workshop with NRM groups in the Bremer Catchment <b>(Done)</b></li> <li>• Stakeholder consultation <b>(Done)</b></li> <li>• Community and Industry Engagement Proposal <b>(Done)</b></li> <li>• 2015 International Riversymposium (September) <b>(Done)</b></li> <li>• Strategic Plan <b>(Done)</b></li> </ul>

4	January 2016	\$9600	\$960.00	Final Report	<ul style="list-style-type: none"> <li>Partnerships Project Plan</li> <li>BRI Launch</li> <li>Community and Industry Engagement Program - Partnership Agreement Jan 2016 &amp; beyond</li> <li>Twinning Case Study</li> </ul>
	<b>Total</b>	\$50,000	\$5000		

## 2.1 Milestone Three Achievements

### 2.1.1 Partnerships Workshop

The Bremer Catchment Partnerships Workshop was organised to explore the possibility of developing a sustainable partnerships model within the Bremer Catchment, which brought together all with an interest in the health of the Bremer River. Eighteen representatives and members from various organisations attended this workshop, showing a willingness to participate in valuable discussion about the future of networking within the Bremer Catchment. At this event, members of Ipswich City Council’s Natural Resources Team and the Bremer River Fund (BRF) proposed the idea of a Bremer River Initiative (BRI) to provide overarching support and a collective voice for the network of local environmental groups within the catchment. As an outcome of the partnerships workshop, a draft proposal to define the possible structure and functionality of this Initiative has been developed. However, only after extensive consultation with the group representatives will this Initiative be finalised.



Figure 1: Representatives from various groups discussing partnership opportunities

### 2.1.2 Stakeholder consultation

Consultation with the community has been an ongoing process throughout the project. It has involved informing and updating the community and partners about the Twinning Project, sharing resources and knowledge with

organisations in the Bremer Catchment, several meetings and workshops to discuss partnership opportunities and seeking feedback on proposed ideas for long term strategies for catchment management in the Bremer.

### **2.1.3 Community and Industry Engagement Proposal – Bremer River Initiative (BRI)**

The Bremer River Initiative (BRI) is a proposal for a network of land care, catchment and environment groups of the Bremer Catchment. This initiative would allow the groups to work more collaboratively across the catchment, and enable on ground works to be supported by the Bremer River Fund (BRF).

The Initiative has the potential to serve as a banner under which catchment management programs and projects, groups and organisations can communicate with single clear vision and objective. The Initiative would facilitate communications through meetings, e-communications, site visits and field days and support collaboration through dedicated project support staff. It would have access to the Bremer River Fund (BRF) through which grant applications could be made and distributed and corporate funding channelled, in order to support works that align with the goals and aims of the Initiative.

Benefits of this initiative include:

- No financial contribution required to join
- Coordinated voice for the Catchment
- Central point of communication
- Raise profile of groups and projects
- Pooled resources and expertise
- Strategic planning for whole of catchment management
- Increased opportunities for groups to engage with wider community

Through the Oxley Bremer Twinning Project, it has become clearer that community and industry partnerships are more likely to achieve a whole of catchment view of management, and also are the key to gaining the support of potential funding partners. As the Bremer Catchment is fortunate that it already has an appropriate structure in place for such community-industry partnerships, namely the Bremer River Fund (BRF), as well as a number of active community groups, it is an opportunity to steer the direction of this fund to support this initiative.

A basic structure for the BRI has been proposed that incorporates the BRF as a financial aspect of the Initiative to support the network of groups (Figure 2). Although the Finance side and Communications Network are separate units, they are connected through the project officer and the distribution of funds from the BRF to the BRI and the various on ground projects.



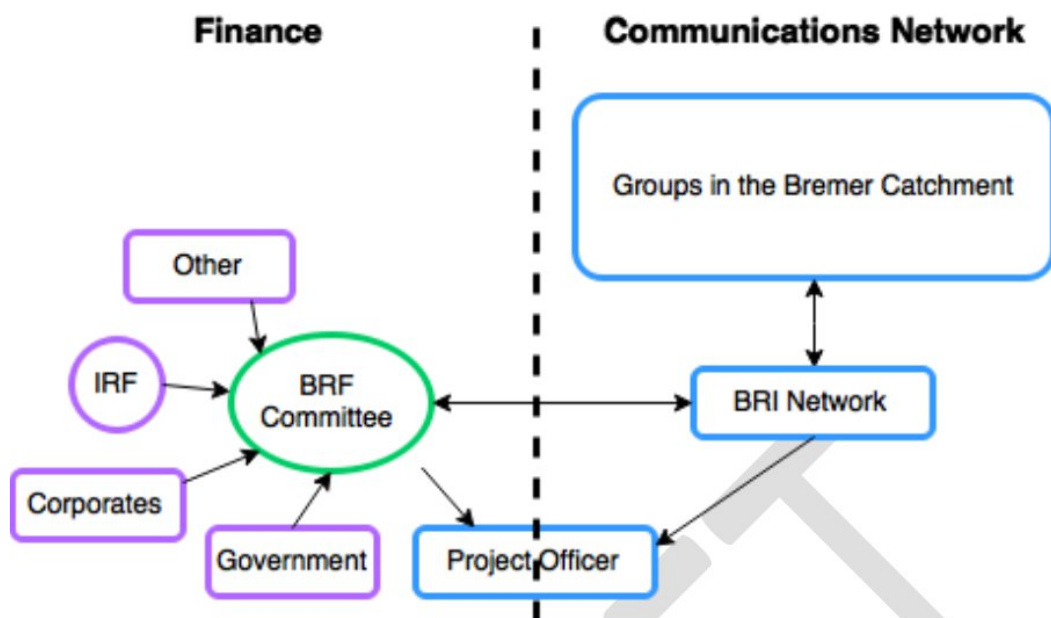


Figure 2: The Bremer River Initiative (BRI) Model

### 2.1.4 18<sup>th</sup> International Riversymposium

The Twinning Officer, Hannah Collins, attended the 18<sup>th</sup> International Riversymposium on the 21-23 of September 2015 in hope to create valuable network connections and learn from other community based collaborative programs in catchment management from around the world. She also participated in the Emerging Water Professionals Program (EWPP).



Figure 3: EWPP group session

### **2.1.5 Strategic Plan**

The original plan focussed primarily on developing partnerships with industry; however, through consultation with various organisations in the Bremer Catchment, there was a shift of focus towards community group collaboration and communication as well as increased industry partnerships. The Strategic Plan describes the direction of the project and any changes that have been made to the original milestones and business plan. It also describes the plan for the project going forward to ensure all milestones are met by the completion of the project.

## **2.3 Planning and upcoming events**

### **2.3.1 Partnership Agreement and Communications Network**

As a result of this process to develop the BRI Network, it is hoped that a long term partnerships agreement will be established amongst the various land care, catchment and environment groups of the Bremer Catchment. An expression of interest has been sent out to the group representatives to sign up to on-going communications, events and projects associated with the Bremer River Initiative.

Once an agreement amongst the various groups of the Bremer Catchment has been established, there is then the opportunity to present a proposal to local government, namely Ipswich City Council and Scenic Rim Regional Council, who have already shown great interest in the proposal, and next industry, to leverage a sustainable funding source for the BRI Network. This investment would be used to fund collaborative projects, individual group projects and the employment of a part time project officer to support the costs of the Network communications and administration.

### **2.3.2 BRI Launch Event and Partnerships Project**

In order to initiate the partnerships program or network, a launch event for the BRI has been proposed for mid-April where group members can come together for a planting day and BBQ. This event is also an opportunity to present planned collaborative works and potential outcomes of the BRI.

For example, a collaborative river restoration project within the Bremer Catchment has been proposed involving the Bremer River Fund, SEQ Catchments, Ipswich City Council and Bremer Catchment Association to showcase the potential positive on-ground outcomes that can be achieved in the catchment through this initiative.

## **2.4 Conclusion**

Over the last 18 months, the Twinning Project has made a lot of progress towards establishing an ongoing program for community and industry engagement in the Bremer Catchment. Through extensive consultation with the community and project partners, whole of catchment collaboration and communication can now be seen as an achievable outcome of the Twinning Project.

## Contact us

Contact the Oxley Creek Catchment Association regarding the project, our vision, and possible partnerships.

### Oxley Creek Catchment Association Inc.

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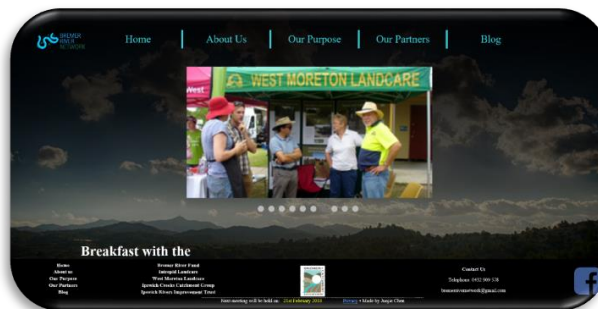
**BREMER  
RIVER  
NETWORK**  
A Yearly Review



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## Executive Summary

The past year has been a significant year for the Bremer River Network. The Network truly established itself as a reputable and highly regarded representative organisation for the environment groups in the Bremer Catchment Area. Over the course of the year, the network developed a logo, a website, and an email address, and the Network’s following on Facebook increased by 500%. The greater Bremer River Network community has increased in engagement, activity and numbers substantially over the course of the past twelve months, and the Network has certainly established themselves as integral member of the SEQ environment sector.



During the past twelve months, the key objective of the Network was to establish an identity, and to promote awareness of the Network. This has certainly been achieved, with the Network receiving an invitation to be a member of SEQCMA; two organisations approaching the Network to become member groups; and various non-member stakeholders requesting assistance for their projects and activities, to which the Network happily supported. The Network has also been heavily represented at meetings, with the Bremer River Fund Project Support Officer sharing presentations regarding the Network at six meetings over the year. Furthermore, internal engagement is growing, with numerous requests being made for the Network to support the member groups. The Network is now autonomously growing; in interest, engagement, membership, social media followers, and activity. With this growth comes increased environmental improvements, and economic viability. The project support officer role has delivered over \$31, 514 in economic benefits, which has resulted in a net benefit of over \$3, 178 in a twelve month period. Furthermore 215 trees were planted and more than 400 weed removal hours occurred over that period of time.

This report highlights some of the economic, social and environmental outcomes from the Network since the commencement of the current Project Support Officer, who commenced in March 2017. The report highlights the importance of the project support officer role, which is instrumental in supporting the Bremer River Network.

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## Economic Outcomes

Although the key priority of the Bremer River Network is to support and represent the environment groups in the catchment, the Network has provided a significant economic benefit to the Bremer Catchment Area. An economic analysis was undertaken, and the results from this analysis are seen in table 1 below.

*Table 1 Economic analysis of the Project Support Officer and the BRN*

<b>Total value of effort</b>	\$34,434.8
<b>Amount spent on project officer staff wages</b>	\$28,336
<b>Amount saved this year</b>	\$6,098.80

Projects included in this calculation are projects which were facilitated by the project officer, and projects that were significantly supported by the project officer. It is noteworthy that all of the volunteer hours are from newly engaged stakeholders, who commenced engagement in 2017. The data from this calculation can be seen in appendix 1-7 below.

Therefore, due to work of the Bremer River Fund Project Support Officer in engaging volunteers in the Bremer River Catchment, the Bremer River Network has had a direct economic benefit of \$6,098.80 to the Bremer River Catchment in the past year.

## Social Outcomes

There have been various beneficial social outcomes resulting from the Bremer River Network, including increased membership, social media presence, engagement with the Bremer River Blog, and networks with various stakeholders in the SEQ environment industry. Furthermore, the Network provided administration assistance to the Network's groups, which improved the groups' capacity.

### *Membership*

In 2017, two additional groups became members of the Network; Ipswich Rivers Improvement Trust and Brisbane Intrepid Landcare. The inclusion of these two groups brings more volunteers, fresh ideas, potential sources of funding, and increased engagement with the Network. Furthermore, alongside increased membership numbers there has been an increase in collaboration, engagement and activity of the groups and their members. The Network has been driving this by representing the groups at events, functions, meetings and on social media.

*Social media*

One of the roles of the Project Support Officer is to advertise the work of the member groups through the social media avenues. The reach of the Network’s Facebook profile increased from 30 followers on the 1 March to 170 followers on the 25<sup>th</sup> May 2018. This was an increase in 140 followers over a fourteen month period. The Facebook followers include members of the Network groups, community members, members of environment groups outside the catchment, and other individuals with an interest in environmental conservation.

*Bremer River Blog*

The Bremer River Blog commenced late 2016 with contributions from 2 stakeholders; Healthy Land and Water and Ipswich City Council. During the past twelve months, three Blogs were published, with a consistent increase in the number of contributors, and number of pages (table 2). The Blog is a popular avenue for the Network’s groups to share stories and information regarding their organisations.

*Table 2 Bremer River Blog stats*

<b>Date</b>	<b>Number of contributors</b>	<b>Number of Pages</b>
Summer 2016/2017	2	3
Autumn 2017	4	5
Spring 2017	7	9
Summer 2017/18	10	14

The newsletter is published on the BRN Facebook page, and to over 100 email contacts. The groups are encouraged to share the Blog internally with their personal networks. The Blog effectively demonstrates the work of the Network’s groups, and has been a positive means of communication with internal and external members of the Network.

*Bremer River Network Meetings*

There has also been a steady increase in engagement at the Bremer River Network meetings, with an increase in the number of individuals either attending or sending apologies for the meetings (table 3).



Table 3 Stats from the meetings

Date	Attendees	Apologies	Number of engaged individuals
12/10/2016	7	2	9
22/07/2017	4	2	6
23/08/2017	7	5	12
29/11/2017	7	8	15
21/02/2018	8	6	14
21/05/2018	12	8	20

### Engagement

The Bremer River Fund Project Support Officer, representing the Bremer River Network, engaged with various stakeholders in the past year, as seen in appendix 9. This engagement assisted in establishing the identity of the Network as an umbrella organisation for the environment groups in the catchment. As a result of these networks, various engagement and project opportunities have occurred within the catchment.

The unique operation of the Bremer River Network enables small informal groups and bushcare groups to receive support and guidance. The Garden of Eden Project was a pilot project to demonstrate how the Bremer River Network can provide support to informal groups and individuals who are not affiliated with any environment groups and wish to undertake on-ground works. The Network fostered a relationship between Bremer Catchment Association and the Garden of Eden project manager, Anthony Edwards, to enable the project to achieve success. As there was no previous mechanism for actively supporting these stakeholders, the Network's capacity to provide this assistance improved the productivity and activity of on-ground volunteers in the catchment area.

In response to the success of the Garden of Eden Project, three other individuals have approached the Network with an interest in starting bushcare sites. The Project Support Officer is currently supporting these individuals, and is liaising with Bremer Catchment Association to facilitate the auspicing of these groups under BCA.

The Network is an effective avenue for Ipswich City Council (and other stakeholders) to direct individuals who approach them with an interest in volunteering in NRM-related activities. Therefore, the Network provides an efficient and effective means of utilising the potential volunteer resources in the catchment.

### Awards

In 2017, the Bremer River Network was the recipient of an Ipswich City Council Award for Excellence for assisting in the establishment of the Garden of Eden Project.

### Assistance to groups

In the past year, the Project Support Officer aided the Network members through the provision of administration assistance and project management support. Some of the ways in which the Network supported the groups are noted below:

- Created a pamphlet for WMLG
- Undertook intensive project support for the Garden of Eden Project
- Liaised between ICC and the environment groups to assist with communication lines
- Assisted Bremer Catchment Association with website issues
- Advertised events, projects and activities on behalf of member groups

The Network would like to hold various workshops that are focused on building the capacity and efficiency of the groups in the next twelve months. Furthermore, the Network would like to source options for providing the groups with much needed support through mechanisms such as volunteers and student placements.

### Environmental Outcomes

The Bremer River Network actively supported the Garden of Eden Project, and the YMCA ‘adopt a section of the creek’ project. Due to the project management and liaising that was facilitated by the Bremer River Fund’s Project Support Officer, the following approximate environmental outcomes were achieved:

**Weed removal hours** – 400 (approx.)

**Trees Planted** – 215

The works were undertaken in riparian areas of the Bremer River (Cribb Park) and Bundamba Creek (Fail Park). Many weeds that were removed were invasive vines such as Glycine (*Neonotonia wightii*) and balloon vine (*Cardiospermum grandiflorum*) which were smothering and weakening native trees, destabilising the banks and reducing the amenity of the areas. These works will help to reduce sediment runoff, improve the ecological health of the ecosystems, improve the resilience of the existing native vegetation, stabilise the banks, improve the visual amenity and usability of the areas, and improve the biodiversity of the two locations.

The YMCA ‘adopt a section of the creek’ project inspired, educated and engaged secondary school-aged students in environmental restoration practices, which would potentially result in future environmental benefits due to improved education, awareness and intrinsic appreciation for the creeks.

## Appendix

### Appendix 1 YMCA Group

Date	Number of volunteers	Total hours (1hr per session)	Value of effort (\$)
28/08/2017	18	18	\$540
31/08/2017	14	14	\$420
9/09/2017	18	18	\$540
14/09/2017	14	14	\$420
Total value of effort	64	64	\$1,920

### Appendix 2 Garden of Eden Project

Event Description	Volunteer #	Hours	Value of effort (\$)
Working Day 10/6/17	10	30	900
Working Day 25/6/17	11	33	990
Working Day 8/7/17	8	24	720
Working Day 22/7/17	14	42	1260
Working Day 16/09/2017	9	27	810
Working Day 28/10/2017	5	15	450
Working Day 18/11/2017	27	108	3240
Working Day 25/11/2017	4	16	480
Working Day 17/02/2018	4	12	360
Working Day 17/03/2018	5	15	450
Working Day 21/04/2018	6	18	540
Working Day 19/05/2018	12	48	1140
Probation and Parole (9 sessions as of 25/04/2018)	9	36	1080
Anthony's hours (approximate)	1	150	4500
Daryl's hours	1	5	150
Advice and support from Naomi	1	10	300
Support from BCA	1	15	450
Anthony's secretary's hours	1	35	1050
<b>TOTAL</b>	<b>114</b>	<b>574</b>	<b>18,870</b>

Appendix 3 Dani Volunteering

Event or organisation	Number of hours volunteered
International RiverFoundation Emerging Water Professionals Program	21
Healthy Land and Water awards	4
Garden of Eden Group	10
Vera Scholarship	14
Volunteering by Network members for Vera s/ship winner	7
TOTAL	56
Total value of effort (at \$31.55 – the project support officer’s wage)	\$1, 766.8

Appendix 4 BRN Tour

Attendees	Hours	Total Value of Effort
36	5	\$5, 400

Appendix 5 Website volunteering

Hours spent	Total Value of Effort
100	\$3, 000

Appendix 6 Logo – charity price

Charged price	retail price	Difference (total value of effort)
\$50	\$350	\$300

Appendix 7 – Total value of effort – calculation

Total value of effort	\$34,434.80
Amount spent on project officer staff wages	\$28, 336
Amount saved this year	\$6,098.80

Appendix 8 – Engagement with meetings

Date	Attendees	Apologies	Engaged
12/10/2016	7	2	9
22/07/2017	4	2	6
23/08/2017	7	5	12
29/11/2017	7	8	15
21/02/2018	8	6	14
21/05/2018	12	8	20

### *Appendix 9 – Stakeholders the Network engaged with in 2017*

Actively participated in the CAP planning process, representing the Bremer River Network

Advertised and supported the Little Liverpool Range Initiative where possible

Amberley and District State School – provided advice on how they could implement environmental issues into their curriculum, connected them with ICC's Education Officer, ICC's Landholder Partnerships Officer, and network members

Assisted with the Emerging Water Professionals Program at the International RiverFoundation's River Symposium. Met with water professionals from over 20 different countries.

Brisbane Catchments Network – attended regular meetings to share ideas

Challenge employment – identifying potential sites for a Cert 1 in Conservation and Land Management course. Garden of Eden project is enthusiastic to obtain some volunteers through this program and we are currently liaising with Martin Page (ICC) and Challenge Employment to commence a project at Davidson St Reserve.

Conservation Volunteers Australia – recommended a site for on-ground works, to have ongoing engagement to identify potential opportunities for collaboration.

Councilor Kerry Silver (upon request of the other Network members)

Engaged with a variety of professionals from various different organisations at the Bremer River Network Tour

Engaged with student volunteers – UQ GEMS with the GOEG, and Junjie Chen with the website

Engaged with John Steley from Australian Conservation Foundation – establishing a collaborative means for engaging with various players in the catchment area

Engaged with various non-member groups within the catchment, who wish to remain in communication with BRN, including Ipswich Bushwalkers Association, Rosewood and District Protection Organisation, Australian Conservation Foundation, SEQ Water, Queensland Urban Utilities, Royal Australian Airforce, and Conservation Volunteers Australia.

Formed a positive relationship with James Hilyard and Paul Mackenzie, Vada Hoger and Miranda Reis, and Melanie Mott and Nicholas Swan from Ipswich City Council, and improved communication between ICC and the environment groups.

Fostered the relationship with the International RiverFoundation

Hosted 2 BBQ's for the Network

Ipswich City Council – recommended two landholders to engage with the Land for Wildlife program

Ipswich Girls' Grammar School –Identify potential areas for collaboration

Invited to become a member of SEQCMA

Networked and communicated with Sekisui and Providence to encourage their engagement with the Network. Sekisui shared their enthusiasm in starting a landcare group and joining the Network.

Probation and Parole – facilitated a meeting with the Garden of Eden group and Probation and Parole to ascertain how the GOEG could access volunteers through the P&P Community Service program. Anthony is now undertaking works on a weekly basis with the P&P volunteers.

Represented the Network at the Healthy Land and Water Awards, at the HLW report card reading, and various other events

Supported the International RiverFoundation's Vera Scholarship winner, engaged with 5 Network members to share ideas and show the scholarship winner various sites.

University of Queensland – attended the UQ GEMS industry placement evening, and are currently organising a camping trip in collaboration with the Network members. Also liaised with the student placement officer to discuss the possibility of having an industrial placement student on board

U3A Ipswich 60 and Better

Volunteer Services Australia - to ascertain whether they could assist with providing volunteers for our member groups

YMCA Vocational school – supported the school in their 'adopt a section of a creek' project

1 June 2018

**Ms Kaye Cavanagh**  
Ipswich City Council  
Level 4, Hayden Centre,

Dear Kaye,

Thank you for the opportunity to meet with you and Danelle Andlemac on the Bremer River Fund (BRF) last week. The generous donations of foundation partners like Ipswich City Council (ICC), the support of local stakeholders and community groups and the willing initiative of the Fund Project Team to apply for grants, have facilitated in on-ground works and local community ownership to support the vision of “*an active and healthy Bremer River, integrated with its lands, cities and communities*”. Since 2016, the Ipswich City Council has generously donated \$30,000 to the Fund to partially support the Bremer River Fund Project Support Officer role (0.4 FTE). As such, I would earnestly like to request the continued support of Ipswich City Council to fund the Project Support role, which costs about \$27,000 inclusive of on-costs per year.

The Bremer River Fund Project Support Officer role is very critical in supporting the Bremer River Network (BRN) and fostering BRN’s relationship with the Bremer River Fund, ICC, as well as with Council’s environment-focussed community groups. BRN’s is achieving positive outcomes in the catchment – with their social media following increasing by over 500% and organisational membership by over 20% in the past twelve months. These has led to a swell in volunteer numbers on-ground. The Project Support Officer also manages BRN’s newsletter and website, other opportunities to reach more of the community.

The BRN also facilitates and organises various events, functions and tours with the purpose of showcasing the work of the member groups, increasing community group membership numbers, and increasing education and awareness of best-practice natural resource management strategies in the catchment. We are grateful for ICC’s support and collaboration in planning and operationalising such events. To-date, it is great to see that the positive working relationship between ICC and BRN (of the wider community) has been mutually beneficial and has broken down barriers, leading to increase trust and desire to collaborate across both groups. Ultimately, Bremer River and its catchment will be the beneficiary of such a collaborative environment.

The International River Foundation (IRF), as one of the founding members and the administrator of the Fund would like to work more closely with Ipswich City Council to develop a strategic pathway to achieve the vision of the fund. Opportunities like the operationalisation of the Bremer River Catchment Action Plan (CAP) and how we can showcase this as a roadmap to others on the journey towards Resilient Rivers, revitalisation of the River Festival, strengthening river stewardship, etc. are a few of the common activities we would like to further discuss with you. As well as supporting the BRN, I see the role assisting both IRF and ICC in developing roadmaps to achieve A Resilient River.

I look forward to hearing a positive outcome of this request. I would be very happy to come and discuss this with you further if you need more information. Thank you kindly.

Yours sincerely,



**Dr Eva G. Abal**  
CEO, international River Foundation



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Danielle Andlemac  
Bremer River Fund Project  
Support Officer  
0432 909 578  
[Bremerrivernetwork@gmail.com](mailto:Bremerrivernetwork@gmail.com)  
[www.facebook.com/bremerrivernetwork/](http://www.facebook.com/bremerrivernetwork/)

25 May 2018

Kaye Cavanagh  
Ipswich City Council  
Level 4, Hayden Centre, Ipswich QLD 4305

RE: Funding for the Project Support Officer

Mrs Cavanagh,

In 2016, Ipswich City Council generously donated \$30,000 to the Bremer River Fund, with the purpose of supporting the Bremer River Fund Project Support Officer role. These funds have facilitated the employment of the Project Support Officer for the past fourteen months, who is currently employed to work two days a week on a permanent part-time basis under the auspice of the International RiverFoundation.

These funds have been instrumental in supporting the work of the Bremer River Fund, including the establishment of the Bremer River Network, and the provision of a conduit between Ipswich City Council and its environment-focussed community groups. The Bremer River Network has provided many benefits to the Bremer Catchment, and locally to the city of Ipswich.

The Bremer River Network is gaining momentum, and is already achieving positive outcomes in the Bremer River Catchment. BRN's social media reach is increasing in activity and engagement. Social media following has increased by over 500%, and organisational membership has increased by over 20% in the past twelve months. Through the Network's social media avenues, the member groups are able to reach a broader audience when advertising events, working bees and functions. This has led to an increase in volunteers on the ground, and an increase in membership within the greater Network community.

The Network's newsletter and website, which are also managed and updated by the Project Support Officer, are other avenues of



publicising the work of the Network members. The website offers an online platform for member groups, including some groups who don't have an alternative online presence, such as West Moreton Landcare Group.

The Bremer River Network facilitates and organises various events, functions and tours with the purpose of showcasing the work of the member groups, increasing community group membership numbers, and increasing education and awareness of best-practice Natural Resource Management Strategies in the catchment. Many of the events are organised collaboratively with Ipswich City Council to combine resources, ideas and skills, including the Community Day at Cribb Park, which will be held on the 4<sup>th</sup> of August 2018, and a bus tour that will be held during the Peaks to Point Festival. This positive working relationship between BRN and ICC has been mutually beneficial and has broken down barriers and assisted in bolstering trust and rapport between Council and the community groups.

The Network has been dynamic and adaptive, and has achieved more than just benefits in the space of capacity building, engagement and communications. The Network has attained on-ground benefits in the riparian areas of the Bremer River Catchment by supporting bushcare groups in the catchment. The Network is a key facilitator and support mechanism for bushcare groups in the Ipswich City Council area, and is currently providing support to four bushcare groups on the Bremer River and Deebing Creek tributaries.

The Garden of Eden Group was the first bushcare group to be established with assistance from the BRN. The group commenced works approximately 12 months ago and in that time they have undertaken approximately \$18,800 worth of works on Cribb Park, including the removal of weeds over 150m, and the planting of over 50m of the river bank. They have over 20 active volunteers who attend working bees on a monthly basis. Furthermore, the

bushcare group hosts volunteers from Probation and Parole, who volunteer on a weekly basis on the site. By supporting bushcare groups, BRN has produced positive on-ground outcomes, and the Network aspires to continue this positive work into the future.

The Bremer River Catchment Action Plan will facilitate continued improvements in the productivity and efficiency of on-ground works in the catchment. The Network will likely play an integral role in the implementation of the Bremer CAP, which has enormous potential for very positive outcomes in the Bremer Catchment, and locally in the ICC area.

In the next twelve months, the Network will continue to improve the communication and collaboration between the groups; develop a summary of works to highlight where projects are occurring in the catchment; host events, workshops and functions; and continue to support the member groups as needed. To achieve this, the Bremer River Network requires a paid project officer to drive these projects.

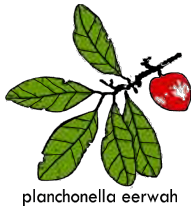
Unfortunately, the funds contributed by Ipswich City Council in 2016 will be depleted at the end of this financial year. The Bremer River Fund is therefore appealing to Ipswich City Council for continued financial support. Your contributions in 2016 were very much appreciated and were well-utilised, and it is assured that further contributions will continue to achieve positive benefits to the Bremer Catchment Area.

Your assistance and support would be greatly appreciated, and we are thankful for your consideration of this request.

Please see the attached report for further information about the progress of the Bremer River Network over the past twelve months.

Sincerely,

Danielle Andlemac



## The Society for Growing Australian Plants Inc. Ipswich Branch

*Cultivation Conservation Education*

President: Esther James  
Email: [ipswich@npq.org.au](mailto:ipswich@npq.org.au)  
Telephone: 0401 328 474

31 May 2018

To whom it may concern

Native Plants Queensland – Ipswich Branch (NPQI) has been a member of the Bremer River Network (BRN) since inception.

The meetings and information distribution continue to be a great benefit to our group, as vital and relevant regional conservation information is distributed to the community through the network meetings, of which we continue to actively participate.

The Bremer River Network assists NPQI by enabling us to support and participate in regional events and projects by other community groups. It provides an invaluable resource for our community to meet, negotiate, learn and partner with other conservation and land management groups in the region, and is the only real time networking platform that is available for groups working in the field of conservation in our region.

We look forward to a long and prosperous partnership with the Bremer River Network.

Yours faithfully,

Esther James  
Branch President  
Native Plants Queensland - Ipswich Branch



## THE WEST MORETON LANDCARE GROUP INC

Office - 361 Rosewood – Marburg Road  
Talleghalla QLD 4340

PO Box 55 Rosewood QLD 4340  
Phone: 07 5464 4401  
Email: [landcarewestmoreton@bigpond.com](mailto:landcarewestmoreton@bigpond.com)

---

9th June 2018

M/s Danni Andlemac  
c/- Ipswich City Council  
IPSWICH,

Dear Danni,

On behalf of West Moreton Landcare Group Inc., and our President Bob Hampson, who is currently overseas, we take much pleasure in acknowledging the benefits associated with the coordination and promotional work undertaken by yourself, in association with the various groups associated with the Bremer River Network.

As the bounds of Ipswich City Council cross a range of catchments, and encompass a variety of groups interested in helping to protect or enhance the natural resources located within their areas of interest, the network provides the all important environmental, economic and social opportunities for groups such as ourselves, to share their plans and aspirations, and on occasions provide the collaborative support to achieve set goals.

I trust Ipswich City Council will continue to see merit in the benefits the network provides.

Thank you also for your valued support of our West Moreton Landcare Group Inc.. It is appreciated.

Kindest regards

A handwritten signature in black ink, appearing to read "Jean Bray".

Jean Bray (Hon Secretary)  
Mob. 0409004832

**CORPORATE GOVERNANCE OF  
THE '*BREMER RIVER FUND*'  
2016 - 2019**

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Established under the auspice of the International RiverFoundation  
World Leaders in River Restoration Management

Level 8

200 Creek Street

Brisbane Qld 4000

PO Box 203

Spring Hill Qld 4004

Phone: 07 3026 0823

Web: <http://www.riverfoundation.org.au/contact.php>

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## **1.0 INTRODUCTION**

### **1.1 NAME**

The name of the fund is ***Bremer River Fund***.

### **1.2 ESTABLISHMENT**

The Bremer River Fund was established in 2010, as a ground-breaking outcome of the inaugural Bremer River Forum. A foresight of the Ipswich City Council Mayor and the Managing Director of the International River Foundation the fund was established to support the implementation of practical solutions to restore the Bremer River as the lifeblood of the Ipswich region.

The generous donations of foundation partners, matched with a groundswell of local backing ignited the fund to drive on-ground works and to leverage further funds within a collaborative framework to improve river health and community re-connection to waterways. It is the aim of the Bremer River Fund to support existing and future on-ground projects and to facilitate coordinated funding to achieve multiple outcomes for all stakeholders and partners within the entire Bremer River Catchment.

### **1.3 BREMER RIVER FORUM**

The Bremer River Forum was held in April 2010. Approximately 200 dedicated and enthused participants attended the forum, representing State and Local governments, regional Natural Resource Management organisations, research institutions, catchment and river management bodies, community environment groups, industry and business, and general community. The Forum resulted in the development of an Overarching Guiding Principle, Vision and 10 point Solutions Statement. Outlining the key actions needed to improve the health and well-being of the Bremer River catchment, the 10 solutions recognised the extensive work and planning already undertaken.

As a part of the review process in 2015, a new direction for the BRF was suggested through the establishment of the Bremer River Network (BRN), an outcome of the Oxley Bremer Twinning Program. The 10 points have been reviewed and amended based on this new direction and the capacity of the BRF to achieve such goals.

#### **1.3.1 OVERARCHING GUIDING PRINCIPLE**

*To improve the health of the Bremer River, act with audacity and with a vision that exceeds current expectations. In particular, act to animate, activate and integrate the river with its cities, lands and communities.*



### **1.3.2 BREMER RIVER FUND VISION**

*An active and healthy river, integrated with its lands, cities, and communities of the Western Corridor of SEQ.*

### **1.3.3 10 POINT SOLUTIONS STATEMENT**

1. There will be one agreed plan for management of the Bremer River.
2. Support and encourage initiatives that incorporate water sensitive urban design in construction and operation phases with enforcement through building partnerships with key stakeholders
3. Protect and conserve remaining high conservation value aquatic ecosystems and adjacent lands.
4. Continue to work towards improving vegetation within 25m of 2000km streams on both sides.
5. Support and encourage initiatives that aim to remove significant point source pollution through industry engagement and partnerships
6. Boost participation, communication and capacity building within broader community.
7. Ensuring the integration and connectedness of the river with the city.
8. Continue to explore possibilities to deal with the problems of low dissolved Oxygen concentrations in the Bremer River A greater range of funding sources need to be identified (both willing private and public).
9. Support the improvement of natural water flow management where opportunities arise to engage with partners.

## **2.0 APPLICATION OF INCOME AND EXPENDITURE**

The Bremer River Fund is administered by the International RiverFoundation (IRF). The Bremer River Fund is required to cover the costs of administration and support provided by the IRF.

### **2.1 SCOPE**

1. This applies to all funds held by the International RiverFoundation in the designated Bremer Fund Account:

Bank Australia Account No. 12023555

2. This covers the allocation, collection, distribution, management and administration of monies in the Bremer Fund account.

## **2.2 EXPENDITURE**

1. The BRF Steering Committee approves all expenditure for the Bremer River Fund with the exception of bank fees, statutory charges and project specific spends that are covered within the terms and conditions of individual grant deeds.
2. Spending of grants or project specific funds which aligns and adheres to the terms of the individual funding agreements can be authorised by the project officer or secretary without the need for committee approval where the terms of that project or grant has already been approved by the Bremer River Fund committee.
3. The Bremer Fund monies cannot be used for expenses other than those approved in writing, including email, by the Steering Committee.
4. Invoices for approved expenditure are sent to the IRF finance department and are approved by the Project Officer, Secretary or Char of the Bremer River Fund and a second signature from the IRF CEO or.
5. Funds are to be paid in a timely and efficient manner.

## **2.3 INCOME**

1. The IRF is responsible for the management of income to the Bremer Fund including all invoicing.
2. The IRF is the designated entity to collect and manage all funds from donors, grants and sponsorships.
3. The Bremer River Fund is placed in a low cost, interest bearing account with an Australian Government approved deposit taking institution with all funds guaranteed.
4. At each Steering Committee meeting the IRF will make available up-to-date account information on funds held, interest earned, payments received or made and invoices to be issued and those outstanding.

## **2.4 MONTHLY RECONCILIATION**

1. Bremer funds will be reconciled by IRF's finance manager and company secretary.
2. The IRF must provide all receipts arising from any transaction in the Bremer Fund and annotate the receipts with the details of the nature of the expenditure for each item of expenditure and make these available to the Steering Committee.

3. Bremer River Fund will pass on invoices in line with agreed expenditure items with full details and nature of expenditure to the IRF for processing.
4. Monthly reconciliations, cost coding and project expenditure tracking will be carried out by IRF finance department for presentation at Steering Committee meetings and available on request electronically.

## **2.5 TAXATION**

1. IRF is liable to pay GST and is also eligible in many instances to claim a GST input-tax credit. All credits claimed must be supported by documentation. IRF must provide all original documentation (receipts and invoices) outlining any GST component of a bill in accordance with this IRF Policy.
2. IRF is registered with the Australian Charities and Not-for-profit Commission (ACNC) and is accredited with the Australian Council for International Development (ACFID).
3. The IRF holds Deductible Gift Recipient (DGR) status and is classed as a charity under the Register of Environmental Organisations (REO). IRF issues DGR receipts to donors for tax purposes and complies with the legislative requirements of running a charity.

## **2.6 RECORDS MANAGEMENT**

1. All documentation associated with the Bremer River Fund are the responsibility of the Project Officer and all files including receipts are made available to the IRF at any time for records and auditing purposes.
2. All files are regularly backed up on an external storage device to ensure file safety.
3. Receipts for all transactions will be retained within IRF's accounts department.

## **2.7 AUDIT**

1. Independent auditors will carry out project audits for reporting purposes with costs of the audit covered by existing project funds. The IRF auditor is appointed by the board of the IRF.

## **3.0 INVESTMENT**

1. Investment in the Bremer River Fund may be by way of direct contributions, grants, donations, specific project contributions, offset provisions or any other acceptable means to be determined by the Steering Committee.
2. Investment funds are to be used for the delivery of priority catchment programs.

3. A Funding Member may elect to contribute funds for the delivery of a specific project only. This may be a specific existing program or a new project to be located within the Bremer River catchment.
4. A Funding Member may elect to co-invest in a specific project with other existing or new Funding Members.
5. Where a Funding Member contributes funds for a specific project, the Steering Committee reserves the right to accept or reject the project proposal and associated funds. The Steering Committee's decision will be based on the appropriateness of the nominated project to contribute towards the overall vision and objectives of the Bremer River Fund.

#### **4.0 SECRETARIAT**

##### **4.1 CORPORATE GOVERNANCE**

Corporate governance and financial management sits within the roles and responsibilities of the International RiverFoundation, and bound by the rules of the International RiverFoundation as specified in Section 2 of this document.

##### **4.2 BREMER RIVER PROJECT OFFICER**

The Bremer River Fund employs a Bremer River Project Officer at an FTE appropriate to the level of work required, through and under the auspice of the International RiverFoundation. The funding for this position can be made up of Funding Member contributions including Councils as well as grant or sponsorship from project specific monies. Continuation of funding is contingent on an annual review and availability of funding and, commensurate budget provisions each financial year.

#### **5.0 MEMBERSHIP**

##### **5.1 FOUNDATION MEMBER**

A Foundation Member is a company, organisation, government body or individual that provided an initial financial contribution towards the establishment of the Bremer River Fund following the inaugural Bremer River Forum in April 2010.

##### **5.2 MEMBER COUNCIL**

A Member Council is a local government authority that has a part or the whole of its local government area located within the Bremer River catchment area. A written commitment is required and will be reviewed on an annual or 3 year cycle.

### **5.3 FUNDING MEMBERS**

A Funding Member is a company, organisation, government body or individual that provides a financial or in-kind contribution to the Bremer River Fund within the previous or current financial year.

A Funding Member has the right but is not obligated to nominate a representative from it's or another funding organisation to be a member of the Bremer River Fund Committee.

Should they not wish to take up the role on the committee funding members can request the following:

- a. Receive copies of the minutes following each of the Steering Committee meetings.
- b. Receive six (6) monthly updates of programs funds, projects and other funding partners.
- c. Be invited to attend program events including project launch events and other celebrations.
- d. Be invited to form reference or advisory groups, as required, to assist in the development and delivery of priority catchment programs as identified by the Steering Committee.

### **5.4 BREMER RIVER NETWORK MEMBER**

At least one nominated representative from the Bremer River Network (BRN) will be present on the BRF committee and will act as a conduit between the BRF and BRN. This person can propose investment suggestions and projects to be funded by the BRF and will have full committee member status.

### **5.5 BREMER RIVER FUND PROJECT OFFICER MEMBERSHIP**

The project officer will have full voting rights on the BRF committee.

## **6.0 MEETING STRUCTURES**

### **6.1 STEERING COMMITTEE**

#### **6.1.1 ROLE**

The role of the Steering Committee is to:

- a. Set the direction for the environmental projects that will form part of the Program in line with the Program Criteria.

- b. Select and oversee the development and implementation of individual projects in line with the Program Criteria outlined in Section 6.1 of this document.
- c. Recommend the submission for State and Federal Grant Funds.
- d. Approve expenditure of Program and other Grant Funds.
- e. Produce bi-annual progress reports on project/s outcomes to key stakeholders including the Bremer River Network Group.
- f. Present a detailed annual financial report and audit statement, organised and produced by the International RiverFoundation, as specified in Section 2 of this document.

#### **6.1.2 COMMITTEE MEMBERSHIP**

The Steering Committee will consist of at least 1 and no more than 2 representatives from:

- a. Funding Members (Foundation members are able to be on the committee on a voluntary basis)
- b. International RiverFoundation
- c. Ipswich City Council
- d. Scenic Rim Regional Council
- e. Bremer River Fund Secretariat
- f. Bremer River Fund Project Officer
- g. Bremer River Network

A funding member may be the same person as a Council representative in the case that Council is contributing financial support to the Bremer River Fund.

#### **6.1.3 MEMBERSHIP ELIGIBILITY**

A person is eligible to be a member of the steering committee if:

- a. A person is a nominated representative of the member Council's, being Ipswich City Council and Scenic Rim Regional Council. This may be an elected officer and / or a nominated staff officer of the member Council.
- b. A person is a nominated representative of the International RiverFoundation.
- c. A person is a nominated representative of the Funding Members.
- d. A person is a nominated representative of the Bremer River Network

- e. The person employed as the Project Officer for the Bremer River Fund by the International RiverFoundation

#### **6.1.4 STEERING COMMITTEE MEETINGS**

1. Steering Committee Meetings will be held quarterly or more frequent as required by the Steering Committee Chair.
2. The Bremer River Project Officer will be responsible for:
  - a. Issuing the agenda at least 1 week prior to a scheduled meeting.
  - b. Recording minutes of each meeting.
  - c. Distributing minutes to all steering committee members within 2 weeks of a scheduled meeting.
3. The Steering Committee Chair may invite others to attend part, or all of the meetings, with the agreement of all other Steering Committee members.

#### **6.1.5 CHAIRING OF STEERING COMMITTEE MEETINGS – add in the case of chair not attending meetings**

1. The Steering Committee Chair will be elected from and by the Steering Committee members.
2. The Chair must preside as Chair for all Steering Committee and other general meetings.
3. The term of the Chair will be for 3 years. A Chair may be nominated for additional and subsequent terms.

#### **6.1.6 QUORUM**

1. A quorum consists of the Chair and at least two (2) other Steering Committee members in attendance, either in person, by proxy or via teleconference.
2. A Steering Committee member may nominate a proxy from their member organisation to attend a Steering Committee, with notification of their attendance provided to the Bremer River Project Officer prior to the meeting.

### **6.2 ANNUAL GENERAL MEETING**

A Bremer River Fund annual general meeting will be held each May?, and will be open to all foundation members, member Council's, funding members, BRN members and key stakeholders to attend.

### **6.2.1 PURPOSE**

The purpose of the annual general meeting is for:

- a. The Chair to present a project status report and financial statement.
- b. All members and key stakeholders to provide input into the identification and prioritisation of future projects, and investment / funding opportunities.
- c. Identifying and inviting new funding members.
- d. The Funding Members to nominate and endorse two (2) funding member representatives on the Steering Committee.
- e. Other general business.

### **6.2.2 CALLING OF THE ANNUAL GENERAL MEETING**

The Steering Committee Chair will call the annual general meeting, determining the date and location, at a Steering Committee meeting held prior to May but no later than March.

### **6.2.3 NOTIFICATION OF ANNUAL GENERAL MEETING**

The Bremer River Project Officer will provide notification in writing of the annual general meeting, including the date, location, time and details, to all foundation and funding members, member councils, BRN members and other identified key stakeholders at least four weeks prior to the meeting date.

## **6.3 OTHER MEETINGS**

The Steering Committee may decide to hold other meetings, as required, to:

- a. Establish reference or working groups to develop and implement specific projects.
- b. To network with existing or future funding members.
- c. To identify investment or grant funding opportunities and to meet funding timelines.
- d. Any other purpose deemed to fit within the overarching guiding principle or vision of the Bremer River Fund.

## **7.0 PROGRAM SELECTION**

The Bremer River Fund acts as an overarching investment framework for the coordination and delivery of priority catchment management programs, and to facilitate the collaboration of multiple catchment stakeholders to achieve the visions and goals of the



Fund. The Bremer River Fund provides a mechanism for pooling multiple-stakeholder investments and resources in a non-competitive manner and will be used to value-add to existing programs and delivery agents, as well as seek further investment through grant application to deliver current programs. Priority Catchment Management Programs are developed to deliver on the 10 point Solutions Statement.

#### **7.1 PROGRAM CRITERIA**

1. Work towards the delivery of one or more actions outlined in the 10-point Solutions Statement.
2. Guided by regional and local NRM targets, plans, science, and best practical on-ground knowledge.
3. Based on existing information and current programs.
4. Demonstrates connection with and between catchment stakeholders to ensure consensus of program outcomes.
5. Provides opportunities for community education and engagement and facilitates community ownership and long-term stewardship.
6. Is technically sound and realistic.
7. Demonstrates results.
8. Supports the integrity of public and private infrastructure and other community resources.
9. Enhances ecological and community corridor linkages and refugia.
10. Enhances corporate profile and community amenity, through demonstration sites.
11. Supports the protection of Indigenous and European cultural heritage.
12. Based on sound ecological engineering principles and does not contribute to the worsening of flood impacts or impedes natural flows.
13. Is cost effective and able to access and leverage funds in a collaborative, multi-stakeholder framework to achieve multiple benefits.

#### **7.2 PROGRAM MANAGEMENT**

1. The Priority Catchment Management Program will be managed by the Bremer River Project Officer in conjunction with Ipswich City Council, Scenic Rim Regional Council and the International River Foundation, under the guidance and direction of the Steering Committee.

2. The Steering Committee will endorse the program on an annual basis.
3. The International RiverFoundation will be responsible for the financial management of the program.
4. Implementation will be delivered in collaboration with existing resources and skills of key stakeholders and the community.
5. As required, and where budget permits, a Project Officer will be employed to facilitate the development and implementation of the specific projects under the program, to undertake stakeholder liaison and to assist in community engagement and promotion. The Project Officer may be an employee of the International RiverFoundation but be based with another member or relevant host organisation.
6. Individual projects will be governed by specific contract arrangements between the Bremer River Fund under the auspice of the International RiverFoundation and the delivery agency involved, although this shall not preclude such agencies sub-contracting work, with the concurrence of International RiverFoundation and the Bremer River fund.

## **8.0 INDEMNITY AND INSURANCE**

As per International RiverFoundation Indemnity and Insurance.

## **9.0 WINDING UP**

If, on the winding up or dissolution of the Bremer River Fund, any funds remaining will be transferred to:

- a. A Member Council to ensure the completion and on-going management of an existing program or specific project, or
- b. A regional Natural Resource Management organisation or reliable community environmental body within the Bremer River catchment area to continue to deliver projects that demonstrate compliance with the achievement of the overarching guiding principle or vision of the Bremer River Fund.

Your reference  
Our reference Jim Lindsay  
Contact Officer 07 3810 6203  
Telephone



**Ipswich City Council**

45 Roderick St  
PO Box 191  
Ipswich QLD 4305  
Australia

**Tel** (07) 3810 6666  
**Fax** (07) 3810 6731  
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**Web** [www.ipswich.qld.gov.au](http://www.ipswich.qld.gov.au)

Attention: Phil Smith  
Bremer River Fund Steering Committee  
PO Box 191  
IPSWICH QLD 4305

6 May 2016

Dear Phil

**Re: Ipswich City Council Representation**

On Friday, 8 April 2016 Ipswich City Council held its Post Election Meeting.

At this meeting Council resolved to nominate the following Councillors to be Council's representatives to the Bremer River Fund Steering Committee:

Councillor Morrison  
Councillor Pahlke

If you have any further questions in relation to these nominations please do not hesitate to contact Therese Flynn on (07) 3810 6203.

Yours faithfully

A handwritten signature in black ink, appearing to read "J Lindsay".

Jim Lindsay  
**CHIEF EXECUTIVE OFFICER**

<b>Conservation and Environment Committee</b>	
Mtg Date: 16.07.18	OAR: YES
<b>Authorisation:</b> Bryce Hines	

BW: BW  
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30 May 2018

**MEMORANDUM**

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER  
FROM: WATERWAY IMPROVEMENT OFFICER  
RE: SMALL CREEK NATURALISATION PROJECT PROGRESS UPDATE

---

**INTRODUCTION:**

This is a report by the Waterway Improvement Officer dated 30 May 2018 providing a progress update of the Small Creek Naturalisation Project.

**BACKGROUND:**

The concrete channel running between Whitehill Road and Warwick Road at Raceview was once a meandering natural stream characterised by a chain of ponds. It served the purpose of getting water away very quickly, offering very little in the way of value to the surrounding community and natural environment.

Stage 1 of the Small Creek project has recently been finished. The Small Creek project has gained recognition at state and national levels receiving a number of awards and accolades including the following:

- National Winner – Award for Land Management, *Australian Institute of Landscape Architects*
- Winner – Excellence in Strategic or Master Planning, *Stormwater Queensland*
- Winner – Award of Excellence for Land Management, *Australian Institute of Landscape Architects Queensland division*

- Finalist – Government Stewardship, *Healthy Land and Water Awards*
- Finalist – Involving Community in Waterway Management, *River Basin Management Society*
- Commendation – *Minister’s Urban Design Awards*

## **CONSTRUCTION PROGRESS**

Small Creek has recently commenced the transition to a living waterway, with the removal of approximately 550 metres of concrete channel and the planting of 5,500 trees and over 150,000 plants in total. Construction of Stage 1 began in November 2017 and has recently been completed. Over 880 metres of bikeway has been completed, connecting Warwick Road, Raceview, and Briggs Road, Raceview. This will provide improved pedestrian connectivity, particularly for the students of Bremer State High School that previously used the corridor to walk to and from School.

The project experienced significant delays owing to very consistent rainfall during the summer months. It is important to note that whilst the project is nearing ‘completion’ there is a five year maintenance contract that will ensure that the project is maintained until vegetation reaches relative maturity. It will continue to look relatively bare until vegetation is well established over the next year and beyond.

## **STAGE 2 COMMENCEMENT:**

The final changes are being made to stage 2 designs to incorporate learnings from stage 1 construction and it is intended that the project be tendered on 1 July 2018, to be completed by the end of the calendar year. Stage 2 will complete the removal of the remaining section of concrete channel to Briggs Road, Raceview.

Stage 2 will be similar in intent to Stage 1 but will respond to some fundamentally different constraints, specifically available space and velocities of stormwater. The use of recycled concrete from the former channel will become more of a feature, used to enable the channel to withstand high velocity flows. However its irregular placement will allow the establishment of vegetation in and around the concrete, replicating the function of a natural waterway. This adaptive re-use of the concrete channel minimises the ecological footprint of the construction, reducing the need for quarried and/or dredged river rock and associated handling and transport. Retaining the embodied energy of the concrete on site in this manner further enhances the environmental credentials of the project. Nearly 80,000 additional plants will be installed and a major gross pollutant trap will be constructed to capture litter.

## **CONCLUSION:**

Small Creek has been and continues to be a success through its early stages of construction. It has received numerous awards and accolades for its involvement of the community in the process and in recognition of the multiple benefits of this initiative in terms of the environment, the community, amenity and liveability.

Stage 1 has recently reached Practical Completion, however it will be cared for closely by contractors for another five years to see the vegetation in and around the waterway grow to relative maturity and a low maintenance state.

Stage 2 is soon to commence and is hoped to be completed by the end of the calendar year. This stage will see the entire corridor between Warwick Rd and Briggs Rd, Raceview naturalised. This second stage will be characterised by a built form that acknowledges its modified environment through the design, including the extensive use of recycled concrete to minimise the ecological footprint of construction and tie into its surroundings.

**RECOMMENDATION:**

That the report be received and the contents noted.

Ben Walker

**WATERWAY IMPROVEMENT OFFICER**

I concur with the recommendation contained in this report.

Kaye Cavanagh

**ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation contained in this report.

Bryce Hines

**ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

<b>Conservation and Environment Committee</b>	
Mtg Date: 16.07.18	OAR: YES
<b>Authorisation: Bryce Hines</b>	

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11 June 2018

### **MEMORANDUM**

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: PARTNERSHIPS OFFICER

RE: ENVIRONMENT AND SUSTAINABILITY COMMUNITY GRANT APPLICATIONS FOR THE 2017–2018 ROUND AND ONGOING PROGRAM

---

#### **INTRODUCTION:**

This is a report by the Partnerships Officer dated 11 June 2018 concerning funding allocations for the Environment and Sustainability Community Grant program 2017–2018 round and proposal for future rounds of the program.

#### **BACKGROUND:**

The Environment and Sustainability Community Grant Program provides funding assistance for community led projects that contribute to the protection, enhancement and sustainability of the environment within the Ipswich City Council area.

At the Council Ordinary Meeting held the 14 November 2017 it was resolved:

- A. *That the Environment and Sustainability Community Grant Program be open for applications from 1 February 2018 to 30 April 2018.*
- B. *That a report be provided to a future meeting of the Conservation and Environment Committee outlining the successful applications under the first round of the Environment and Sustainability Community Grant Program, with recommendations for the on-going roll-out of the grant program.*

A copy of this report is shown in Attachment A.

Community groups, schools and child care centres were able to apply for grant funding up to \$3,000.00 per annum. Individual wildlife carers were able to apply for grant funding up to \$1,500.00 per annum. Council only funds up to 50% of the project cost.

A total of \$20,000.00 in funding was available for the first round of applications.

**GRANT APPLICATION FUNDING RECOMMENDATION FOR 2017/2018 ROUND:**

For the first round of grants, Council received fifteen eligible applications. Applications are detailed in the table below:

Applicant	Project	Funding Amount Requested	Total Project Cost	Funding Amount Recommended
West Moreton Landcare Group Inc.	Fencing Workshop	\$3,000.00	\$3,000.00	\$1,500.00
Springfield Lakes Nature Care Inc.	Clean Up Litter in Springfield Lakes	\$1,280.00	\$2,665.00	\$950.00
Queensland Trust for Nature	Threatened Species Refugia Restoration	\$3,000.00	\$6,052.00	\$3,000.00
Mission Australia Early Learning Collingwood Park Kindergarten	Composting to a more sustainable future	\$1,399.99	\$1,399.99	\$550.00
Blackall Street Action Group	East Ipswich Echidna Reserve	\$3,000.00	\$13,000.00	\$2,400.00
Sacred Heart Primary School Booval	Pedagogy Innovation Project	\$519.98	\$519.98	\$220.00
Good Shepherd Catholic Primary School	A New Generation of Sustainable Gardeners	\$3,992.00	\$3,992.00	\$1,350.00
Collingwood Park P&C Association	Waste Warriors	\$2,990.00	\$5,990.00	\$1,100.00
Wildlife Carer	Wildlife Protection Equipment	\$1,149.00	\$1,149.00	\$400.00
Bremer River Network	Cribb Park Community Environment Day	\$2,600.00	\$5,213.00	\$2,100.00
Wildlife Carer	Wildlife Protection Equipment	\$1,149.00	\$1,149.00	\$400.00
Native Plants Queensland – Ipswich Branch	Ipswich Native Nursery	\$2,758.16	\$41,916.28	\$2,200.00
School of Earth and Sciences – University of Queensland	SEMAT – Community based environmental data collection through sensor networks	\$3,000.00	\$9,100.00	\$2,150.00



Bulimba Creek Catchment Coordinating Committee	Pollinator Links Promotion	\$2,026.00	\$2,526.00	\$700.00
Bremer Catchment Association Inc.	Savage Street gully rehabilitation	\$3,000.00	\$3,000.00	\$1,000.00
Totals		\$34,864.13	\$100,672.25	\$20,020.00

Applicants in the 2017/2018 grant round were eligible to apply for up to 50% of the total project costs. A number of applicants requested the full amount of the project cost and therefore only up to 50% of the project cost is able to be recommended as per the grant guidelines.

Applications in the 2017/2018 round were assessed against the set assessment criteria to determine the recommended funding amount. An overview of the assessments can be seen in Attachment B.

**BENEFITS TO COMMUNITY AND CUSTOMERS:**

The Environment and Sustainability Community Grant program provides funding assistance for community led projects that contribute to the protection, enhancement and sustainability of the environment within the Ipswich City Council area. Projects completed under this program will not only enable applicants to achieve better environmental and sustainable outcomes from individual projects, but overall, residents of the City will benefit from improved liveability.

A number of diverse projects are recommended for funding under the 2017/2018 grant round enabling a number of different groups and regions within Ipswich to benefit from the grants.

**REVIEW OF GRANT PROGRAM AND OUTCOMES**

Applications for the first grant round, 2017/2018 round, indicate that there is a demand for a grant of this type to assist with environment and sustainability activities, therefore, it is proposed to offer the grants to the community in the 2018/2019 financial year. It is proposed to offer two grant rounds per year with available total grant funding of \$10,000 in each round.

In line with the number of applications received and types of projects submitted, it is proposed to reduce the funding per application to \$2,000.00 for organisations and \$1,000.00 for wildlife carers (currently \$3,000.00 and \$1,500.00 respectively). This will enable multiple applicants to be awarded funding and still provide sufficient support for the types of projects requested.

Applications will be again assessed in a competitive process against criteria linked to current Council strategic objectives including strategic location, improvement in environmental values, size of project, ability and planning to complete the project.



The grant applications will be assessed by a panel to ensure transparency and applicants will be required to submit an acquittal after completion of the project.

Funding of \$20,000.00 for the grant program is included in the annual budget for the 2018/2019 financial year. Each round will be assessed against the criteria to ensure the full budget approved for the grants is allocated to achieve the outcomes aligned to Council's strategic direction. As resources are limited, not every application that meets the assessment criteria will necessarily receive a grant.

**CONCLUSION:**

Council's 2017/2018 round of the Environment and Sustainability Grant program has been completed with 15 eligible applications being received and grant funding recommended. Having reviewed the first round of the grant program, it is proposed to run the program twice a year with funding limits at \$2,000.00 for organisations and \$1,000.00 for wildlife carers. The review has seen implementations to ensure increased equity in funding allocation, improved transparency and greater community benefits.

**ATTACHMENT/S:**

Name of Attachment	Attachment
<a href="#">Conservation and Environment Committee Report – 8 November 2017</a>	 Attachment A
<a href="#">Overview of Grant Assessments</a>	 Attachment B

**RECOMMENDATION:**

- A. That the recommended funding for the applicants in the 2017-2018 round of the Environment and Sustainability Grant program be approved.
- B. That the Environment and Sustainability Community Grant Program review as outlined in the report by the Partnerships Officer dated 11 June 2018, be adopted with the grant program being open for two rounds of applications in the 2018-2019 financial year.

Vada Hoger  
**PARTNERSHIPS OFFICER**

I concur with the recommendation/s contained in this report.

Kaye Cavanagh  
**ACTING SPORT, RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation/s contained in this report.

Bryce Hines

**ACTING CHIEF OPERATING OFFICER (WORKS PARKS AND RECREATION)**

<b>Conservation and Environment Committee</b>	
Mtg Date: 08.11.17	OAR: YES
<b>Authorisation:</b> Bryce Hines	

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9 October 2017

**MEMORANDUM**

TO: ACTING SPORT, RECREATION AND NATURAL RESOURCES MANAGER

FROM: PARTNERSHIPS OFFICER

RE: ENVIRONMENT AND SUSTAINABILITY COMMUNITY GRANT PROGRAM

---

**INTRODUCTION:**

This is a report by the Partnerships Officer dated 9 October 2017 concerning the Environment and Sustainability Community Grant Program.

**BACKGROUND:**

The Environment and Sustainability Community Grant Program will provide funding assistance for community led projects that contribute to the protection, enhancement and sustainability of the environment within the Ipswich City Council area. A report was presented to the City Works, Parks, Sport and Environment Committee No. 2016 (06) of 19 June 2017 and Council Ordinary Meeting of 27 June 2017 which approved the commencement of the grant program in the 2017 – 2018 financial year. This report can be seen in Attachment A.

The operational requirements to commence the program have been completed and the grants will be available for public application in early 2018. Promotion of the grant program to the community will commence prior to the grants opening. This will include a dedicated Council web page, media releases, social media and direct email to relevant local groups.

The grants will be open from 1 February to 30 April 2018 with applications to be made through the Smarty Grants system. Being the first round of this program, this will be done as a trial to gauge interest in the grants. The number of applications and amount of funding will be monitored to guide future grant rounds.

Community groups, schools and child care centres will be able to apply for grant funding up to \$3,000 per annum. Individual wildlife carers will be able to apply for grant funding up to \$1,500 per annum.

**GRANT OPPORTUNITIES FOR CUSTOMERS:**

The grant program will assist community groups, schools/child care centres or individual wildlife carers to achieve their environmental and sustainability initiatives. Examples of initiatives that may be applied for under the program include:

- Conservation projects/programs/events
- Improvements to native habitat, waterways, parks
- Native fauna and flora protection and conservation
- Native tree planting activities
- Wildlife protection programs
- Sustainability projects
- Purchase of equipment/materials for environmental initiatives
  - Materials may include local native plants, tree guards, materials that assist plant growth, weed control materials, tools, equipment to care for wildlife
- Community environmental events
- Incorporation or establishment costs of environmental groups
- Conservation initiatives by environmental groups

Examples of initiatives that won't be successful under the program include:

- Organisation or individual general operational expenses
- Initiatives that don't have an environmental or sustainability outcome
- Initiatives undertaken outside of the Ipswich City Council local government area

Applications will be assessed based on set criteria, including location, improvement in environmental values, size of project, ability to complete the project and the level of maintenance required on completion of the project.

**CONCLUSION:**

Customers will be able to submit applications to receive a grant under the Environment and Sustainability Community Grant Program for initiatives that contribute to the protection, enhancement and sustainability of the environment from early 2018. The program will be promoted to the wider Ipswich community to encourage applications for the 2017-2018 financial year.

**ATTACHMENT:**

Name of Attachment	Attachment
<a href="#">City Works, Parks, Sport and Environment Committee No. 2016 (06) of 19 June 2017 and Council Ordinary Meeting of 27 June 2017 Report.</a>	 Attachment A

**RECOMMENDATION:**

- A. That the Environment and Sustainability Community Grant Program be open for applications from 1 February 2018 to 30 April 2018.
- B. That a report be provided to a future meeting of the Conservation and Environment Committee outlining the successful applications under the first round of the Environment and Sustainability Community Grant Program, with recommendations for the on-going roll-out of the grant program.

Vada Hoger  
**PARTNERSHIPS OFFICER**

I concur with the recommendation/s contained in this report.

Kaye Cavanagh  
**ACTING SPORT, RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation/s contained in this report.

Bryce Hines  
**ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

<b>City Works, Parks Sport and Environment Committee</b>	
Mtg Date: 19.06.17	OAR: YES
<b>Authorisation:</b> Craig Maudsley	

MB: MB

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26 May 2017

### MEMORANDUM

TO: SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: COORDINATOR (PARTNERSHIPS)

RE: ENVIRONMENT AND SUSTAINABILITY COMMUNITY GRANT PROGRAM

---

#### **INTRODUCTION:**

This is a report by the Coordinator (Partnerships) dated 26 May 2017 concerning the Environment and Sustainability Community Grant Program.

#### **BACKGROUND:**

A review of the private landholder conservation partnership and incentives program was undertaken in late 2015 and presented to the Environment and Conservation Committee No. 2016(01) of 20 January 2016 and Council Ordinary Meeting of 28 January 2016 (Attachment A). Recommendation E was that an allocation of \$20,000 be funded through Ipswich Enviroplan for the Community Group Partnership Program.

This program has now been developed to commence in the 2017-2018 financial year. The funding in 2016-2017 was used for the design and wrapping of the new Koala Hospital Vehicle.

The Community Group Partnership Program, now badged the *Environment and Sustainability Community Grant Program*, will provide funding assistance for community-led projects that contribute to the protection, enhancement and sustainability of the environment within the Ipswich City Council area.

Financial assistance through a grant application will be provided for a wide range of innovative projects, with each project assessed against a list of standard assessment criteria. Grant applications will be open through SmartyGrants.

**GRANT ELIGIBILITY:**

All applications will be assessed and approved by Council before any work or purchase can commence. It is proposed that the maximum grant amount is pre-set based on the type of project or group that is applying, as shown in the table below:

Community Groups	Maximum Grant
Not-for-profit community groups (ie, Landcare Groups, Wildlife Centres, Girl Guides, Scout groups).	\$3,000 per annum
Schools or Child Care Centres	\$3,000 per annum
Wildlife Carers (individuals)	\$1,500 per annum

**ASSESSMENT CRITERIA**

The following criteria are proposed to assist Council in the process of assessing each application.

- 1. Location of project**  
Name of street, park or other
- 2. Total hectares of project**  
Hectare of land where the project will be undertaken
- 3. How will the project improve the biodiversity values of the area?**  
Describe how your project will contribute to the protection, enhancement and sustainability of Ipswich’s environmental values
- 4. Timeframe**  
Will the project exceed twelve months, if so will the funds be expended in the first twelve months or will additional funds be sought?
- 5. Level of commitment to manage the project**  
Who will be the main contact, and ensure the project will meet agreed timeframes, and is there a plan developed to ensure maintenance will be undertaken after the completion of the project? Will you / the group obtain other funding for this project?
- 6. Level of maintenance required after the completion of project**  
What maintenance will be required after the completion of the project? Provide an indication of your / the group’s in-kind contribution.



**BENEFITS TO COMMUNITY:**


Local community groups currently contact Council for assistance with environmental programs they may be undertaking. This assistance is either for financial funding or materials to assist them in undertaking a specific program.

The Environment and Sustainability Community Grant Program will provide Council and the community (environment groups and individuals) with an effective and equitable opportunity to apply for grant funds.

**CONCLUSION:**

The Environment and Sustainability Community Grant Program will assist groups with community-led projects that contribute to the protection, enhancement and sustainability of the Ipswich environment.

**ATTACHMENTS:**

Name of Attachment	Attachment
<a href="#">Environment and Conservation Committee No. 2016(01) of 20 January 2016 and Council Ordinary Meeting of 28 January 2016 Report</a>	 Attachment A

**RECOMMENDATION:**

That the Environment and Sustainability Community Grant Program as outlined in the report by the Coordinator (Partnerships) dated 26 May 2017, be approved.

Mark Bell  
**COORDINATOR (PARTNERSHIPS)**

I concur with the recommendation/s contained in this report.

Bryce Hines  
**SPORT RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation/s contained in this report.

Craig Maudsley  
**CHIEF OPERATING OFFICER  
(WORKS, PARKS AND RECREATION)**

<b>Environment and Conservation Committee</b>	
Mtg Date: 20.01.16	OAR: YES
<b>Authorisation:</b> Craig Maudsley	

MB: MB

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## **ITEM 8**

21 December 2015

### **MEMORANDUM**

TO: SPORT, RECREATION AND NATURAL RESOURCES MANAGER

FROM: COORDINATOR (PARTNERSHIPS)

RE: NATURAL RESOURCES PARTNERSHIPS AND INCENTIVES PROGRAM REVIEW

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#### **INTRODUCTION:**

This is a report by the Coordinator (Partnerships) dated 21 December 2015 concerning a review of the Natural Resources Partnerships and Incentives programs.

#### **BACKGROUND:**

Through the Ipswich Enviroplan levy, Ipswich City Council delivers a number of partnership and incentive programs to support private landholders, volunteers and community groups to protect, manage and enhance the natural resources and values across the City. These programs and incentives are delivered through a variety of avenues, including targeted landholder partnerships, engagement with volunteers and community groups, and technical and financial support to all landholders.

Council currently has three dedicated Partnership Programs delivered under the Enviroplan banner, being: the Private Landholder Partnership Program, the Volunteer Partnership Program and the Environmental Weed Control Rebate Program. The review proposes a fourth program to be added for a Community Group Partnership Program (Attachment A).

The current landholder partnership programs have been running for a period of 6 years and a review was undertaken to realign these with the recently adopted Ipswich Nature Conservation Strategy 2015 (NCS) and Integrated Water Strategy 2015 (IWS).

## **PROGRAM REVIEW PROCESS:**

This review looks at how the Partnership Programs align with the vision, goals and objectives of the Corporate Plan and key strategies. Information was gathered to assess the benefits and opportunities for improvement for each partnership and incentive program. Historical information was compiled and a survey of relevant council staff was undertaken to gauge the success of each program.

Benchmarking against other similar local government programs was done to compare delivery mechanisms and incentives offered to landholders.

## **OVERVIEW OF THE PROPOSED CHANGES TO CURRENT PROGRAMS:**

### **Waterway Conservation Agreement**

The Waterway Conservation Agreement recognises that the majority of riparian areas across the City are held in private ownership and that future improvements to water quality will only be achieved by working in partnership with landholders. This agreement provides support to landholders for ongoing management of riparian areas and waterway health improvements on private property.

To date, the Waterways Conservation Agreement has proved very popular and delivered good results.

Proposed changes to this program are to include the provision for the delivery of stormwater quality offset funding to target strategically identified waterways and sub catchments in order to provide efficiency and the best returns for the catchment.

### **Koala Conservation Agreement**

The Koala Conservation Agreement is proposed as a new agreement to replace the Nature Corridors Agreement which has only had 1 landholder sign-up in six years.

The Koala is identified as one of three iconic fauna species in the Nature Conservation Strategy 2015, and is the focus of the Koala Conservation Plan currently under development. Through the review process, the Koala Conservation Agreement was highlighted as a key management tool to assist private landholders with habitat enhancement and protection of koalas on private land.

### **Habitat Gardens**

New partners in the Habitat Gardens program have the option to receive a nest box upon sign-up. Currently this relies on the landholder ticking a box and then collecting the nest box from the volunteers at the Education Centre. Due to the unprecedented success of this program, sometimes partners have gone to collect their nest box and it hasn't been available. Through the review it was found that a more streamline and customer-focused approach would be to offer the nest boxes on a dedicated collection day each year, ensuring there would be adequate supply available. This would be done as part of the **annual incentive day** which is held for all conservations partners and provides them with an

opportunity to receive additional incentives to support their conservation actions, such as: further allocation of free plants, habitat nest boxes, resources and education materials.

#### **Volunteer Program**

The Natural Resources Volunteer Program involves the recruitment and working with volunteers at the Queens Park Environmental Education Centre, Queens Park Nature Centre and for community events such as Trees for Mum and Father's Day Fishing Fest. The Community Partnership Officer (CPO) currently works with all volunteers individually. The review highlighted an opportunity to appoint a volunteer as the 'volunteer coordinator' to allow for more streamlined and efficient communication between the CPO and volunteers.

#### **Community Group Partnership Program**

Currently Council works with natural resource community groups on an ad-hoc basis without any financial support to groups undertaking projects that align with Council's strategic goals. This review has identified an opportunity to develop a dedicated Community Group Partnership Program that takes into account current initiatives such as financial support for the Ipswich Koala Hospital's ambulance registration, and the Ipswich Creek Catchment Group's community planting days. It is proposed that an annual budget of \$20,000 be used to support community groups delivering environmental projects on Council land or undertaking activities that align with Council's strategic goals. The \$20,000 can be funded through the existing Enviroplan budget.

#### **RECOMMENDATIONS FROM THE REVIEW:**

1. Investigate opportunities to enhance the Waterway Conservation Agreement to target landholders in strategically identified areas for the delivery of stormwater quality offsets.
2. Rebadge the Nature Corridors Agreement to the Koala Conservation Agreement and provide incentives such as the allocation of 200 koala habitat trees upon sign-up to new partnering landholders.
3. Offer nest boxes for the Habitat Gardens Program through the annual partnership incentive day.
4. Recruit a volunteer as the 'volunteer' coordinator.
5. Allocate an annual budget of \$20,000 for the Community Group Partnership Program.

#### **PROMOTION AND LAUNCH OF THE KOALA CONSERVATION AGREEMENT:**

A number of landholders have already demonstrated an interest in becoming a Koala Conservation Partner. It is proposed that Council promotes the 'first' landholder to sign up to a Koala Conservation Agreement and uses this to launch the program and Council's commitment to restoring and enhancing koala habitat in Ipswich.


**BENEFITS TO COMMUNITY AND CUSTOMERS:**

The Natural Resources Partnerships and Incentives programs provide a suite of material, technical and financial support for Ipswich residents wishing to undertake conservation initiatives on private property. The programs also support volunteers and community groups committed to the delivery of Council’s community environmental engagement activities and events.

**CONCLUSION:**

Through the Ipswich Enviroplan levy, Ipswich City Council delivers a number of partnership and incentive programs to support private landholders, volunteers and community groups to protect, manage and enhance the natural resources and values across the City. A recent review of the programs highlighted a number of opportunities and proposed a suite of recommendations for improving the programs and to ensure greater outcomes for Council and Ipswich residents.

**ATTACHMENT:**

Name of Attachment	Attachment
<a href="#">Natural Resources Partnership and Incentives programs structure</a>	 Attachment A

**RECOMMENDATION:**

- A. That the Waterway Conservation Agreement be enhanced to target landholders in strategically identified areas for the delivery of stormwater quality offsets.
- B. That the Nature Corridors Agreement be rebadged to the Koala Conservation Agreement and provide incentives to support landholders to restore the koala habitat on private property.
- C. That habitat nest boxes be made available to new Habitat Gardens partners through the annual partnership incentive day.
- D. That the Community Partnership Officer investigate recruitment of a volunteer as the ‘volunteer’ coordinator.
- E. That an allocation of an annual budget of \$20,000.00 be funded through Ipswich Enviroplan for the Community Group Partnership Program.
- F. That the Mayor and the Chairperson of the Environment and Conservation Committee promote the Koala Conservation Agreement in partnership with the first landholder to sign-up to the program.

Mark Bell  
**COORDINATOR (PARTNERSHIPS)**

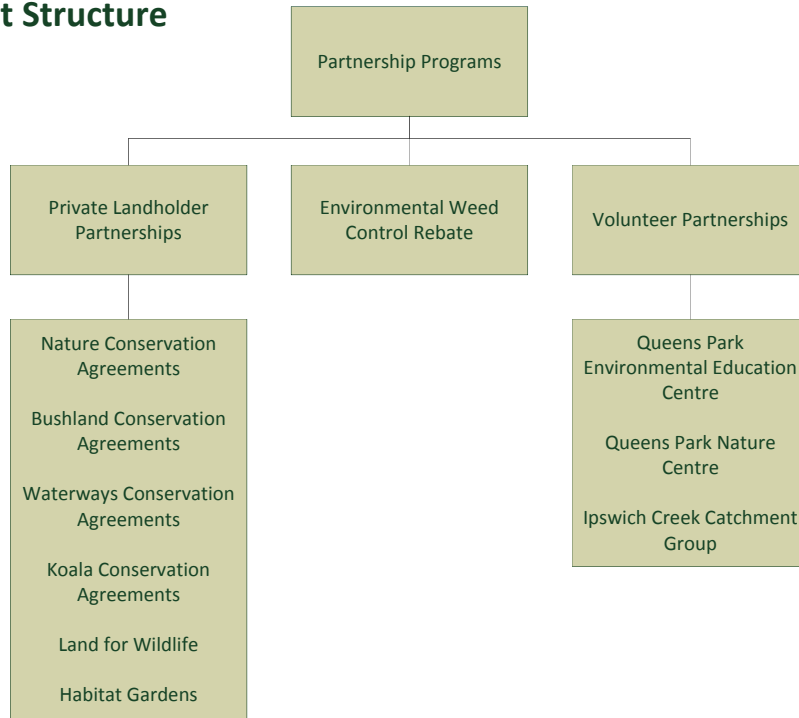
I concur with the recommendation/s contained in this report.

Bryce Hines  
**SPORT, RECREATION AND NATURAL RESOURCES MANAGER**

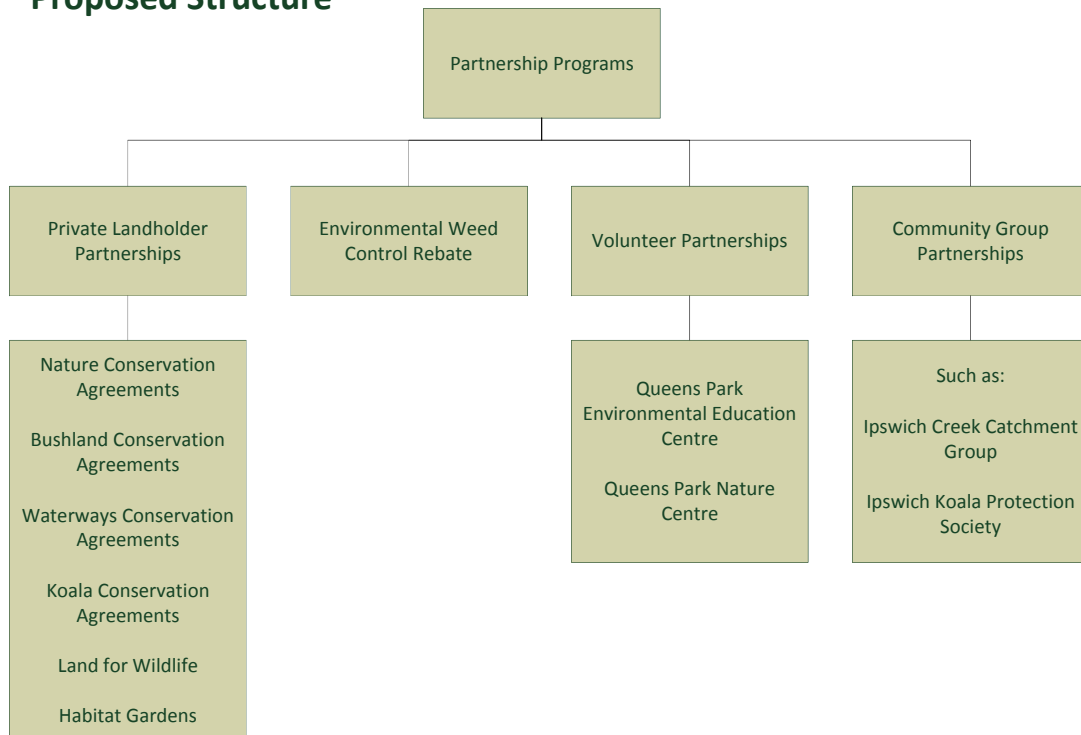
I concur with the recommendation/s contained in this report.

Craig Maudsley  
**CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

## Current Structure



## Proposed Structure



**Environment and Sustainability Assessment Review  
2017/18 Round**

Application ID	ESC17/1805
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	The West Moreton Landcare Group Inc.
Project Title	Fencing workshop
Brief Project Description	We plan to conduct one half-day workshop on practical fencing techniques. The workshop will include both electric and conventional fencing and will be similar to two workshops we conducted on this topic in 2014. Based on this experience, we expect an attendance of around 50 landholders. Morning tea and lunch will be provided to participants.
Project Start Date	01/06/2018
Project End Date	31/12/2018
Total Project Cost	3,000
Total Amount Requested	3,000
Assessing Officer Decision	Approved
Funding Amount Approved	1,500



Application ID	ESC17/1808
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Springfield Lakes Nature Care Inc.
Project Title	Clean Up Litter in Springfield Lakes
Brief Project Description	Clean Up Australia Day is a major event whereby volunteers help our Land & water care group to clean up litter from in and around the lake. Without this event many of the plastic items & litter would lay in our lakes and become hazards for our native bird life and marine life when it flows down stream into the catchment and Brisbane river. By hosting a clean up day we raise awareness of the amount & type of litter collected but also have an opportunity to encourage community to be responsible with their disposal of litter to keep waterways clean. The event requires publicity and promotional material to encourage a significant amount of volunteers to attend.
Project Start Date	02/11/2018
Project End Date	05/05/2019
Total Project Cost	2,665
Total Amount Requested	1,280
Assessing Officer Decision	Approved
Funding Amount Approved	950

Application ID	ESC17/1809
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Queensland Trust for Nature
Project Title	Threatened Species Refugia Restoration
Brief Project Description	The Threatened Species Refugia Restoration Project will focus on the re-vegetation and weeding of an area of dry rainforest that provides critical refugia for a number of threatened species. The project will conduct site preparation and weeding for target species including cats-claw creeper and lantana camara. The revegetation will focus on linking the habitat in areas that have historically been cleared. School children and volunteers will conduct the tree planting as part of a broader program to increase education and awareness about biodiversity in SEQ and the Little Liverpool Range.
Project Start Date	09/04/2018
Project End Date	09/10/2018
Total Project Cost	6,052
Total Amount Requested	3,000
Assessing Officer Decision	Approved
Funding Amount Approved	3,000

Application ID	ESC17/1811
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Mission Australia Early Learning Collingwood Park Kindergarten
Project Title	Composting to a more sustainable future
Brief Project Description	At kindy we have a lot of fruit and vegetable food scraps left over that get thrown in the bin with general rubbish. We have a beautiful natural setting with vegetable gardens, trees and other plants and are visited daily by wildlife. A worm farm and composting kit would allow us to become more sustainable by composting all this left over waste. The compost and worm juice would be used in our gardens and by our families in their gardens. Our gardens will flourish with natural fertiliser providing more fruit and vegetables for the children and families to consume. This will be embedded into our program and all resources purchased will be used by the children to further develop their learning in this area.
Project Start Date	23/04/2018
Project End Date	14/12/2018
Total Project Cost	1,399.99
Total Amount Requested	1,399.99
Assessing Officer Decision	Approved
Funding Amount Approved	550

Application ID	ESC17/1813
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Blackall Street Action Group
Project Title	East Ipswich Echidna Reserve
Brief Project Description	Removal of Noxious weeds and the restoration of the Bremer Riverbank on 44 Blackall Street. Preliminary work has been undertaken in preparation for the project. we require In kind Donations of plants, Site Preparation and plants, labour will be done by action group members and volunteers.
Project Start Date	26/04/2018
Project End Date	25/04/2019
Total Project Cost	13,000
Total Amount Requested	3,000
Assessing Officer Decision	Approved
Funding Amount Approved	2,400

Application ID	ESC17/1815
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Sacred Heart Primary School Booval
Project Title	Pedagogy Innovation Project
Brief Project Description	<p>This pedagogy innovation project aims to align our whole school teaching with practical everyday procedures exemplifying food waste management practices. Food scraps can be composted and included into the school garden thereby reducing the landfill waste from our school.</p> <p>There are two aspects of the project:</p> <ol style="list-style-type: none"> <li>1. Purchase of equipment to cater for the food waste composting of 500 students, 40 staff including tuckshop and split campus.</li> <li>2. Development of safe procedures for students and staff for food waste composting</li> </ol>
Project Start Date	01/06/2018
Project End Date	31/05/2019
Total Project Cost	519.98
Total Amount Requested	519.98
Assessing Officer Decision	Approved
Funding Amount Approved	220

Application ID	ESC17/1817
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Good Shepherd Catholic Primary School
Project Title	A New Generation of Sustainable Gardeners
Brief Project Description	Our program provides education and confidence to our students around sustainable gardening. We want to enhance our "garden to the plate" approach with fresh produce to be used in our kitchen lessons. The school would like to enlarge our program to introduce native fruit trees and bees for pollination. We will be creating a legacy of learning about sustainability in an urban environment for now and our future students.
Project Start Date	16/07/2018
Project End Date	03/12/2018
Total Project Cost	3,992
Total Amount Requested	3,992
Assessing Officer Decision	Approved
Funding Amount Approved	1,350

Application ID	ESC17/1818
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Collingwood Park P&C Association
Project Title	Waste Warriors
Brief Project Description	The P&C Sustainability Committee was formed to develop whole school practices that embrace sustainable living. Our role is to procure resources and to set up supportive structures to enable our school to reduce the waste that is sent to land fill by redirecting our waste to sustainable avenues. This project aims to provide the students and staff at CPSS with the resources to redirect waste produced by school activities and food waste to compost bins, recycling bins and soft plastics recycling. Our request is for funding to purchase compost bins, worms and a recycling service.
Project Start Date	01/06/2018
Project End Date	01/06/2019
Total Project Cost	5,990
Total Amount Requested	2,990
Assessing Officer Decision	Approved
Funding Amount Approved	1,100

Application ID	ESC17/1819
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Individual Name	Applicant ESC17/1819
Project Title	Wild Ducks in my Backyard
Brief Project Description	This is a purchase request for a mobile Chicken Tractor, which will be used to raise wildlife - wood ducklings, whistlers, pacific black ducklings. It will also be suitable for any ground hunting bird like magpies, pee wees, bush stone curlews and plovers. It will have the capability of being moved on a daily basis for cleanliness and food source. In having a mobile cage for wildlife, it means less 'people' contact, ensuring a better outcome upon release.
Project Start Date	31/05/2018
Project End Date	30/09/2018
Total Project Cost	1,149
Total Amount Requested	1,149
Assessing Officer Decision	Approved
Funding Amount Approved	400



Application ID	ESC17/1822
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Individual Name	Applicant ESC17/1822
Project Title	Wild Duck Release
Brief Project Description	I wish to purchase a mobile chicken tractor which can be used to raise wild ducklings and other ground hugging bird species in a safe environment before they are released back into the wild. I would be able to release the wildlife close to a dam on my property, allowing the ducks to have access to water grass feeding.
Project Start Date	31/05/2018
Project End Date	31/08/2018
Total Project Cost	1,149
Total Amount Requested	1,149
Assessing Officer Decision	Approved
Funding Amount Approved	400

Application ID	ESC17/1823
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Bremer River Network
Project Title	Cribb Park Community Environment Day
Brief Project Description	The Cribb Park Community Environment Day is a festival event organised by the Bremer River Network, in partnership with the University of Queensland, Bremer Catchment Association, Brisbane Intrepid Landcare and Ipswich City Council. The event will involve various activities including tours, workshops, boat tours of the Bremer River, and children's activities.
Project Start Date	04/08/2018
Project End Date	04/08/2018
Total Project Cost	5,213
Total Amount Requested	2,600
Assessing Officer Decision	Approved
Funding Amount Approved	2,100

Application ID	ESC17/1826
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Native Plants Queensland - Ipswich branch
Project Title	Ipswich Native Nursery
Brief Project Description	Native Plants Queensland Ipswich (NPQI) are establishing a community nursery for the propagation of local endemic species for re-vegetation projects in the Ipswich region. The intent is to work with community landowners and landholders to collect seed and other material for propagation in the nursery, by the community, in order to preserve genetic diversity of the region.
Project Start Date	04/06/2018
Project End Date	04/06/2020
Total Project Cost	41,916.28
Total Amount Requested	2,758.16
Assessing Officer Decision	Approved
Funding Amount Approved	2,200

Application ID	ESC17/1829
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	School of Earth & Environmental Sciences. University of Queensland
Project Title	SEMAT – Community based environmental data collection through sensor networks
Brief Project Description	<p>The Bundamba Creek Catchment caters for a range of land uses including agricultural, residential, light industrial, commercial and open space. Central to the long-term sustainability of the catchment is the maintenance of suitable water quality in the creek and associated waterways as well as an increased awareness and participation of the community in maintaining creek condition. To date, logistics and cost issues have limited the frequency, spatial coverage and consistency of water quality monitoring in the Bundamba Creek; and other catchments within the Ipswich area. At the same time, the links between obtaining environmental data and its use in community and school awareness has similarly been limited.</p> <p>This project seeks to use the Smart Environmental Monitoring and Assessment Technologies (SEMAT) platform to conduct a pilot environmental study of the health of Bundamba Creek to demonstrate the gains to be made from such innovative and cost saving technologies. SEMAT is a joint initiative between the University of Queensland and Griffith University. The SEMAT technology is a low-cost aquatic environmental measurement system that provides the end user with near real-time data (i.e., 15 minute intervals) via a web-based interface; an interface suited to use by the public, schools and other stakeholders. In addition, the SEMAT system will provide ICC with the capability to monitor Bundamba Creek remotely in near real-time, to help determine the effectiveness of environmental initiatives over time.</p>
Project Start Date	31/08/2018
Project End Date	01/08/2019
Total Project Cost	9,100
Total Amount Requested	3,000
Assessing Officer Decision	Approved
Funding Amount Approved	2,150

Application ID	ESC17/1832
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Bulimba Creek Catchment Coordinating Committee
Project Title	Pollinator Link promotional flyer
Brief Project Description	Re-branding and printing of "Three Easy Steps to vibrant backyards" flyer for use in City of Ipswich community.
Project Start Date	02/07/2018
Project End Date	31/08/2018
Total Project Cost	2,526
Total Amount Requested	2,026
Assessing Officer Decision	Approved
Funding Amount Approved	700

Application ID	ESC17/1833
Grant Program	Environment & Sustainability Community Grants
Grant Round	Environment & Sustainability Community Grants 2017/18
Organisation Name	Bremer Catchment Association Inc
Project Title	Savage Street gully rehabilitation
Brief Project Description	Restoration of dry gully which carries significant flows during rain events. Hopefully the work will lay foundations for a footbridge which will link walking paths in North Ipswich Wetlands with existing paths in Greasley Street. Funding of footbridge to be further investigated.
Project Start Date	01/09/2018
Project End Date	31/12/2018
Total Project Cost	3,000
Total Amount Requested	3,000
Assessing Officer Decision	Approved
Funding Amount Approved	1000

<b>Conservation and Environment Committee</b>	
Mtg Date: 16.07.18	OAR: YES
<b>Authorisation: Bryce Hines</b>	

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26 June 2018

## MEMORANDUM

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: PARTNERSHIPS OFFICER

RE: 2018 PEAKS TO POINTS FESTIVAL EVENTS

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### **INTRODUCTION:**

This is a report by the Partnerships Officer dated 26 June 2018 concerning the 2018 Peaks to Points Festival and the inclusion of Ipswich events within the festival.

### **BACKGROUND:**

The Peaks to Points Festival is a biennial festival that aims to promote a forum for community groups and businesses within the Ipswich, Brisbane, Redlands and Logan City Council regions to engage with the community through hosting events and activities focusing on environmental and sustainability issues in the area.

Council has previously hosted a number of events included in the festival and previously sponsored the event. A number of community organisations also host events within the Ipswich region. Events and activities held within the region have included canoeing, bird watching, spotlighting, tree planting, and guided environmental walks.

A coordinated marketing campaign is undertaken to promote the festival and associated events together with individual organisations promoting their events and activities.

### **BENEFITS TO COMMUNITY AND CUSTOMERS:**

The Peaks to Points Festival provides an opportunity through the marketing of the festival for Council to highlight Ipswich's conservation estates nature-based recreation opportunities to the greater Brisbane area. It also provides an opportunity for Ipswich residents to gain awareness and to be involved in the protection of these natural assets.

Participation in the Peaks to Points Festival also provides an avenue for Council to maintain strong working partnerships with neighbouring Councils and community groups in the management of adjoining natural areas.

### **2018 FESTIVAL EVENTS AND ACTIVITIES**

It is proposed Council be involved with two activities as part of the 2018 Peaks to Points Festival to enable residents to participate in activities within the City. These activities are:

- National Tree Day Planting, Shapcott Park, 118 Gladstone Road, Coalfalls on Sunday, 29 July 2018 (hosted by Council)
- Tour of Ipswich's Tributaries (Bremer River, Small Creek, Pollard Park, White Rock, Jim Donald Parklands) on Saturday, 21 July 2018 (hosted by Council and the Bremer River Network)

There would be costs associated with hosting both of these events. Council would provide full support for the National Tree Day Planting including site preparation, plants and maintenance under the Habitat Connections program. Support for the Tour of Ipswich's Tributaries would be cost shared with the Bremer River Network. Council would cover the cost of the bus for the tour up to \$500.00, with the Bremer River Network funding the other costs of the event.

Funding for the events is included in the annual budget for the 2018/19 financial year allocated to support regional and national environmental events.

### **CONCLUSION:**

The 2018 Peaks to Points Festival will be held from 14 – 29 July 2018 with events and activities to be hosted within the Ipswich boundaries. It is proposed Council support two specific events, National Tree Day Planting and Tour of Ipswich's Tributaries, as part of the festival providing an opportunity for residents to participate in environmental initiatives.

### **RECOMMENDATION:**

That Council support two events as outlined in the report by the Partnerships Officer dated 26 June 2018 to be included as part of the 2018 Peaks to Points festival.

Vada Hoger

**PARTNERSHIPS OFFICER**

I concur with the recommendation/s contained in this report.

Kaye Cavanagh

**ACTING SPORT, RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation/s contained in this report.

Bryce Hines

**ACTING CHIEF OPERATING OFFICER (WORKS PARKS AND RECREATION)**



<b>Conservation and Environment Committee</b>	
Mtg Date: 16.07.18	OAR: YES
<b>Authorisation:</b> Bryce Hines	

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H:\Departmental\Committee Reports\1806JG 1819 Conservation Visitor Management Program CR

22 June 2018

**MEMORANDUM**

TO: ACTING SPORT, RECREATION AND NATURAL RESOURCES MANAGER

FROM: CONSERVATION VISITOR MANAGEMENT OFFICER

RE: 2018-2019 CONSERVATION VISITOR MANAGEMENT PROGRAM

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**INTRODUCTION:**

This is a report by the Conservation Visitor Management Officer dated 22 June 2018 concerning the Conservation Visitor Management program for 2018-2019.

**BACKGROUND:**

At the Council Ordinary Meeting held on the 28 February 2017 it was resolved:

- A. *That the Enviroplan Capital Investment Strategy 2017–2022, as outlined in the report by the Principal Officer (Natural Resources) dated 21 December 2016 be adopted.*
- B. *That the Chief Operating Officer (Works, Parks and Recreation) present a report to the 2017-2018 pre-budget meetings incorporating the priorities for capital investment and loan requirements for implementation of the Enviroplan Capital Investment Strategy 2017-2022.*
- C. *That the Enviroplan Capital Investment Strategy 2017-2022 be reviewed in 2020.*

A copy of this report is shown in Attachment A.

The *Enviroplan Capital Investment Strategy 2017-2022* identified that visitor and user experiences in natural areas are greatly enhanced when there is a demonstrated commitment to sustainability and conservation outcomes, and a presence of dedicated field staff with skills in visitor management, nature-based recreation and conservation land management.

As such, the *Enviroplan Capital Investment Strategy 2017-22* recommended that two dedicated officers be employed to support increased visitations and ensure users have safe access to the conservation estates. In April 2018, Council employed its first Conservation Visitor Management Officer. The Conservation Visitor Management Officer position is a multi-faceted role aimed at optimising the experience of visitors to the Natural Area Estate whilst ensuring that natural and cultural values are protected.

### **CONSERVATION VISITOR MANAGEMENT PROGRAM:**

More specifically the role of the Conservation Visitor Management Officer involves engaging with visitors to Council's Natural Area Estate so they have a positive experience, undertake responsible nature-based recreation and eco-friendly activities in a safe and fit-for-purpose setting, and are aware of Ipswich's biodiversity and conservation values. In addition, proactive promotion of the Natural Area Estate and conservation messaging via community engagement activities will enhance the profile of Council's Natural Areas as a recreation destination, a sense of community stewardship over these areas, and adoption of sustainable, conservation-friendly behaviours.

Under the umbrella of the Conservation Visitor Management Program, the facets of Activation, Protection, Education and Promotion provide a framework through which to achieve these aims. Within this framework, the 2018-2019 Conservation Visitor Management Program will consist of the following projects and initiatives:

- Guided Natural Area Estate Walks;
- Natural Area Guided Sunset Walks;
- Nature Breaks School Holiday program;
- Schools In-Class Visits;
- Schools Nature Experience Excursions;
- Natural Area Estate Trail Impact Monitoring and Counter Data Collection;
- Natural Area Estate Entry and Trailhead Messaging Review;
- Natural Area Estate Print and Online Promotion Review;
- Natural Area Estate Baseline Data Collection Survey Project.

More detail on these proposed activities is provided in Attachment B.

### **BENEFITS TO COMMUNITY AND CUSTOMERS:**


Council's natural area estates are the 'green lungs' of the City, providing the scenic backdrop and a natural respite for a rapidly growing urban population. Nature-based recreation is a growing industry, with an increase in the number of people involved in bushwalking, mountain biking and trail runs. With over 6,500 hectares of conservation estate, Council is

well placed to offer valuable experiences for the community in well-planned and managed natural areas. Through the Conservation Visitor Management Program, Council will be better placed to balance the protection of biodiversity and cultural values with opportunities for increased visitation and use of the City's natural areas.

**CONCLUSION:**

The *Enviroplan Capital Investment Strategy 2017-2022* identified that visitor and user experiences in natural areas are greatly enhanced when there is a demonstrated commitment to sustainability and conservation outcomes, and a presence of dedicated field staff with skills in visitor management, nature-based recreation and conservation land management. Through the employment of a Conservation Visitor Management Officer, a number of projects and initiatives will be implemented as part of the Conservation Visitor Management program. The Conservation Visitor Management program involves a variety of activities aimed at optimising the experience of visitors to the Natural Area Estate while ensuring that natural and cultural values are protected.

**ATTACHMENTS:**

Name of Attachment	Attachment
<a href="#">City Works, Parks, Sport and Environment Committee No. 2017(02) of 20 February 2017</a>	 Attachment A
<a href="#">2018-2019 Conservation Visitor Management Program</a>	 Attachment B

**RECOMMENDATION:**

That the 2018-2019 Conservation Visitor Management Program as outlined in Attachment B to the report by the Conservation Visitor Management Officer dated 22 June 2018, be approved.

Jody Gilbert  
**CONSERVATION VISITOR MANAGEMENT OFFICER**

I concur with the recommendation/s contained in this report.

Kaye Cavanagh  
**ACTING SPORT, RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation/s contained in this report.

Bryce Hines

**ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

<b>City Works, Parks Sport and Environment Committee</b>	
Mtg Date: 20.02.17	OAR: YES
<b>Authorisation:</b> Craig Maudsley	

EKC: EKC

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21 December 2016

### MEMORANDUM

TO: SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: PRINCIPAL OFFICER (NATURAL RESOURCES)

RE: ENVIROPLAN CAPITAL INVESTMENT STRATEGY 2017-2022

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#### **INTRODUCTION:**

This is a report by the Principal Officer (Natural Resources) dated 21 December 2016 concerning the Enviroplan Capital Investment Strategy 2017-2022.

#### **BACKGROUND:**

Over the past twenty years, Ipswich Enviroplan has funded the acquisition and management of over 5,800 hectares of native bushland within twelve dedicated conservation estates and reserves.

The primary focus for capital investment has been on the purchase of conservation land, with some funding towards the construction of visitor day use areas in the high profile estates. This has included the installation of board-walks, track networks, signage, visitor facilities and Harding's Paddock campground.

Visitation and nature-based recreation activities within the conservation estate are continually increasing. The focus for capital investment over the next five years will transition from acquisition of new conservation estates to purpose-built visitor and nature-based recreation infrastructure. Through this, Council will be better placed to balance the protection of biodiversity and cultural values with opportunities for increased visitation and use of the City's natural areas.

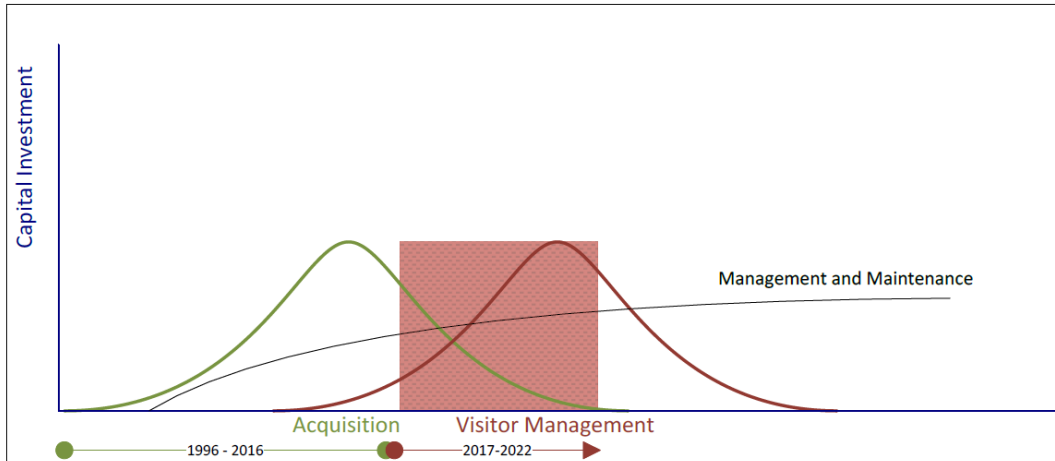


Figure 1. Capital investment transition from acquisition to visitor management and infrastructure from 2017 - 2022

**ENVIROPLAN CAPITAL INVESTMENT STRATEGY 2017-2022:**

The Enviroplan Capital Investment Strategy (Attachment A) sets the direction for investment over the next five years in the management of Council’s natural area estate for increased visitation and nature-based recreation.

The Vision is for Ipswich’s natural areas to be a top 10 destination in South East Queensland for nature-appreciation and nature-based recreation experiences. This will be achieved by:

- Providing places of high-valued experiences in ecotourism, nature-based recreation and adventure within well-managed natural environments
- Securing and managing connected, intact tracts of critical habitat for the long-term survival of native flora and fauna in Ipswich
- Preserving and enhancing the biodiversity and habitat values of Ipswich’s natural landscapes

By 2022, we aim to have:

- Doubled visitation to the conservation estates
- Designed and constructed \$5,000,000 worth of new ecotourism, nature-based recreation, visitor access and cultural awareness infrastructure
- Delivered \$1,000,000 worth of improvements to existing infrastructure / conservation estate assets
- Employed two dedicated visitor management officers
- Acquired 500 additional hectares of conservation estate

**PRIORITY CONSERVATION ESTATES AND RESERVES FOR INVESTMENT:**

Six conservation estates and reserves have been identified as priorities for investment in visitor infrastructure. This includes visitor information centres, day use areas, digital signage, single and multi-use track networks, board walks and Ecotourism joint ventures. The priorities are:

1. White Rock Spring Mountain Conservation Estate
2. Flinders Goolman Conservation Estate
3. Denmark Hill Conservation Reserve
4. Cameron's Scrub Conservation Reserve / Sapling Pocket
5. Mt Grandchester Conservation Estate
6. Purga Nature Reserve

#### **VISITOR MANAGEMENT:**

Visitor and user experiences in natural areas are greatly enhanced when there is a demonstrated commitment to sustainability and conservation outcomes, and a presence of on-site visitor management officers. The dedicated field staff will have skills in visitor management, interpretative presentations (such as cultural heritage, environmental values), nature-based recreation and conservation land management. It is proposed that two dedicated officers be employed to support increased visitation and ensure users have safe access to the conservation estates.

#### **FUNDING OPTIONS:**

Funding of \$5,000,000 will be sourced to undertake the capital works; being, 50% from the Enviroplan Reserve (\$2,500,000) and 50% additional borrowings (\$2,500,000) to be repaid over ten years.

Funding for the two visitor management officers will be from Enviroplan revenue on an annual basis.

#### **BENEFITS TO COMMUNITY AND CUSTOMERS:**

Council's conservation estates are the 'green lungs' of the City, providing the scenic backdrop and a natural respite for a rapidly growing urban population. Greenfield developments at Springfield Lakes, South Redbank Plains and Ripley Valley will see a predicted 300,000 people living on the doorstep of two of Council's premier conservation estates.


Nature-based recreation is a growing industry, with an increase in the number of people involved in bushwalking, mountain-biking and trail runs. With over 6,000 hectares of conservation estate, Council is well placed to offer valuable experiences for the community in well-planned and managed natural areas.

#### **CONCLUSION:**

The demand for nature-based recreation and visitation to natural areas is growing rapidly. Council owns and manages over 6,000 hectares of conservation estates and reserves, funded by the Ipswich Enviroplan levy.

The focus for capital investment over the next 5 years will need to transition from acquisition of new estates to the construction of purpose-built visitor infrastructure. This will support safe access for visitors and users, whilst protecting and managing the important ecological and cultural values of the conservation estate.

**ATTACHMENT:**

Name of Attachment	Attachment
<a href="#">Enviroplan Capital Investment Strategy 2017 - 2022</a>	 Attachment A

**RECOMMENDATION:**

Amended CWPSE Ctee No. 2017(02) of 230 February 2017

A. That the Enviroplan Capital Investment Strategy 2017–2022, as outlined in the report by the Principal Officer (Natural Resources) dated 21 December 2016 be adopted.

B. That the Chief Operating Officer (Works Parks and Recreation) present a report to the 2017-2018 pre-budget meetings incorporating the priorities for capital investment and loan requirements for implementation of the Enviroplan Capital Investment Strategy 2017-2022.

B.C. That the Enviroplan Capital Investment Strategy 2017-2022 be reviewed in 2020.

← **Formatte**

Kaye Cavanagh  
**PRINCIPAL OFFICER (NATURAL RESOURCES)**

I concur with the recommendation/s contained in this report.

Bryce Hines  
**SPORT RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation/s contained in this report.

Craig Maudsley  
**CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**



# **Enviroplan Capital Investment Strategy 2017 - 2022**

*Informing future investment in the expansion and management of Ipswich City Council's Natural Area Estate*

## Summary

In 1996, the Ipswich Enviroplan was introduced in recognition of the wildlife, waterways and natural bushland of Ipswich and the valuable contributions they make to our way of life. Enviroplan commenced with a broad vision “to promote important environmental issues and provide innovative and effective programs for the safe keeping and management of the City’s natural resources”.

Over the past 20 years, Enviroplan has funded the acquisition of 5,867 hectares and management of over 6,000 hectares of native bushland within 12 dedicated conservation estates and reserves. Initially, capital investment focussed on the establishment of visitor day use areas in the higher profile estates, including the installation of board-walks, track networks, signage and visitor facilities. From there, the primary focus has been on improving conservation values and the on-going management and maintenance of visitor assets. More recently, the Harding’s Paddock campground was opened in 2014.

As the population of Ipswich continues to grow, so too will the importance of our natural areas to function as biologically rich ecosystems and desired destinations for nature-based recreation. Through well-planned and targeted investment over the next 5 years, Council will be better placed to balance the protection of biodiversity and cultural values with the pressures and opportunities of increased visitation and use of our natural areas.

This will need a transition of capital investment from the acquisition of new conservation estates to the design and construction of purpose-built visitor and nature-based recreation infrastructure; supported by a committed investment in the improvement of natural values and enhancement of visitor experiences.

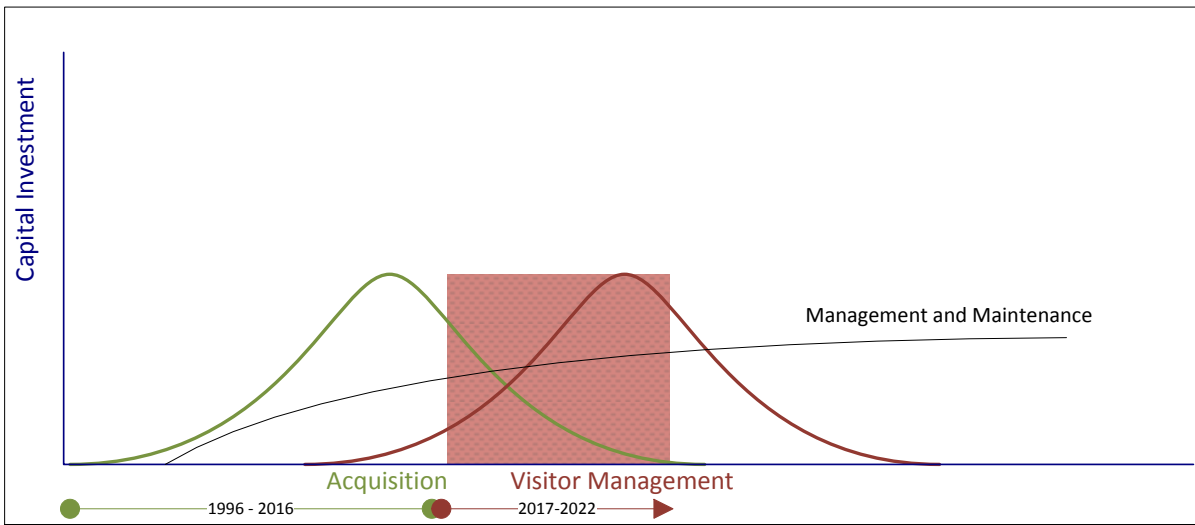


Figure 1. Capital investment transition from acquisition to visitor management and infrastructure from 2017 - 2022

## **Our Vision**

*To be a top 10 destination for nature-appreciation and nature-based recreation experiences in South East Queensland.*

## **Our Mission**

Our Mission is to:

1. Preserve and enhance the biodiversity and habitat values of Ipswich's natural landscapes
2. Secure and manage connected, intact tracts of critical habitat for the long-term survival of native flora and fauna in Ipswich
3. Provide places of high-valued experiences in ecotourism, nature-based recreation and adventure within well-managed natural environments

## **Our Achievements**

5,867 hectares of land purchased through Enviroplan  
6,392 hectares managed for conservation and habitat restoration  
12 dedicated conservation estates and reserves  
7 visitor day-use areas  
200 kilometres of track network  
1 nature-based campground  
62 hectares of protected koala habitat  
92 hectares of carbon offset

## **Our Plan**

By 2021, we will have:

- Doubled visitation to the conservation estates
- Designed and constructed \$5,000,000 worth of new ecotourism, nature-based recreation, visitor access and cultural awareness infrastructure
- Delivered \$1,000,000 worth of improvements to existing infrastructure / conservation estate assets
- Employed 2 dedicated visitor management officers
- Acquired an additional 500 hectares of conservation estate

## **Focus Areas**

Our focus for investment in the expansion and management of Council's natural area estate is fourfold:

1. Opportunistic Conservation Land Acquisition
2. Nature-based Recreation Infrastructure

3. Visitor Experiences
4. Biodiversity and Habitat Improvement

## 1. Conservation Land Acquisition

Ipswich has secured over 5,800 hectares of conservation estate as freehold land through Enviroplan investment since 1996. The prioritisation of land for purchase has been guided by Council’s Nature Conservation Strategies in 2000, 2008 and 2015, and based on the CAR (Comprehensive, Adequate and Representative) system for vegetation protection. In addition, scenic amenity and the provision of nature-based recreation opportunities have been used as secondary factors to assess acquisition priorities.

The focus for acquisition over the next 5 years will be on the consolidation and linking of existing conservation estates, and establishing new areas suitable for the primary purpose of nature-based recreation. The five priority areas for acquisition are Grandchester, South Ripley, Pine Mountain, 10 Mile Swamp and 7 Mile Swamp. Securing future land will primarily be through opportunistic purchase via market sales or voluntary contact from land owners. Funding for acquisition will be sourced from Council general revenue or a draw-down on the Enviroplan reserve.

**Table 1 Acquisition Priorities**

Locality	Strategy
<b>Grandchester</b>	<ul style="list-style-type: none"> <li>▪ Purchase land through opportunistic sales directly adjoining the Mt Grandchester Conservation Estate</li> <li>▪ Partner with Cherish the Environment Foundation to secure land linking the Mt Grandchester Conservation Estate with the Cherish the Environment koala offset property at Calvert</li> </ul>
<b>Ripley Valley</b>	<ul style="list-style-type: none"> <li>▪ Secure land in South Ripley Valley to provide a link between Flinders Goolman and White Rock Spring Mountain Conservation Estates</li> </ul>
<b>Pine Mountain</b>	<ul style="list-style-type: none"> <li>▪ Purchase through opportunistic sales land on or directly surrounding Pine Mountain</li> <li>▪ Secure land between Pine Mountain and Cameron’s Scrub Conservation Reserve</li> </ul>
<b>10 Mile &amp; 7 Mile Swamp</b>	<ul style="list-style-type: none"> <li>▪ Purchase land through opportunistic sales containing the 10 Mile</li> <li>▪ Secure land parcels containing the 7 Mile Swamp</li> </ul>

## **2. Nature-based Recreation and Visitor Infrastructure**

Ipswich's conservation estates and reserves are the 'green lungs' of the City, providing the scenic backdrop and a natural respite for a rapidly growing urban population. Greenfield developments at Springfield Lakes, South Redbank Plains and Ripley Valley will see a predicted 300,000 people living on the doorstep of the White Rock Spring Mountain and the Flinders Goolman Conservation Estates. A further 150,000 – 200,000 people are expected to live in close proximity to these Estates in new greenfield developments and the adjoining suburbs of Greenbank, Flagstone and Undulla.

Recreation studies show a significant growth in outdoor and nature-based recreation, with an increase in the number of people involved in bushwalking, mountain-biking and trail runs. Well designed and constructed nature-based recreation and visitor infrastructure is critical to ensure visitors and users have safe access to the conservation estates, whilst experiencing the natural values and providing protection to the high biodiversity and cultural values.

Six Conservation Estates and Reserves have been identified as priorities for investment in nature-based recreation and visitor infrastructure over the next 5 years. This may include capital investment options for visitor information centres, day use areas, digital signage, single and multi-use track networks, board walks and Ecotourism joint ventures.

A prioritised list of capital investments will need to be developed to inform the roll-out of infrastructure over the next 5 years. This will be based on a set of criteria, being:

- User demand and nature-based recreation need
- Accessibility
- Ecotourism potential
- Co-investment opportunities (eg: joint ventures, government grants, labour markets)
- Cultural significance
- Conservation significance
- Safety / Australian Standards

Funding of \$5,000,000 will be sourced to commence these works according to the prioritised list of capital investment options. The funding will initially consist of 50% from the Enviroplan Reserve (\$2,500,000) and 50% additional borrowings (\$2,500,000) to be repaid over 10 years (see Attachment A – Scenario 2).

**Table 2 Priority Conservation Estates and Reserves for Capital Investment**

Locality	Strategy	Potential Capital Investment Options
<b>White Rock Spring Mountain Conservation Estate</b>	<p>Ipswich’s Premier Nature-Based Recreation Hub</p> <p><i>Centrally located in the heart of large future urban populations with an estimated 500,000 people over the next 20 years to live on the doorstep of this culturally and biologically diverse conservation estate</i></p>	<ul style="list-style-type: none"> <li>▪ Fully serviced Visitor Information and Environmental Education Centre (The Recreation Hub)</li> <li>▪ Single and multi-use recreation trail network</li> <li>▪ Smart walks with digital technology (apps for maps) and signage</li> <li>▪ Traditional Owner interpretative walks to identified / agreed areas of cultural significance</li> <li>▪ Look-outs at high vantage points along ridgelines</li> <li>▪ Visitor access and day use area at Springfield Lakes</li> <li>▪ Entry nodes from Ripley Valley, including trail heads and track network to link with Paperbark Flats day use area</li> </ul>
<b>Flinders Goolman Conservation Estate</b>	<p>Ipswich’s Premier Environmental and Iconic Species Estate</p> <p><i>Flinders Peak is Ipswich’s highest peak and is an iconic feature in Ipswich’s scenic landscape. The rocky outcrops across the Estate provide essential habitat for the brush-tailed rock wallaby and has high ecological and cultural significance, sitting in the heart of the Flinders Karawatha Corridor</i></p>	<ul style="list-style-type: none"> <li>▪ Facilitated nature-based recreation, guided bushwalks and interpretative experiences</li> <li>▪ Ecotourism joint ventures (eg: glamping, tree-top walks)</li> <li>▪ Brush-tailed rock wallaby experiences through digital signage and the construction of viewing points</li> <li>▪ Flinders Plum day use upgrade of facilities, amenities and trail heads</li> <li>▪ Flinders Road and entry feature upgrade</li> <li>▪ Visitor access and day use area at Wards Road including picnic facilities, amenities, trail network, gorge walk</li> <li>▪ Spowers Road and entry feature upgrade</li> <li>▪ Trail network linking Wards Road day use area and Spowers Road entry with Hardings Paddock day use area</li> </ul>

Locality	Strategy	Potential Capital Investment Options
<b>Denmark Hill Conservation Reserve</b>	Ipswich's Premier Urban Bushland Experience  <i>Centrally located within the Ipswich CBD and inner-city precinct with a rich mining and fossil history. Denmark Hill is home to a small resident population of koala</i>	<ul style="list-style-type: none"> <li>▪ Visitor information / care-takers centre at Hardings Paddock</li> <li>▪ Master plan Denmark Hill as Ipswich's premier urban bushland experience within the inner-city green space network</li> <li>▪ Fossil information centre</li> <li>▪ Digital interpretative signage focussed on the mining and fossil history</li> <li>▪ Trail network upgrade, including access to the water tower</li> <li>▪ Dinosaur shelter removal / replacement</li> <li>▪ Understorey vegetation thinning to increase visibility and create an open bushland experience</li> <li>▪ New parking and entry location</li> <li>▪ Adventure activity / infrastructure</li> </ul>
<b>Cameron's Scrub Conservation Reserve / Sapling Pocket</b>	Ipswich's Premier River and Bushland Experience  <i>Sapling Pocket offers a prime location for nature and water based recreation nestled in the largest remaining tract of semi-evergreen vine forest on the mid-Brisbane River. Cameron's Scrub is a biologically rich estate with a wide variety of significant flora and fauna species</i>	<ul style="list-style-type: none"> <li>▪ Visitor access and day use area at Sapling Pocket including amenities, picnic facilities, canoe launch and trail heads</li> <li>▪ Single use hiking trails</li> <li>▪ School / family group camp-ground at Sapling Pocket</li> <li>▪ Ecotourism joint ventures (eg: glamping on the Brisbane River at Cameron's Scrub)</li> <li>▪ Existing dwelling converted to a visitor information centre or care-takers hut at Cameron's Scrub</li> </ul>
<b>Mt Grandchester Conservation Estate</b>	Ipswich's Western Nature-based Recreation Hub and Koala Refuge  <i>Located at the northern extent of the Little Liverpool Range, Mt Grandchester Conservation Estate provides important habitat for koala and</i>	<ul style="list-style-type: none"> <li>▪ Ecotourism joint venture (eg: Ecocabins, touring MTB)</li> <li>▪ Horse-riding facilities including upgrade of the Woolshed holding yards</li> <li>▪ Visitor access and day use area</li> <li>▪ Hiking trail network including a Mt Grandchester peak track and connection to Grandchester township</li> <li>▪ University of South Queensland or University of Queensland</li> </ul>

Locality	Strategy	Potential Capital Investment Options
<b>Purga Nature Reserve</b>	<p data-bbox="555 240 1039 312"><i>glossy black cockatoos. The Estate offers sweeping views of the Bremer River basin</i></p> <p data-bbox="555 365 1133 638">Ipswich's Premier Koala Hub</p> <p data-bbox="555 445 1133 638"><i>Purga Nature Reserve provides significant koala habitat and wetlands adjoining Purga Creek. The Reserve has the largest protected tract of the critically endangered swamp tea tree ecosystem <i>Melaleuca irbyana</i> in Australia</i></p>	<p data-bbox="1205 240 1563 268">partnership for a research site</p> <ul data-bbox="1167 277 1832 464" style="list-style-type: none"> <li data-bbox="1167 277 1644 304">▪ Koala habitat refuges and offset sites</li> <li data-bbox="1167 365 1765 392">▪ Koala and wetland education and visitor centre</li> <li data-bbox="1167 402 1832 429">▪ Board walk, tracks and interpretive signage upgrades</li> <li data-bbox="1167 438 1592 464">▪ Middle Rd entry feature upgrade</li> </ul>



### **3. Visitor Experiences**

Visitor and user experiences in natural areas are greatly enhanced when there is a demonstrated commitment to sustainability and conservation outcomes, and a presence of on-site conservation and visitor management officers. Dedicated field staff with skills in visitor management, interpretative presentations and nature-based recreation will support the achievement of a doubling in the number of visitors and the active promotion of Ipswich's natural areas as nature-based recreation destinations. A key responsibility of the visitor management officers will include an involvement in the delivery of conservation projects such as habitat restoration, weed management and hazard reduction burns.

Funding for the 2 visitor management officers will be sourced from Enviroplan revenue (see Attachment A), commencing in 2017/18.

### **4. Biodiversity and Habitat Improvement**

Ipswich's conservation estates and reserves support a diverse range of natural ecosystems from rainforests, dry vine forests, eucalypt woodlands, heathlands and wetlands, and are home to a wide variety of native fauna. The continual protection and improvement of habitats and native vegetation is essential to ensure the long term survival of native flora and fauna, and to provide high-quality natural experiences for visitors and users. The Conservation Works Program sets the direction for improvement works focussed on habitat restoration, pest and weed management, illegal visitor management and hazard reduction burns.

Over the next five years \$1,500,000 of operational funds will be invested in biodiversity and habitat improvement projects through the Conservation Works Program. A further \$1,000,000 of capital funds will be invested in conservation management infrastructure such as bike barriers, boundary fencing, erosion control and service tracks. This funding is continuous from the current annual expenditure sourced through Enviroplan revenue, and requires no further funding.

## Attachment A – Financial Modelling Scenarios

Scenario 1																							
Enviroplan Model - Additional Borrowing - Full \$5 Million - No Change in existing Process																							
Year	Pure Revenue	Remission	Revenue	Expenditure														Transfers					
				Existing Operational				Existing Capital			Total Existing		New Operations					Total Expenditure	(Surplus)/ Deficit	Reserve Reduction	Reserve Running Balance		
				Management	Private Land Support	Partnering Agreements (VCA's)	Interest	Acquisitions	Develop	Redemption	Reduction	Total Expenditure	Additional Resources	Additional Mtce/Operational Costs	Interest Redemption	Initial Capital Spend	Total						
Reserve Opening Balance																		\$ 5,000,000				-	2,863,009
2016/17	3,173,000	74,000	\$ 3,099,000	\$ 1,616,080	\$ 40,000	\$ 218,000	\$ 395,000	\$ -	\$ 205,000	\$ 465,000	\$ -	\$ 2,939,080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,939,080	\$ 159,920	-	3,022,929		
2017/18	3,388,476	75,850	\$ 3,312,626	\$ 1,664,323	\$ 41,200	\$ 224,540	\$ 347,143	\$ -	\$ 205,000	\$ 497,157	\$ -	\$ 2,979,363	\$ 186,000	\$ 75,000	\$ 122,802	\$ 1,500,000	\$ 383,802	\$ 3,363,165	\$ 50,539	-	2,972,390		
2018/19	3,552,124	76,988	\$ 3,475,136	\$ 1,713,868	\$ 42,436	\$ 231,276	\$ 317,406	\$ -	\$ 205,000	\$ 526,893	\$ -	\$ 3,036,880	\$ 191,580	\$ 250,000	\$ 409,340	\$ 3,500,000	\$ 850,920	\$ 3,887,800	\$ 412,664	-	2,559,726		
2019/20	3,721,836	78,143	\$ 3,643,694	\$ 1,764,889	\$ 43,709	\$ 238,214	\$ 286,743	\$ -	\$ 205,000	\$ 557,556	\$ -	\$ 3,096,112	\$ 197,327	\$ 257,500	\$ 409,340	\$ -	\$ 864,167	\$ 3,960,280	\$ 316,586	-	2,243,140		
2020/21	3,897,814	79,315	\$ 3,818,500	\$ 1,817,431	\$ 45,020	\$ 245,361	\$ 252,706	\$ -	\$ 205,000	\$ 591,594	\$ -	\$ 3,157,112	\$ 203,247	\$ 265,225	\$ 409,340	\$ -	\$ 877,812	\$ 4,034,924	\$ 216,425	-	2,026,716		
2021/22	4,080,265	80,504	\$ 3,999,761	\$ 1,871,540	\$ 46,371	\$ 252,722	\$ 217,474	\$ -	\$ 205,000	\$ 626,826	\$ -	\$ 3,219,932	\$ 209,345	\$ 273,182	\$ 409,340	\$ -	\$ 891,866	\$ 4,111,798	\$ 112,037	-	1,914,678		
2022/23	4,269,403	81,712	\$ 4,187,691	\$ 1,927,261	\$ 47,762	\$ 260,303	\$ 180,181	\$ -	\$ 205,000	\$ 664,118	\$ -	\$ 3,284,626	\$ 215,625	\$ 281,377	\$ 409,340	\$ -	\$ 906,342	\$ 4,190,968	\$ 3,277	-	1,911,401		
2023/24	4,465,447	82,938	\$ 4,382,509	\$ 1,984,643	\$ 49,195	\$ 268,113	\$ 141,076	\$ -	\$ 205,000	\$ 703,223	\$ -	\$ 3,351,250	\$ 222,094	\$ 289,819	\$ 409,340	\$ -	\$ 921,252	\$ 4,272,502	\$ 110,007	-	2,021,407		
2024/25	4,668,624	84,182	\$ 4,584,443	\$ 2,043,736	\$ 50,671	\$ 276,156	\$ 98,883	\$ -	\$ 205,000	\$ 745,417	\$ -	\$ 3,419,862	\$ 228,577	\$ 298,513	\$ 409,340	\$ -	\$ 936,610	\$ 4,356,472	\$ 227,971	-	2,249,378		
2025/26	4,879,170	85,444	\$ 4,793,726	\$ 2,104,590	\$ 52,191	\$ 284,441	\$ 54,578	\$ -	\$ 205,000	\$ 789,721	\$ -	\$ 3,490,521	\$ 235,619	\$ 307,468	\$ 409,340	\$ -	\$ 952,428	\$ 4,442,949	\$ 350,777	-	2,607,155		
2026/27	5,097,325	86,726	\$ 5,010,599	\$ 2,167,259	\$ 53,757	\$ 292,974	\$ 59	\$ -	\$ 205,000	\$ 478,331	\$ -	\$ 3,197,378	\$ 242,688	\$ 316,693	\$ 409,340	\$ -	\$ 968,720	\$ 4,166,099	\$ 844,501	-	3,444,656		
															\$ 5,000,000	Borrowing Amount							

Scenario 2																							
Enviroplan Model - Additional Borrowing - \$2.5 Million borrow and \$2.5 Million Reserve - No Change in existing Process																							
Year	Pure Revenue	Remission	Revenue	Expenditure														Transfers					
				Existing Operational				Existing Capital			Total Existing		New Operations					Total Expenditure	(Surplus)/ Deficit	Reserve Reduction	Reserve Running Balance		
				Management	Private Land Support	Partnering Agreements (VCA's)	Interest	Acquisitions	Develop	Redemption	Reduction	Total Expenditure	Additional Resources	Additional Mtce/Operational Costs	Interest Redemption	Capital Spend	Total						
Reserve Opening Balance																		\$ 5,000,000				-	2,863,009
2016/17	3,173,000	74,000	\$ 3,099,000	\$ 1,616,080	\$ 40,000	\$ 218,000	\$ 395,000	\$ -	\$ 205,000	\$ 465,000	\$ -	\$ 2,939,080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,939,080	\$ 159,920	-	3,022,929		
2017/18	3,388,476	75,850	\$ 3,312,626	\$ 1,664,323	\$ 41,200	\$ 224,540	\$ 347,143	\$ -	\$ 205,000	\$ 497,157	\$ -	\$ 2,979,363	\$ 186,000	\$ 75,000	\$ -	\$ 1,500,000	\$ 261,000	\$ 3,240,363	\$ 72,263	\$ 1,500,000	-	1,595,192	
2018/19	3,552,124	76,988	\$ 3,475,136	\$ 1,713,868	\$ 42,436	\$ 231,276	\$ 317,406	\$ -	\$ 205,000	\$ 526,893	\$ -	\$ 3,036,880	\$ 191,580	\$ 250,000	\$ 204,670	\$ 3,500,000	\$ 646,250	\$ 3,683,130	\$ 207,994	\$ 1,000,000	-	387,198	
2019/20	3,721,836	78,143	\$ 3,643,694	\$ 1,764,889	\$ 43,709	\$ 238,214	\$ 286,743	\$ -	\$ 205,000	\$ 557,556	\$ -	\$ 3,096,112	\$ 197,327	\$ 257,500	\$ 204,670	\$ -	\$ 659,497	\$ 3,755,610	\$ 111,916	\$ -	275,282		
2020/21	3,897,814	79,315	\$ 3,818,500	\$ 1,817,431	\$ 45,020	\$ 245,361	\$ 252,706	\$ -	\$ 205,000	\$ 591,594	\$ -	\$ 3,157,112	\$ 203,247	\$ 265,225	\$ 204,670	\$ -	\$ 673,142	\$ 3,830,254	\$ 11,755	\$ -	263,528		
2021/22	4,080,265	80,504	\$ 3,999,761	\$ 1,871,540	\$ 46,371	\$ 252,722	\$ 217,474	\$ -	\$ 205,000	\$ 626,826	\$ -	\$ 3,219,932	\$ 209,345	\$ 273,182	\$ 204,670	\$ -	\$ 687,196	\$ 3,907,128	\$ 92,633	\$ -	356,160		
2022/23	4,269,403	81,712	\$ 4,187,691	\$ 1,927,261	\$ 47,762	\$ 260,303	\$ 180,181	\$ -	\$ 205,000	\$ 664,118	\$ -	\$ 3,284,626	\$ 215,625	\$ 281,377	\$ 204,670	\$ -	\$ 701,672	\$ 3,986,298	\$ 201,393	\$ -	557,553		
2023/24	4,465,447	82,938	\$ 4,382,509	\$ 1,984,643	\$ 49,195	\$ 268,113	\$ 141,076	\$ -	\$ 205,000	\$ 703,223	\$ -	\$ 3,351,250	\$ 222,094	\$ 289,819	\$ 204,670	\$ -	\$ 716,582	\$ 4,067,832	\$ 314,677	\$ -	872,229		
2024/25	4,668,624	84,182	\$ 4,584,443	\$ 2,043,736	\$ 50,671	\$ 276,156	\$ 98,883	\$ -	\$ 205,000	\$ 745,417	\$ -	\$ 3,419,862	\$ 228,577	\$ 298,513	\$ 204,670	\$ -	\$ 731,940	\$ 4,151,802	\$ 432,641	\$ -	1,304,870		
2025/26	4,879,170	85,444	\$ 4,793,726	\$ 2,104,590	\$ 52,191	\$ 284,441	\$ 54,578	\$ -	\$ 205,000	\$ 789,721	\$ -	\$ 3,490,521	\$ 235,619	\$ 307,468	\$ 204,670	\$ -	\$ 747,758	\$ 4,238,279	\$ 555,447	\$ -	1,860,317		
2026/27	5,097,325	86,726	\$ 5,010,599	\$ 2,167,259	\$ 53,757	\$ 292,974	\$ 59	\$ -	\$ 205,000	\$ 478,331	\$ -	\$ 3,197,378	\$ 242,688	\$ 316,693	\$ 204,670	\$ -	\$ 764,050	\$ 3,961,429	\$ 1,049,171	\$ -	2,909,488		
															\$ 2,500,000	Borrowing Amount							

Scenario 3																							
Enviroplan Model - Additional Borrowing - \$2 Million borrow and \$3 Million Reserve - No Change in existing Process																							
Year	Pure Revenue	Remission	Revenue	Expenditure														Transfers					
				Existing Operational				Existing Capital			Total Existing		New Operations					Total Expenditure	(Surplus)/ Deficit	Reserve Reduction	Reserve Running Balance		
				Management	Private Land Support	Partnering Agreements (VCA's)	Interest	Acquisitions	Develop	Redemption	Reduction	Total Expenditure	Additional Resources	Additional Mtce/Operational Costs	Interest Redemption	Capital Spend	Total						
Reserve Opening Balance																		\$ 5,000,000				-	2,863,009
2016/17	3,173,000	74,000	\$ 3,099,000	\$ 1,616,080	\$ 40,000	\$ 218,000	\$ 395,000	\$ -	\$ 205,000	\$ 465,000	\$ -	\$ 2,939,080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,939,080	\$ 159,920	-	3,022,929		
2017/18	3,388,476	75,850	\$ 3,312,626	\$ 1,664,323	\$ 41,200	\$ 224,540	\$ 347,143	\$ -	\$ 205,000	\$ 497,157	\$ -	\$ 2,979,363	\$ 186,000	\$ 75,000	\$ -	\$ 1,500,000	\$ 261,000	\$ 3,240,363	\$ 72,263	\$ 1,500,000	-	1,595,192	
2018/19	3,552,124	76,988	\$ 3,475,136	\$ 1,713,868	\$ 42,436	\$ 231,276	\$ 317,406	\$ -	\$ 205,000	\$ 526,893	\$ -	\$ 3,036,880	\$ 191,580	\$ 250,000	\$ 163,736	\$ 3,500,000	\$ 605,316	\$ 3,642,196	\$ 167,060	\$ 1,500,000	-	71,868	
2019/20	3,721,836	78,143	\$ 3,643,694	\$ 1,764,889	\$ 43,709	\$ 238,214	\$ 286,743	\$ -	\$ 205,000	\$ 557,556	\$ -	\$ 3,096,112	\$ 197,327	\$ 257,500	\$ 163,736	\$ -	\$ 618,563	\$ 3,714,676	\$ 70,982	\$ -	142,850		
2020/21	3,897,814	79,315	\$ 3,818,500	\$ 1,817,431	\$ 45,020	\$ 245,361	\$ 252,706	\$ -	\$ 205,000	\$ 591,594	\$ -	\$ 3,157,112	\$ 203,247	\$ 265,225	\$ 163,736	\$ -	\$ 632,208	\$ 3,789,320	\$ 29,179	\$ -	113,670		
2021/22	4,080,265	80,504	\$ 3,999,761	\$ 1,871,540	\$ 46,371	\$ 252,722	\$ 217,474	\$ -	\$ 205,000	\$ 626,826	\$ -	\$ 3,219,932	\$ 209,345	\$ 273,182	\$ 163,736	\$ -	\$ 646,262	\$ 3,866,194	\$ 133,567	\$ -	19,896		
2022/23	4,269,403	81,712	\$ 4,187,691	\$ 1,927,261	\$ 47,762	\$ 260,303	\$ 180,181	\$ -	\$ 205,000	\$ 664,118	\$ -	\$ 3,284,626	\$ 215,625	\$ 281,377	\$ 163,736	\$ -	\$ 660,738	\$ 3,945,364	\$ 242,327	\$ -	262,223		
2023/24	4,465,447	82,938	\$ 4,382,509	\$ 1,984,643	\$ 49,195	\$ 268,113	\$ 141,076	\$ -	\$ 205,000	\$ 703,223	\$ -	\$ 3,351,250	\$ 222,094	\$ 289,819	\$ 163,736	\$ -	\$ 675,648	\$ 4,026,898	\$ 355,611	\$ -	617,833		
2024/25	4,668,624	84,182	\$ 4,584,443	\$ 2,043,736	\$ 50,671	\$ 276,156	\$ 98,883	\$ -	\$ 205,000	\$ 745,417	\$ -	\$ 3,419,862	\$ 228,577	\$ 298,513	\$ 163,736	\$ -	\$ 691,006	\$ 4,110,868	\$ 473,575	\$ -	1,091,408		
2025/26	4,879,170	85,444	\$ 4,793,726	\$ 2,104,590	\$ 52,191	\$ 284,441	\$ 54,578	\$ -	\$ 205,000	\$ 789,721	\$ -	\$ 3,490,521	\$ 235,619	\$ 307,468	\$ 163,736	\$ -	\$ 706,824	\$ 4,197,345	\$ 596,381	\$ -	1,687,789		
2026/27	5,097,325	86,726	\$ 5,010,599	\$ 2,167,259	\$ 53,757	\$ 292,974	\$ 59	\$ -	\$ 205,000	\$ 478,331	\$ -	\$ 3,197,378	\$ 242,688	\$ 316,693	\$ 163,736	\$ -	\$ 723,116	\$ 3,920,495	\$ 1,090,105	\$ -	2,777,894		
															\$ 2,000,000	Borrowing Amount							

## Conservation Visitor Management Officer Work Program 2018-19 Financial Year

Theme	Activity/Project	Project Summary
Activation	Guided Walks at White Rock Spring Mountain and Flinders Goolman Conservation Estates	Themed guided walks to highlight specific features and concepts within the Natural Area Estate, such as timeline history, geology, and the inter-connectedness of people and the environment. Includes Guided Sunset Walk at White Rock Spring Mountain Conservation Estate - Part of the 'Peaks to Points Festival' as an inaugural walk leading into monthly events at different Natural Area Estate locations.
Activation Education	Nature Breaks School Holiday program	Provide a facilitated School Holiday program to engage children with the natural environment.
Education	School presentations and Nature Experience Excursions	In-class presentations about local natural areas and conservation issues. Facilitated themed Nature Experience class excursions. Promotional material to be distributed to local schools.
Protection Visitor Management	Natural Area Estate entry statement/trail head visitor messaging review	Review of and recommendations of Natural Area Estate entry statements and trail head visitor messaging in line with the principles of the Conservation Visitor Management Program to increase visitation whilst protecting conservation values
Promotion	Natural Area Estate brochures and guides visitor management and conservation protection messaging review	Review of and recommendations of Natural Area Estate print and online brochures and guides to improve messaging around visitor management, sustainable recreation and conservation protection messaging in line with the principles of the Conservation Visitor Management Program.
Protection Visitor Management	Trail counts and impact monitoring	Monthly recording of Trail Visitor Counts Program alongside the Trail Impact Monitoring Program to understand and monitor the impact that increased visitation of the Natural Estate Trails is having on the conservation and biodiversity values of the Natural Area Estate
Activation Protection Promotion Education Visitor Management	Establish current Natural Area Estate positioning within the community.	Pilot baseline data survey to establish current visitor usage of the Natural Area Estate, determine effective communication methods and inform development of future programs and activities. Initially the survey will be undertaken in the White Rock Spring Mountain Conservation Estate, to be rolled out in other Estates and used to develop a regular visitor feedback pathway.

<b>Conservation &amp; Environment Committee</b>	
Mtg Date: 16.07.18	OAR: YES
<b>Authorisation:</b> Bryce Hines	

DA:DA  
H:/departmental/committee reports/0806DA Worley Park Fish Barrier Removal CR.doc

12 June 2018

## MEMORANDUM

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: WATERWAY HEALTH OFFICER

RE: FISH BARRIER REMOVAL ON BUNDAMBA CREEK AT WORLEY PARK, RACEVIEW  
DIVISION 4

---

### **INTRODUCTION:**

This is a report by the Waterway Health Officer dated 12 June 2018 concerning the removal of a fish barrier on Bundamba Creek at Worley Park, Raceview.

### **BACKGROUND:**

At the Council Meeting held on the 29 May 2018 it was resolved:

*That Council undertake a design and scope of works for each of the three priority fish barriers as identified in the joint report by the Waterway Health Officer and Planning Officer (Biodiversity) dated 2 May 2018.*

A copy of this report is shown in Attachment A.

This report highlighted the top fifty barriers in the Greater Brisbane Area, and ranked them according to priority, accounting for the cumulative impacts barriers have on the environment, fisheries resources, economy and local community.

Fish passage barriers have resulted in the decline of many native fish populations, in particular migratory species. These species include the iconic Australian bass, barramundi, jungle perch, freshwater mullet and sea mullet. Many fish species move upstream for various functions, including reproduction, predator avoidance, and to maintain genetic diversity. The removal of fish passage barriers (e.g. an obstruction in the waterway) is a useful management tool to restore populations of fish impacted by barriers.

Monitoring at the fish passageway at Berry’s Weir demonstrated that the removal of the barrier resulted in substantial ecological benefits, with over 16,000 fish recorded traversing the fish passageway in four days (Attachment B).

**THE FISH BARRIER IDENTIFIED ON BUNDAMBA CREEK:**

In the Greater Brisbane Fish Barrier Prioritisation Report, seven fish barriers ranked in the top fifty were identified in waterways within the Ipswich Local Government Area (LGA).

The barrier identified on Bundamba Creek at Worley Park, Raceview (Barrier ID 9649), was the fourth highest ranking barrier within the Ipswich LGA. The Worley Park barrier consisted of a rock weir which obstructed fish movements while providing a walkway between Worley Park and the adjacent property across Bundamba Creek. The rock weir hindered the passage of fish due to the placement of the rocks and the limited flow of water. On the 30 – 31 May, the barrier was removed and suitably sized rocks were placed in the creek to facilitate the movement of fish up and down the creek. The removal of this barrier was prioritised over the other barriers in ICC, as the project was relatively simple and small in scale, had great potential for substantial ecological improvements, and could be delivered with budget savings under the Integrated Water Management budget.




The barrier was successfully removed, and rocks were strategically placed in the creek using a rock-ramp fish passageway style to facilitate fish passage. Coir netting was fitted on-site to support the bank, and the site was revegetated with 400 locally native plant species.

Attachment C and D contain before and after photos of the site.

**CONCLUSION:**

The fish barrier on Bundamba Creek at Worley Park, Raceview on Bundamba Creek was removed on the 30 - 31 May. This fish barrier was replaced with a fish rock-way structure to facilitate the movement of fish up and downstream of Bundamba Creek.

**ATTACHMENTS:**

Name of Attachment	Attachment
<a href="#">Conservation &amp; Environment Committee Report – May 2018</a>	 Attachment A
<a href="#">Bremer River Rock-Ramp Fishway Monitoring Report</a>	 Attachment B
<a href="#">Before photo – Worley Park fish barrier</a>	 Attachment C

After photo – Worley Park fish-way



**RECOMMENDATION:**

That the report be received and the contents noted.

Danielle Andlemac  
**WATERWAY HEALTH OFFICER**

I concur with the recommendation/s contained in this report.

Kaye Cavanagh  
**ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation contained in this report.

Bryce Hines  
**ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**

Conservation and Environment Committee	
Mtg Date: 21.05.18	OAR: YES
<b>Authorisation:</b> Bryce Hines	

DA: DA  
H:\Departmental\Committee Reports\1805DA Prioritisation and identification of further fish barrier works in  
the Ipswich LGA CR.docx

2 May 2018

**MEMORANDUM**

TO: ACTING SPORTS RECREATION AND NATURAL RESOURCES MANAGER

FROM: WATERWAY HEALTH OFFICER AND PLANNING OFFICER (BIODIVERSITY)

RE: PRIORITISATION AND IDENTIFICATION OF FURTHER FISH BARRIER WORKS

**INTRODUCTION:**

This is a joint report by the Waterway Health Officer and Planning Officer (Biodiversity) dated 2 May 2018 concerning future fish barrier works in the Bremer River Catchment.

**BACKGROUND:**

A report has been released by consultants Catchment Solutions (Attachment A) dated April 2018 highlighting major barriers to fish passage across greater Brisbane, including Ipswich.

The barriers have been prioritised according to their significance to fish movement, ecological conditions and feasibility of remediation works. Within the Ipswich Local Government Area (LGA) seven priority fish barrier sites have been identified within the top 100 barriers from across south-east Queensland. Three fish barriers from the Bremer River Catchment (Bremer River and Warrill Creek) were identified in the top twenty sites.

**BARRIERS IDENTIFIED WITHIN IPSWICH LOCAL GOVERNMENT AREA:**

Overall Priority	Stream Name	Barrier Type	Fishway type required
Equal 12 <sup>th</sup>	Warrill Creek	V Notching Gauging Weir	Cone and/or Rock Ramp
Equal 12 <sup>th</sup>	Bremer River	V Notching Gauging	Cone and/or Rock

		Weir	Ramp
Equal 15 <sup>th</sup>	Warrill Creek	Weir – Sheet Pile and Gabian Basket	Removal of barrier or full width rock ramp
Equal 32 <sup>nd</sup>	Bundamba Creek	Rock weir	Rock ramp
Equal 37 <sup>th</sup>	Bundamba Creek	Pipe Causeway	New box culverts and/or rock ramp
Equal 47 <sup>th</sup>	Woogaroo Creek	Rock weir	Rock ramp
Equal 56 <sup>th</sup>	Six Mile Creek	Rock weir	Removal/rock ramp

**BASELINE DATA:**

The fish barriers that were ranked in the top twenty were analysed in a secondary study undertaken by Catchment Solutions (Attachment B). The three barriers that were analysed in this study occur upstream of the fishway at Berry’s Weir. An analysis was undertaken along the Bremer River and Warrill Creek to ascertain the impact of the barriers on fish movements.

A map showing the location of the three sites is provided in Attachment C.

The results can be seen below:

<b>Overall Priority</b>	<b>Stream Name</b>	<b>Results</b>	<b>Recommendation</b>
Equal 12 <sup>th</sup>	Warrill Creek	The impact of the barrier is very high.  No fish were captured successfully leaping over the weir crest or climbing the weir wall during camera monitoring.	Undertake a design and scope of works for implementation
Equal 12 <sup>th</sup>	Bremer River (Walloon)	The impact of the barrier is high.  40% of fish species were not able to ascend the barrier, and fish catch rates were a lot higher downstream than upstream.	Undertake a design and scope of works for implementation
Equal 15 <sup>th</sup>	Warrill Creek (near Runymede trotting stable)	The impact of the barrier is very high.  80% of the fish species sampled at the bottom of the weir were not recorded upstream	Undertake a design and scope of works for implementation

**FUTURE WORKS:**



In the next twelve months, it is recommended that a design and scope of works is undertaken to remediate the three fish barriers. Once this is completed, it is recommended that the works be considered for future budgets.



**CONCLUSION:**

Ipswich City Council has seven fish barriers that are listed in the top 100 barriers of significance in South-East Queensland in the Catchment Solutions report (Attachment A). Of these seven barriers, there are three barriers that are listed within the top twenty barriers of significance. These barriers were investigated (Attachment B), and it was concluded that the two Warrill Creek barriers are of high importance for remediation, and the barrier at the Bremer River also requires remediation, however is of lesser importance than the two Warrill Creek Barriers.

**ATTACHMENT/S:**

Name of Attachment	Attachment
<a href="#">Greater Brisbane Fish Barrier Prioritisation</a>	 Attachment A
<a href="#">Bremer River and Warrill Creek Fish Barrier Assessment Report</a>	 Attachment B
<a href="#">Map of Three Priority Fish Barriers Upstream of Berry's Weir</a>	 Attachment C

**RECOMMENDATION:**

[Amended at CE Ctee No. 2018\(05\) of 21 May 2018](#)

That Council undertakes a design and scope of works for each of the three priority fish barriers as identified in the [joint](#) report by the Waterway Health Officer and Planning Officer (Biodiversity) dated 2 May 2018.

Danielle Andlemac  
**WATERWAY HEALTH OFFICER**

Tim Shields  
**PLANNING OFFICER (BIODIVERSITY)**

I concur with the recommendation/s contained in this report.

Kaye Cavanagh  
**ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER**

I concur with the recommendation/s contained in this report.

Bryce Hines  
**CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)**



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## Greater Brisbane Fish Barrier Prioritisation

April 2018

Matt Moore, Jack McCann & Trent Power

Information contained in this document is provided as general advice only. For application to specific circumstances, professional advice should be sought.

Catchment Solutions has taken all reasonable steps to ensure the information contained in this document is accurate at the time of publication. Readers should ensure that they make appropriate enquiries to determine whether new information is available on the particular subject matter.

For further information contact:

Matt Moore

Project Officer

Catchment Solutions – Fisheries and Aquatic Ecosystems

Ph: (07) 4968 4214

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**Cover Figure: From top, left to right (fish barriers): Luscombe Weir located on the lower Albert River, DNRM V- notch gauging weir located on the lower Warrill Creek upstream from the Cunningham Highway, Pipe culverts located on the Pimpama River downstream from the Pacific Highway, Enoggera Creek tidal interface weir located adjacent to Hulme St, Berrys Weir partial width rock-ramp fishway located in the lower reaches of the Bremer River in Yamanto. Fish images; juvenile freshwater mullet (captured from Leitchs Crossing fishway– South Pine River), juvenile and adult bullrout, (top to bottom) Sea mullet, Duboulay's rainbowfish, unspecked hardyhead, firetail gudgeon Australian smelt, empire gudgeon, and forked- tailed catfish and yellowfin bream all captured successfully ascending Berrys weir rock-ramp fishway on the lower Bremer River.**

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## Glossary of Terms

**Diadromous:** Diadromous fishes are migratory species whose distinctive characteristics include that they (i) migrate between freshwater and saltwater; (ii) their movement is obligate to maintain species distribution and ecosystem health; and (iii) migration takes place at fixed seasons or life stages. There are three distinctions within the diadromous category, including: catadromy, amphidromy and anadromy.

- **Catadromous** - Diadromous fishes which spend most of their lives in freshwater and migrate to saltwater to breed.
- **Amphidromous** - Diadromous fishes in which migration between the saltwater and freshwater (or vice versa) is not for the purpose of breeding, however occurs at some other stage of the life cycle.
- **Anadromous** - Diadromous fishes which spend most of their lives at sea and migrate to freshwater to breed.

**Potamodromous** - Fish species whose migrations occur wholly within freshwater for breeding and other purposes.

**Ontogenetic Migration** – Different life stages migrate into different habitats.

**Potential Barrier** – A barrier identified within a stream through the use of GIS, however has not been ground- truthed to assess the true impacts and extent of the barrier.

**Head loss** – The difference (or 'loss') of water surface height between an upstream and downstream water body bisected by a barrier

**Declared Downstream Limit** – The lower-most freshwater reach of a stream, as determined by Queensland Department of Natural Resources and Mines.

## Acronyms

CS -	Catchment Solutions
NRM -	Natural Resource Management Group
RCL -	Reef Catchments Limited
GBFBP -	Greater Brisbane Fish Barrier Prioritisation
GB -	Greater Brisbane
FBPP -	Fish Barrier Prioritisation Process
GIS -	Geographic Information Systems
GEP -	Google Earth Pro
DDL -	Declared Downstream Limit
DAF -	Department of Agriculture and Fisheries
DNRM -	Department of Natural Resources and Mines
GPS -	Global Positioning System
EPBC -	Environment Protection and Biodiversity Conservation
RRF -	Rock-ramp fishway

## Preamble

Fish passage barriers such as dams, weirs, causeways, culverts, earthen bunds and floodgates represent significant threats to the health of river systems through altering natural flow regimes and causing impassable barriers to aquatic fauna. Anthropogenic obstructions are widespread in the highly urbanised coastal catchments throughout Australia and have been implicated in the decline of many iconic native fish species, in particular, migratory diadromous species.

Diadromous species which require unimpeded access between freshwater and saltwater habitats are often of the highest socio-economic importance, being of key commercial and recreational value, as well as being key ecological assets within the trophic ecology of their associated waterways. Species such as Australian bass, barramundi, jungle perch, long-finned eel, mangrove jack, freshwater mullet and sea mullet have all been found to adhere to strict migratory life-cycle strategies which require unimpeded access between inland freshwater habitats and the estuary. The decline of many of these species throughout their natural range can be largely attributed to the proliferation of movement barriers, and further compounded by the resultant diminished available habitat and poor water quality.

Through modern insight and a greater understanding of various life-cycle requirements, fish passage restoration works have seen the remediation of many barriers, with fishways or fish ladders identified as the key method to offset the impacts of barriers on ecological integrity. Various fishway designs are becoming increasingly factored in to waterway developments, with many identified historical barriers having retrofitted fishways constructed, often to the immediate benefit of the aquatic assemblages of the waterways they impede.

## Executive Summary

This report forms part of the overarching project 'Re-Connecting Aquatic Habitats Across the Greater Brisbane Urban Area', which was commissioned by the Federal Government under the 'Targeted Area Grants' program via Reef Catchments Limited (RCL) Natural Resource Management (NRM) group. The objective of the Greater Brisbane Fish Barrier Prioritisation (GBFBP) was to identify and assess the large number of anthropogenic barriers that prevent, delay or obstruct fish migration in the Greater Brisbane (GB) region. Fish barriers identified through this process were ranked in order of priority, accounting for the cumulative impacts barriers have on the environment, fisheries resources, economy and local community.

Fish migration is an essential life history adaptation utilised by many freshwater fish species in the GB region. Migration strategies between key habitats have evolved for a variety of reasons, including feeding and reproduction purposes, predator avoidance, nursery habitat utilisation and maintaining genetic diversity. Barriers preventing connectivity in the GB region impact fisheries' productivity and create environmental conditions favourable for invasive pest fish species. Significantly, almost half of the GB freshwater fish species undertake ontogenetic shifts in habitat use between estuarine and freshwater environments. Remediating barriers and maintaining connectivity between saltwater and freshwater is therefore critical to ensuring freshwater fish community condition and improving overall aquatic ecosystem health. This project aimed to address such issues, through identifying, ranking and remediating fish passage barriers throughout the GB region.

Explicitly, the overall aims of the project were to;

1. Systematically identify all potential barriers to fish passage in the GB region.
2. Undertake catchment-scale GIS analysis of biological, geographic and environmental characteristics associated with each potential barrier to produce a prioritised list for ground-truthing, i.e. visit the most important potential barriers first.
3. Perform fine-scale, site specific barrier assessment to validate, score and rank priority barriers based on passability, configuration, in-stream habitat availability and flow conditions.
4. Further refine and prioritise barriers based on economic, social and fisheries productivity criteria.
5. Produce a list of the top 50 priority ranked fish barriers in the GB region showing remediation options and indicative costs
6. Facilitate the adoption of fish barrier remediation by Local Governments and Natural Resource Managers
  - a. Construction of appropriately designed fishways at several high priority sites in partnership with respective Councils
  - b. Evaluation monitoring to assess remediation success
  - c. Field day – South-East Queensland fish passage field trip

The fish barrier prioritisation process involved identifying potential barriers using high resolution aerial imagery across the GB region. In total, 13,629 potential barriers were identified in the project area (3,582 km<sup>2</sup>) at a rate of 3.8 potential barriers per km<sup>2</sup>. Geographic Information System (GIS) software was then applied to rapidly assess and prioritise the high number of potential barriers using a collective optimisation rank-and-score approach. Importantly, key socio-economic flow-on benefits of improving aquatic ecosystem connectivity were considered i.e. the degree to which barrier remediation may increase fisheries productivity and/or conserve vulnerable fish species, e.g. jungle perch.



In many parts of the world, remediation of man-made barriers with appropriately designed fishways is one of the most successful management tools utilised by government agencies and natural resource management groups to help restore populations of fish impacted by barriers. Objectively choosing the 'right' barriers to remediate in order to obtain the greatest benefits requires a holistic prioritisation process. In this prioritisation assessment, the process guided the authors to groundtruthing the top priority potential barriers in order of importance. The resultant GBFBP report and associated priority ranked fish barrier list will assist natural resource managers and decision makers in determining where best to allocate funding opportunities to ensure the greatest environmental and socio-economic outcomes for the GB region.

The GBFBP was also used to guide the remediation of several priority fish barrier sites as part of the overarching project. Fish barrier sites were chosen based on priority ranking and available resources. Five fishways were designed, constructed and monitored by Catchment Solutions (CS) between 2016 and 2017, and delivery of individual fishway projects were undertaken in partnership with each respective Local Government (LG) (Table A). Rock-ramp fishways (RRF) were chosen as the preferred design option at all sites due to their ability to pass weaker swimming juvenile and small bodied species, their natural appearance, pool roughness (creating micro-eddies) and minimal cost outlay when compared to highly engineered, smooth-sided fishways such as vertical-slot fishways. Rock-ramp fishways were constructed on the:

- Bremer River (Berrys Weir - ranked 7<sup>th</sup>),
- South Pine River (Leitchs Crossing - ranked 11<sup>th</sup>),
- Hilliards Creek (Hilliards Weir - ranked equal 36<sup>th</sup>) and
- Slacks Creek (Paradise Road overpass - ranked equal 36<sup>th</sup>). Due to site constraints, a horizontal culvert baffle fishway was constructed in addition to the rock-ramp fishway at Paradise Road on Slacks Creek.

Fishway monitoring was undertaken to evaluate the success of each fishway at facilitating fish passage for the entire fish community. Results showed that all expected juvenile diadromous and small bodied species were able to ascend the fishways. The 2.4 m high, 90 m long, 33 ridge Bremer River partial width rock-ramp fishway recorded the highest numbers and diversity of fish, with over 16,000 individuals recorded in just over four days of monitoring at a catch rate of 4,075 fish per day. The median size of all fish captured was just 34 mm, highlighting the success of the fishway at passing weaker swimming juveniles and small bodied species. Notable captures included the migration of key juvenile diadromous species, such as sea mullet, freshwater mullet and bullrout, which represented catch rates of 316, 266, and 27 individuals per day respectively. The success of each fishway project can be directly attributed to the strong working partnerships developed between CS and each LG to remediate priority fish barriers and deliver significant aquatic connectivity remediation outcomes for the benefit of the environment and local communities.

**Table A. Showing information relating to the remediation of fish barriers as part of this project.**

Waterway	Barrier	Local Gov.	Rank	Barrier Height	Fishway Type/s
Bremer River	Berrys Weir	ICC	7th	2.4 m	33 ridge partial width rock-ramp
South Pine River	Leitchs Crossing	MBRC	11th	0.45 m	7 ridge full width rock-ramp
Hilliards Creek	Relict Weir (Sturgeon St.)	RCC	36th	0.7 m	9 ridge full width rock-ramp
Slacks Creek (x2)	Paradise Road Culverts	LCC	36th	1.8 m	16 ridge full width rock-ramp and 10 ridge horizontal concrete baffle f/way

## Introduction

The majority of freshwater fish species of the Greater Brisbane (GB) region migrate at some stage during their life history. Some of these migrations are short and confined wholly within freshwater habitats, while some migrations occur across vast distances and between varying habitats, including between estuarine and freshwater environments. Of the 50 native freshwater fish species found to occur in the GB region (See 'Greater Brisbane Freshwater Fish Communities Overview', pp. 31- 35), almost half (44%) require unimpeded access between freshwater and estuarine habitats to complete their life cycle and/or maintain species distribution.

Migration strategies between key habitats have evolved for a variety of reasons, including;

- Feeding and reproduction purposes,
- Avoidance of predators,
- Utilisation of nursery areas,
- Dispersal – to avoid being trapped in drying waterholes,
- Maintain genetic diversity, and
- Removing parasites.

The following Greater Brisbane Fish Barrier Prioritisation (GBFBP) has been developed to assess and rank fish passage barriers having the greatest impacts on freshwater fish communities of the GB region. Low passability barriers located within close proximity to the tidal interface on high ordered waterways have the greatest impact on freshwater fish community condition in coastal Queensland catchments. This is largely due to the ability of these barriers to prevent or impede juvenile diadromous species from undertaking longitudinal life-cycle dependant migrations upstream into important nursery habitats. A single low passability barrier located on the tidal interface has the potential to exclude almost half (44%) of the 50 native freshwater fish species recorded in GB freshwater environments (Rolls et al. 2013; 2014).

As fish barriers located close to the estuarine interface have significant impacts on aquatic ecosystem health and fish population distribution, the GBFBP scoring system has been designed to ensure these types of barriers are prioritised. Barriers located in headwater reaches remain important to remediate, particularly if vulnerable fish species occur in these locations and this is accounted for in the prioritisation process. These headwater barriers have the greatest impact on movements of potamodromous fish species, which are able to complete their life-cycle wholly within freshwater, thus reducing the overall impact of such barriers.

The consequences of tidal interface barriers on diadromous fish species are well understood, but their impacts on displaced potamodromous species can also be significant. Tidal interface barriers eliminate the salinity gradient which occurs in natural waterways, and therefore removes important physiological stressors (increasing salinity) that may prevent potamodromous species from moving into downstream reaches of waterways. Depending on the size of the waterway, the removal of the salinity gradient potentially results in tens of thousands of individuals being displaced over barriers during flow events into saltwater environments, where they potentially perish without access to freshwater.

Many Greater Brisbane diadromous fish species sit on top of the aquatic food web as top order predators within freshwater environments and therefore play important roles in maintaining the balance of aquatic biodiversity. In coastal QLD waterways with unimpeded connectivity, two diadromous species; long-finned eel (*Anguilla reinhardtii*) and jungle perch (*Kuhlia rupestris*) generally inhabit the entire river continuum, including lower, middle and headwater river reaches. Their position at the top of the trophic food web,

combined with their wide-ranging distribution within waterways along the QLD coastline suggests they would also play important roles influencing predator-prey relationships. Therefore, it's plausible to suggest that well connected waterways with healthy native freshwater fish communities comprising top order diadromous predator species would be more resilient to threats posed by pest fish and that barriers preventing key migratory species potentially contribute towards conditions that favour the establishment and proliferation of pest fish populations (Stoffels 2013).

The impact of coastal barriers on freshwater fish communities is confounded in situations where barriers create lentic environments i.e. weir pools. Coastal freshwater fish species prefer lotic environments exhibiting a diversity of in-stream habitats typified by pools, runs and riffles. Weir pools created by barriers mediate and diminish lotic habitats, creating impounded lentic environments favoured by invasive pest fish species such as tilapia (*Oreochromis mossambicus*) and carp (*Cyprinus carpio*) (Koehn and Kennard 2013). Therefore, fish barriers not only directly impact upstream freshwater fish community composition through exclusion of diadromous fish species, but also impact indirectly through the establishment of inferior habitat conditions (e.g. lentic habitats) that favour pest fish species and reduce native potamodromous fish abundance and diversity.

In addition to their ecosystem service value, diadromous species are also recognised as contributing significant societal values, comprising high value commercial, recreational and Indigenous fisheries. Historically, sea mullet (*Mugil cephalus*) (Figure 1) and long-finned eels (*Anguilla reinhardtii*) have been established as important food sources for indigenous people (Barnett and Ceccarelli, 2007). Today, both sea mullet and long-finned eels form important commercial fisheries, with sea mullet forming the most important commercial inshore net fishery in South-East Queensland (Williams, 2002). Diadromous species are also important recreationally, in particular Australian bass (*Percales novemaculeata*), jungle perch (Figure 1), mangrove jack (*Lutjanus argentimaculatus*), tarpon (*Megalops cyprinoides*) sea mullet and freshwater mullet (*Trachystoma petardi*) (Figure 1). Healthy, sustainable populations of these species have the ability to attract fisherman to local coastal communities, providing valuable social and economic benefits. Ensuring connectivity between habitats is therefore a critical component in managing aquatic environments, and crucial to securing the long-term sustainability of important fisheries that underpin the social fabric of many coastal Queensland communities.



Figure 1. Diadromous fish species impacted by barriers: sea mullet (*M. cephalus*) (top left), freshwater mullet (*T. petardi*) (bottom left) and jungle perch (*K. rupestris*) (right). Sea and freshwater mullet (sampled from the Bremer River) form important recreational, commercial and indigenous fisheries, while jungle perch are a highly prized recreational fishing species.

## Objectives

Due to the large project area and high number of barriers encountered within the project boundaries, it was important to accurately prioritise potential barriers so funding resources could be utilised in the most appropriate manner. A desktop GIS analysis approach was established as the most efficient way to conduct a comprehensive fish barrier analysis. The initial utilisation of GIS enabled the prioritisation process to assess thousands of potential barriers and systematically rank them in order of importance.

The initial GIS process allowed managers undertaking the prioritisation to set an achievable target of potential barriers to be ground-truthed in stage two of the process, i.e. top 500 potential barriers. The availability of resources typically determines the size of the inventory, if resources are unlimited then all potential barriers could be ground-truthed. Due to the large geographic area, high numbers of barriers and restricted funding streams for fisheries based riverine restoration projects, this level of ground-truthing is rarely achievable. Therefore, the ability of GIS to rapidly assess large amounts of geo-spatial vector data for each potential barrier and produce a list of the top ranked barriers after stage one is critical to the prioritisation's success, as it allows resources to be directed towards evaluating the most important potential barriers first.

The GBFBP involves a three-stage rapid assessment process that ensures available financial resources are efficiently utilised to identify and prioritise barriers having the greatest impact on fish migration. The rapid assessment process comprehensively evaluates fishery, economic, social and eco-system benefits of barrier remediation. This is achieved by applying a multi-faceted approach, initially utilising the efficiency and unique decision-making capabilities of an automated GIS process. The advantage of GIS during the first stage of the prioritisation revolves around its capacity to assess wide-ranging temporal and spatial habitat characteristics associated with thousands of potential barriers over a large geographic area. Following the validation of high ranking potential barriers, further assessment and prioritisation of actual barriers is undertaken using scoring and ranking methods in stage two and three. Important geospatial characteristics fundamental to a potential barrier scoring high in the first stage (GIS) of the prioritisation include:

- Potential barriers located on large, low gradient, high ordered waterways,
- Potential barriers located in close proximity to the sea,
- 1<sup>st</sup> barrier located longitudinally along the waterway,
- Large amount of connected habitat upstream of the potential barrier,
- Low proportion of intensive land use within the sub-catchment.

Explicitly, the overall aims of the project were to;

1. Systematically identify all potential barriers to fish passage in the GB region.
2. Undertake catchment-scale GIS analysis of biological, geographic and environmental characteristics associated with each potential barrier to produce a prioritised list for ground-truthing, i.e. visit the most important potential barriers first.
3. Perform fine-scale site specific barrier assessment to validate, score and rank priority barriers based on passability, configuration, in-stream habitat availability and flow conditions.
4. Further refine and prioritise barriers based on economic, social and fisheries productivity criteria.
5. Produce a list of the top 50 priority ranked fish barriers in the GB region showing remediation options and indicative estimated costs
6. Facilitate the adoption of fish barrier remediation by Local Governments and Natural Resource Managers

- a. Construction of appropriately designed fishways at several high priority sites in partnership with respective Councils
- b. Evaluation monitoring to assess remediation success
- c. Field day – South-East Queensland fish passage field trip

## Barriers to Fish Migration

Barriers to fish passage include any anthropogenic or environmental obstruction that prevents, delays or impedes the free movement of fish. For the purpose of this prioritisation process, environmental barriers such as weed chokes, waterfalls, low dissolved oxygen slugs and water temperature barriers have not been included, even though anthropogenic factors may have contributed to their occurrence. Anthropogenic barriers identified in this prioritisation process include structures such as box culverts, pipes, road crossings, weirs, dams, stream flow gauging structures, floodgates, barrages and bunds (or ponded pastures) (Figure 2). These structures have been built for a variety of purposes such as irrigation supply, flow gauging and regulation, stock watering, urban and industrial supply, flood mitigation, prevention of tidal incursion, road crossings or simply for urban beautification and recreation facilities (Marsden et al. 2003).



**Figure 2. Barrier structures: a) Road causeway & concrete apron (Elimbah Ck), b) tidal floodgates (Behm Ck), c) V-notch stream gauging weir (Warrill Ck), d) Sheet pile and gabion basket weir (Warrill Ck), e) pipe culvert causeway (Albert River) and f) Tidal barrage (Caboolture River).**

Barriers impact fish communities in many ways, with some barriers such as significant head loss dams forming complete blockages, whereas other structures such as culverts present partial or temporary barriers, restricting passage during particular flow events (e.g. small, medium or high flows). Even small vertical drops downstream of road crossings and culvert aprons ( $\geq 200$  mm) are sufficient to form barriers for many fish, particularly juvenile and small bodied species. Often single structures possess multiple barrier types. It is common for culvert crossings to possess physical water surface drop barriers due to stream bed erosion on the downstream extent of culvert aprons, while hydraulic velocity barriers are often created when stream flows pass through their smooth internal surfaces. Perched culverts or those without low flow channels installed below bed level can result in insufficient water depth barriers (low flows are spread out across multiple culvert barrels).

The swimming abilities of fish play a critical part in understanding the effects of barriers (Wang, 2008). Physiology, size, developmental stage and morphology all influence the ability of fish to ascend past barriers (Koehn and Crook 2013). Generally, juvenile (Rodgers et al. 2014) and small bodied fish (Domenici, 2001) possess weaker swimming abilities than larger adult fish. This is because larger fish have more muscle to

propel them through the water (Tillinger and Stein, 1996). Significantly, the vast majority of migrating native fish in coastal Queensland catchments comprise juvenile diadromous and small bodied species (McCann and Power 2017; Power 2016; Moore 2016; Moore and Marsden 2008). The small size of migrating fish is further highlighted by fishway evaluation monitoring studies undertaken as part of this project. The median size of native fish recorded successfully ascending Slacks Creek, Bremer and South Pine River rock-ramp fishways during low flow conditions equated to just 25 mm (n= 6,548 fish at a catch rate of 1,385 per day), 34 mm (n= 16,401 fish at a catch rate of 4,075.5 fish per day) and 30 mm (n= 5,070 at a catch rate of 1,406.7 fish per day) respectively (See 'Case Studies' in the Appendices of report for detailed breakdown of fishway monitoring results).

The potential impact of small head loss barriers on coastal fish communities is further exacerbated when these results are categorised by migration class, i.e. proportion of individual diadromous fish undertaking life-cycle dependant migrations. Of the 6,548 individual fish recorded successfully ascending the Slacks Creek rock-ramp fishway, 97% of individuals were diadromous fish undertaking life-cycle dependant migrations, while correspondingly, 96% of the individuals monitored ascending the Bremer River rock-ramp were diadromous fishes.

Swimming abilities of different fish species play a critical role in their ability to ascend fishways. Mallen-Cooper (1989) tested the swimming abilities of two iconic and recreationally important diadromous fish species, barramundi (*Lates calcarifer*) and Australian bass through a vertical-slot fishway, and found that juvenile barramundi (43 mm) were only able to negotiate velocities of around 0.66 m/sec, while Australian bass (40 mm) are able to negotiate slightly faster velocities of around 1.04 m/sec. Rodgers et al. (2014) tested the prolonged swimming performance of empire gudgeon (*H. compressa*), a small-bodied diadromous species (32 - 77 mm) and found that they were only able to sustain swimming speeds of  $\leq 0.10$  m/sec.

It must be noted that the swimming performance data mentioned above was collected under laboratory conditions. Fishway monitoring data collected in the field suggests that the majority of fish species are able to negotiate greater velocities than has been recorded under controlled conditions. For example, sampling of a rock-ramp fishway on the Bremer River in South-East Queensland as part of this project showed that juvenile empire gudgeon (*H. compressa*) (34 mm), striped gudgeon (*Gobiomorphus australis*) (44 mm) and sea mullet (*M. cephalus*) (55 mm) were recorded negotiating ridge slot velocities of 2.1 m/sec and pool velocities of 0.4 m/sec. Similarly, a fishway monitoring study undertaken by Power et al., (2016) on a rock-ramp fishway on the Condamine River in South-West Queensland recorded small gudgeon (*Hypseleotris* sp.), rainbowfish (*Melanotaenia* sp.), bony bream (*Nematalosa erebi*) and spangled perch (*Leiopotherapon unicolor*) negotiating ridge slot velocities of 2.0 m/sec and pool velocities up to 1.5 m/sec. The ability of fish to negotiate faster velocities through rock-ramp fishways compared to smooth sided vertical-slot fishways can be explained by the high geometrical diversity of rock-ramps as a result of their irregular forms (rocks) used in their construction, which create interstitial spaces and micro eddies (Wang 2008).

The stream velocities Australian fish species are able to negotiate are lower in comparison with their northern-hemisphere counterparts such as adult Atlantic salmon, which are able to negotiate velocities of at least 2.4 m/sec (Mallen-Cooper, 1989). Unfortunately, many early Australian fishway designs were based on northern hemisphere designs and the swimming abilities of salmonids (Mallen-Cooper, 1996), which have the added capability of 'leaping' past small barriers (Thorncraft and Harris, 2000).

These fishways have drops between pools, velocities and turbulence far in excess of what coastal Queensland fish communities are capable of ascending on a regular basis and have themselves become fish

barriers e.g. Luscombe Weir (Albert River), Mt Crosby Weir (Brisbane River) and Berrys Weir (Bremer River) (Figure 3). McCann and Moore (2017) measured the velocity of a pool and weir fishway constructed in the 1960's on the Bremer River (Berrys Weir) and recorded a velocity of 3.3 m/sec at the fishway exit (Figure 3. white circle), which is substantially faster than what native fish are able to negotiate, and potentially even faster than the velocities adult Atlantic salmon can withstand.



Figure 3. Showing northern hemisphere 'salmonid' style fishway designs exhibiting hydraulic conditions in excess of the swimming abilities of most native freshwater fish species. a) Denil fishway located on Luscombe Weir (Albert River, QLD) showing steep gradient and excessive velocities (note baffles removed). b) Showing the bottom section of the Mt Crosby weir pool and weir fishway (Brisbane River). Note the inadequate fishway entrance with excessive turbulence associated with the large water surface drop and shallow entrance pool and c) Pool and weir fishway located on the Bremer River (Berrys Weir). The exit of this style of fishway has a 600 mm high drop and velocities during base flows of 3.3 m/sec.

### Ecophysiology & Barrier Type

Ecophysiology determines the ability of fish to successfully ascend past various types of barriers. What comprises a barrier for one species or age class may not necessarily apply to others. For instance, a 200 mm vertical drop on the downstream side of a dam, but not flowing culvert apron, will more than likely prevent passage of juvenile sea mullet. However, the unique climbing abilities of juvenile long-finned eels enables them to ascend up and over  $\geq 200$  mm damp vertical surfaces (Jellman, 1977). Other barrier characteristics such as velocity and turbulence affect fish swimming ability in different ways. To counteract the natural variability in flow conditions, fish exhibit different swimming modes. Generally, these modes fall within three widely recognised categories (adapted from Domenici and Blake 1997):

- Sustained – swimming more than >200 minutes
- Prolonged – 15 seconds -200 minutes, and
- Burst - <15 seconds

Burst speed is used by fish to negotiate fast velocities (Webb 1984; Ch. 6) and one that fish species would most commonly use when attempting to migrate over small head loss barriers (<120 mm) and through box culverts during medium and high flow conditions. Burst speed is an energetically expensive and aerobic form of swimming, and as such cannot be sustained for long periods. This is why less obvious barriers such as culverts and pipes become problematic for juvenile and small bodied fish when stream flow conditions through smooth-surfaced structures exceed 0.1 m/sec (Rodgers et al. 2014). Generally, barriers can be defined into 6 types:

- Water surface drop – Vertical drop off road crossings, weirs and culvert aprons that are greater than 200 mm in waterways close to the freshwater/estuarine interface and 300 mm in headwater/high gradient streams (Figure 4).
- Turbulence – The motion of water having local velocities and pressures that fluctuate randomly. This is often observed downstream of culvert aprons, weirs, pipes and poorly designed fishways

(Figure 3), without proper provision of pool depth. Turbulence is most often encountered during medium and high flow conditions.

- Velocity – When the speed of water is in excess of the swimming capabilities of fish attempting to pass the obstruction. High velocities often occur through pipes and culverts and downstream of weirs and regulators during medium and high flow events (Figure 4).
- Water Depth – Shallow water depth of 5 mm - 100 mm depending on species, size and morphology. Larger bodied demersal species are affected greater. Shallow water is often experienced during low flow conditions across road crossings, through culverts and across culvert aprons (Figure 4).
- Behavioural – Darkness, shadows and reduced light conditions inside culverts/pipes, and under low bridges (Figure 4).
- Chemical – Low dissolved oxygen slugs, often experienced during the first flow events in the lead up to summer (Oct. - Dec.) in waterways and wetlands, particularly in catchments with high proportions of intensive land use. Other chemical impacts include acid sulphate soil discharge and high temperatures associated with channel modification i.e. channel straightening and widening works combined with the removal of riparian vegetation.



Figure 4. Left to right: Culvert causeway displaying a water surface drop, shallow water surface (through culvert and on apron) and velocity barrier (during medium- high flow conditions) exacerbated due to a culvert diameter <60% of stream width; Pipe causeway displaying velocity and behavioural barriers (dark shadows/insufficient lighting in pipe) and water surface drop barrier.



## Barrier Passability

Barrier passability, sometimes referred to as barrier transparency, describes the extent to which in-stream barriers impede fish passage (Kemp and O’Hanley, 2010), and forms an integral part of the current GBFBP scoring criteria when assessing barriers in the field. Barrier passability can be extremely complicated, with many dynamic temporal and spatial eco-physical characteristics influencing the extent and magnitude of barriers at different scales (Bourne et al. 2011). The four underlying characteristics of barrier passability include:

- Fish physiology – biology, species, size, swimming ability
- Waterway – stream size, stream slope, stream reach, temperature, dissolved oxygen
- Rainfall – precipitation duration and volume
- Barrier type – culverts, pipes, weirs, dams, road crossings, bund walls, sand dams, etc.

For the purpose of the current GBFBP, barrier passability was simplified into three categories.<sup>1</sup>

### Low Passability (Figure 5)

- Rarely drowns out (e.g. average 1 or less flow event/yr),
- Dams and weirs >2 m head loss,
- Causeway >2 m high with pipe/culvert configuration <10 %, bankfull stream width & head loss >1m.

### Medium Passability (Figure 5)

- Occasionally drowns out (e.g. average 2-5 times/yr)
- Velocities through culverts/pipes exceed swimming ability of fish during medium and high flow events
- Shallow water surface barrier during low flows (culverts)
- Weir, causeway, bund wall, sand dam: 0.3 - 2 m head loss
- Culverts/pipes that span <60 % of bankfull stream width.

### High Passability (Figure 5)

- Frequently drowns out (most flow events)
- Culverts/pipes that span >60 % of bankfull stream width
- Causeway <0.3 m
- Barrier only for small proportion of flow events, i.e. high flows (full-width culverts) and very low flows (shallow water surface)

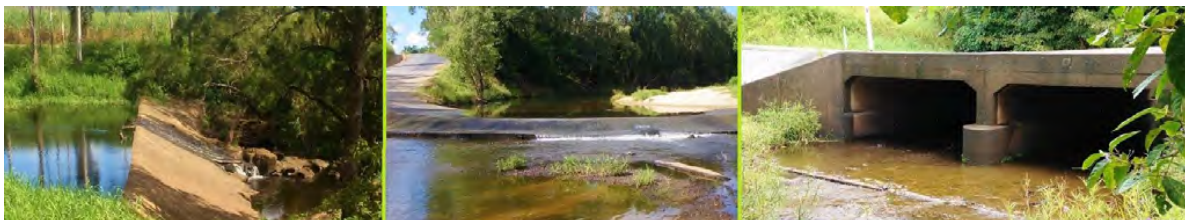


Figure 5. Left to right: Low passability barrier, Medium passability barrier, High passability barrier.

<sup>1</sup> It is imperative that experienced fisheries biologists have an understanding of local waterways, barrier types, fish biology and species expected to occur at a site scale within the study region when assessing these criteria.

## Fish Passage Remediation Options

Complete barrier removal is generally the first remediation option. However, this is generally only a viable option if the structure is redundant. In most circumstances, the barrier structure (legal or illegal) exists for a reason (e.g. irrigation, water supply, transportation, etc.), and retrofitting a fishway is the only fish passage solution. There have been numerous fishway designs implemented in Australian waters over the years. Many of the original designs were based on northern hemisphere fish species such as Atlantic salmon, which are able to negotiate faster velocities and higher water turbulence than Australian native fish species, with the added advantage of a leaping ability. Atlantic salmon migrate as larger bodied adults, whereas many coastal QLD species migrate as juveniles which makes ascending these early fishway designs virtually impossible. Unfortunately, this was not immediately recognised, resulting in a high proportion of fishways constructed between the 1960-80's that were inadequate for Australian fish passage rehabilitation; a legacy which today is still blocking fish migration in a number of systems on a daily basis.

Fortunately, fishways constructed today generally take into consideration the swimming abilities of Australian native fish, with a growing recognition that all fish species and size classes are catered for. Fishways can be broken into two main groups; highly engineered, expensive fishways for high barriers >4 m such as dams and high weirs located on large rivers e.g. Murray River. These fishways generally entail fish lifts (elevator- style fish ladders) and large vertical-slot type fishways. Often costing millions of dollars, these fishways are usually out of the feasible realm of local government and community groups rehabilitation efforts. The second and most common fishway types are generally designed for barriers <4 m in height. These include nature like rock-ramps, bypass channels, concrete cone ramps, vertical-slot, denil and vertical and horizontal culvert baffle fishways.

### Rock-ramp fishways

Rock-ramp fishways, or nature-like fishways, are the most common fishway type constructed in Queensland. Over the past decade, rock-ramps have been refined to suit the swimming abilities of native fish species and represent a low cost option to more formal fishway designs (Gebler 1988; Pasche et al 1995; Steiner 1995; Baumgartner and Lay 2002). They have proven to be effective fishways for the whole fish community, particularly weaker swimming juvenile diadromous and small bodied species (Table 1). The success of rock-ramps in passing small bodied species is largely due to the surface roughness, micro-eddies and flow complexity imparted by natural rock materials used to construct rock-ramps when compared to more structural, smooth-sided fishways (e.g vertical-slot, denil, etc.).

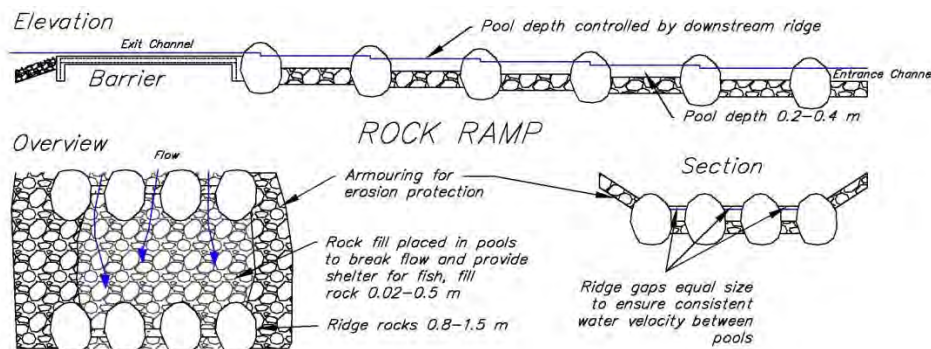


Figure 6. Nature like rock-ramp fishways: a) Full width (Gooseponds Ck, Mackay), b) Dog-leg (Lake Callemondah, Gladstone) c) Partial width (Tedlands Ck, Koumala)

In Australia, rock-ramps (Figure 6) are generally constructed on barriers up to 2.5 m in height, but could essentially be constructed on barriers much higher. Rock-ramp fishways are designed to mimic natural rock riffle stream conditions, with the added advantage of deep resting pools between ridges. Rock-ramps are generally constructed on a gradient of approximately <math><1:20</math> and designed to create a series of deep pools interspersed by rock ridges, with the falls between ridges usually set at between 60-90 mm, with smaller falls in lower river reaches and higher falls in headwater streams. Native fish utilise the deep pools between rock ridges to rest and regain their energy, before using their burst speed to negotiate the small falls between rocks to enter the next upstream pool. The natural materials (rock) used to construct rock-ramps provide interstitial spaces and surface irregularities which assist weaker swimming fish as they migrate upstream. Rock-ramps are aesthetically pleasing and their natural appearance means they blend into the surrounds of the natural stream environment. See table 1 below for a full list of advantages and disadvantages of rock-ramp fishways.

**Table 1. Showing advantages, disadvantages and conceptual design of nature-like rock-ramp fishways**

TYPE	DESCRIPTION	ADVANTAGES	DISADVANTAGES
<b>Nature like Rock-ramp:</b>	Minimum Requirements: 1:20 - 1:30 grade	Effective for the whole fish community, particularly juvenile diadromous and small bodied species	Entrance location needs to be considered or fish won't use the fishway. It needs to be suitable for different discharge flows / conditions.
Full width	Ridge rock height 1.2 m -1.8m	Cost Effective	Require rock supply relatively close to site – cost consideration
Partial width.	Wall rock height 1.5 m -2.0 m wall	Natural appearance	Construction needs to be well supervised by fish biologist experienced in fishway construction
Dog-leg	300 mm pool depth at cease to flow	High flows and low flows	May requires maintenance—removal of debris (e.g. sticks) from the ridge slots
Bypass Channel	High flow & low flow slots Well graded rock mix to secure ridge and wall rocks Fibre-reinforced concrete to seal pools (small waterways/partial width designs)	Reasonably high degree of redundancy (i.e. if partly blocked by debris, etc., will still function in rest of fishway) Good for downstream passage	
		Simple construction	



### Cone Fishways

In an operational sense cone fishways are similar to rock-ramps, comprising of a series of pools interspersed at regular intervals by ridges within a channel on a minimum gradient of approximately 1:20. The main differences between the two fishway types, centers around the prefabrication of materials and unnatural appearance for cone fishways in comparison to the natural appearance of materials used for rock-ramps. Cone fishways have the added advantage of requiring less space than for rock-ramps and can be extremely useful when rock is in short supply e.g. Southern Gulf in northern Australia, as the side walls and cone ridge components can be prefabricated off site (Table 2). The highly engineered structural nature of cone fishways (Figure 7) ensures flow characteristics are also more consistent between ridges when compared to rock-ramps. Conversely, the smooth sided internal walls of cone fishways lack the surface roughness and micro-eddies associated with rock-ramps, which assist the migration of weaker swimming species.

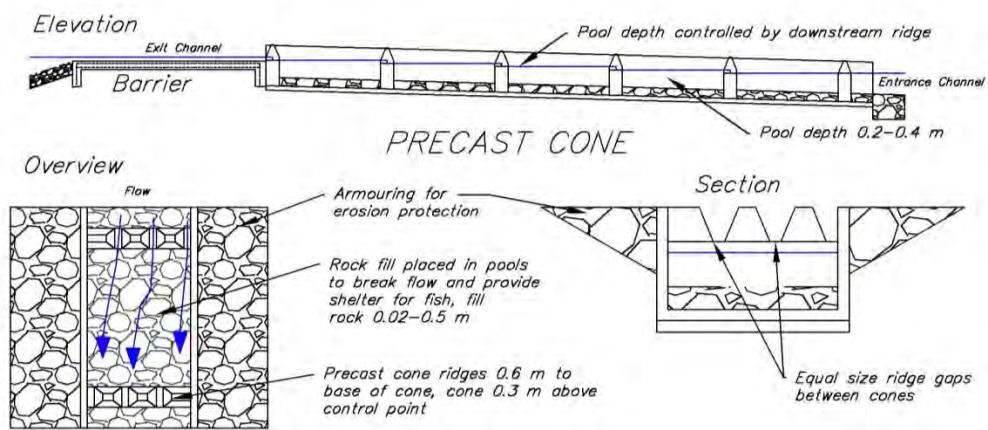
The ridge components of cone fishways can be prefabricated using concrete or HDPE plastic. The pre-cast concrete or plastic cone ridges are inserted into a concrete channel creating a pool upstream and a small drop downstream. Generally, this type of fishway is more expensive to construct due to the cost of the pre-cast components and increased installation time when compared to rock-ramps.



Figure 7. Concrete cone fishway on Boundary Creek, Koumala; showing fish successful at ascending, top to bottom; juvenile barramundi and empire gudgeon, giant herring & over one thousand juvenile banded scats & threadfin - silver biddy.

**Table 2. Showing advantages, disadvantages and conceptual design cone fishways**

TYPE	DESCRIPTION	ADVANTAGES	DISADVANTAGES
<b>Concrete cone</b>	Consists of a channel with steps to form a hydraulic gradient of approximately 1:20	Geometric design means that this can accurately control flow rate down fishway.	Entrance location needs to be considered or fish won't use the fishway. It needs to be suitable for different discharge flows / conditions.
Full width			
Partial width.	Steps have fabricated cones installed as ridges to create a pool upstream and a small drop downstream. Gaps between the ridge rocks afford passage for smaller fish at low flows.	Has been used elsewhere throughout Queensland with excellent results.	Precast components can be costly, however may be comparable to rock that has to be imported from long distance.
Dog-leg		Has a reasonably high degree of redundancy (i.e. if partly blocked by debris, etc., will still function in rest of fishway).	
-	300 mm pool depth at cease to flow High flow & low flow slots	All reinforced concrete components make this design less susceptible to damage during high flows	Highly engineered appearance may not fit with the natural character of the waterway



### Vertical-slot Fishways

Vertical-slot fishways have been widely used throughout Australia and proven successful at passing a variety of species. Vertical-slot fishways operate by creating a series of pools separated by baffles that have a narrow vertical-slot on one side (Table 3). The baffles are installed into a concrete channel constructed on a minimum gradient of 1:20. As water travels through the fishway eddies are created by the baffles which form resting areas for the fish. As with the other fishway styles, the number of baffles needed is determined by the height of the barrier and the desired pool size. Typical pool size of vertical-slot fishways is 1-2 m by the width of the concrete channel (1-2 m). As the vertical-slot extends the height of the baffle pool depth varies with flow rate, i.e. the more water travelling through the fishway, the greater the depth of the pools. As with the other fishways the entrance of a vertical-slot fishway is usually set below the level of the downstream control point to account for potential stream bed erosion.

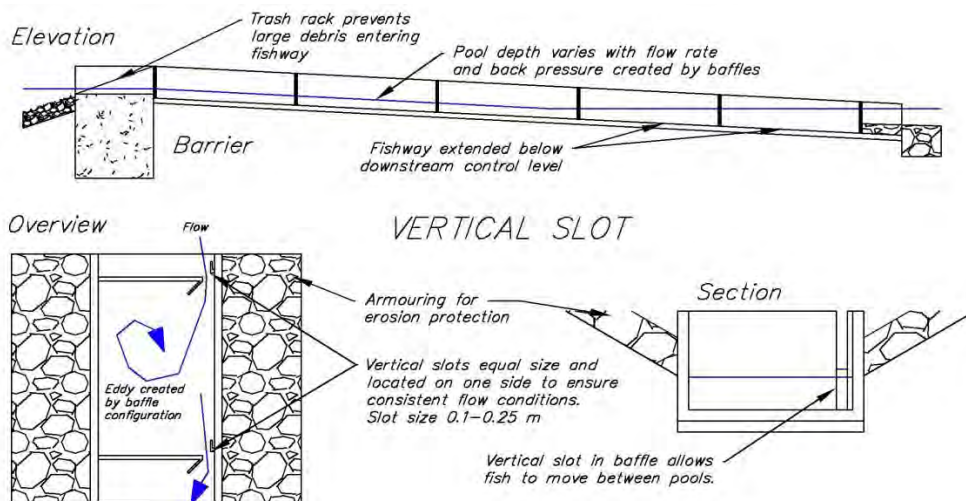


**Figure 8. Showing a vertical-slot fishway on Waterpark Creek, Byfield. Note: The partial width nature and small entrance of vertical-slot fishways means it may be difficult for fish to locate the entrance.**

Vertical-slot fishways (Figure 8) are limited to partial width in all but very small streams. As with all partial width designs, entrance positioning and provisions for low flow conditions is important and 'dog-legs' are often incorporated into vertical-slot designs to ensure fish are able to locate the entrance. Vertical-slot fishways are more prone to clogging by debris. As this style relies on a single slot in each baffle, a build-up of debris can reduce the efficacy of the fishway and in some instances prevent fish from moving past the obstruction. Vertical-slot fishways are generally fitted with trash racks to prevent large debris from entering the fishway but are ineffective at preventing finer sediments e.g. sand.

**Table 3. Showing advantages, disadvantages & design characteristics of Vertical-slot fishways.**

TYPE	DESCRIPTION	ADVANTAGES	DISADVANTAGES
<b>Vertical-slot</b>	Consists of a series of constructed cells with internal baffles that create pools and small head drops between each.	<p>Good for large fish species.</p> <p>Good precedence examples of effective fishways.</p> <p>Can provide downstream passage.</p> <p>Can control hydraulic conditions reasonably well.</p>	<p>Small entrance aperture and limited attraction flows can make it difficult for fish to locate the entrance</p> <p>Single slot. Debris lodged in slot has the ability to impede fishway operation</p> <p>Sedimentation / debris issues following a flood or high flow event.</p> <p>Expensive to fabricate baffles and cast concrete</p> <p>Smooth sided walls and baffles may preclude smaller bodied fish species</p>





## Culvert Baffles

### *Vertical Baffles*

Vertical culvert baffles are an option for improving fish passage through box culverts. The relatively low cost and ability to easily retrofit to existing structures has seen the installation of baffles at many culvert structures throughout Queensland (Table 4). However, unlike horizontal baffles, they do not provide resting pools, which may potentially impact small-bodied, weaker swimming species, particularly over the long distances often experienced through culverts located under road transportation networks. Other potential deficiencies of vertical baffles include their ability to ameliorate shallow water surface barriers through culverts under low flow conditions, which can impact upstream passage of larger bodied species.

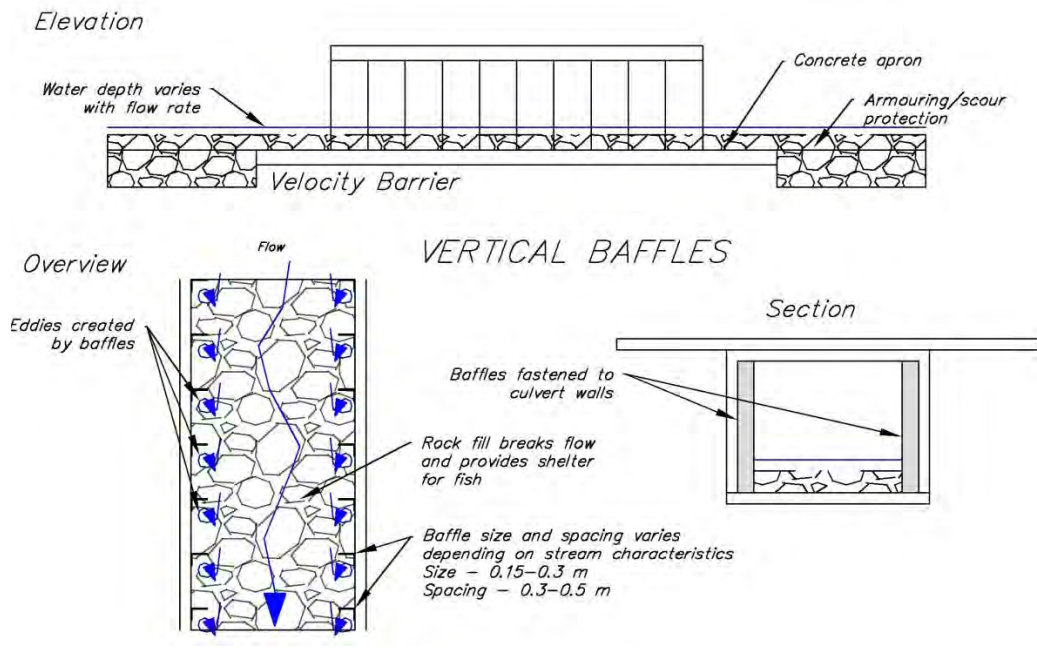
Baffle fishways consist of 'L' shaped panels that are fixed to the outer walls of the bank side culvert barrels (Figure 9). The baffles are designed to break flow and reduce water velocity through the barrels. As water passes the baffles, eddies are created on the downstream side and form small resting areas for the fish. The size of the baffles and spacing within the culvert vary depending on the position of the culverts within the system, stream characteristics and culvert configuration. Generally, baffles between 150-300 mm that extend from the base to the culvert roof and are spaced at 300-500 mm for the length of the barrel. Construction material also varies from low cost galvanised 'C' section purlins to fabricated stainless steel baffles that provide extra corrosion resistance. Regular maintenance checks are required for vertical baffles, particularly after flooding, as the baffles occasionally become dislodged, and new baffles retrofitted. Vertical baffles have also been known to corrode, requiring replacement. Advantages and disadvantages of vertical baffles including a conceptual diagram of a single barrel box culvert fitted with baffles is provided in Table 4.



**Figure 9. a) Vertical culvert baffles with scour protection (Aims Rd, Townsville) b) Close up view of vertical baffles retrofitted to a culvert c) Vertical baffles in conjunction with a rock-ramp fishway (Sheepstation Creek, Ayr).**

**Table 4. Showing advantages, disadvantages and conceptual design of vertical culvert baffles**

TYPE	DESCRIPTION	ADVANTAGES	DISADVANTAGES
<b>Vertical baffles – culvert barrel/apron</b>	<p>Metal baffles fixed to the outer barrel walls and apron wing walls.</p> <p>Baffle protrusion into culvert barrel – 0.15-0.30 m</p> <p>Spacing between baffles – 0.3-0.6 m</p>	<p>Reduced laminar flow in high flow conditions.</p> <p>Minimises’ sediment build-up.</p> <p>Good for downstream passage.</p>	<p>No resting pools.</p> <p>Reduced water conveyance capacity of culverts.</p> <p>Prone to damage from large debris.</p> <p>Corrosion may impact baffles over time</p> <p>No remediation of water surface barrier during low flow conditions</p>



### Horizontal Culvert Baffles

Horizontal culvert baffles (Figure 10) are a recent, innovative option for improving fish passage through box culverts. Monitoring has demonstrated that they are highly effective at passing fish, particularly juvenile species, with the fishway in Figure 10 recording a catch rate of 1,371 individual fish per day. Unlike vertical baffles, they provide resting pools for migrating fish (Table 5). Resting pools are important for native fish attempting to ascend past velocity barriers, particularly when these barriers occur for extended distances, such as through culverts located under road transportation networks. Resting areas are even more imperative for small-bodied species which don't possess the swimming abilities of larger bodied species (Rodgers et al., 2014; Domenici, 2001). This is because larger fish have more muscle to propel them through the water (Tillinger and Stein, 1996). Small bodied fish comprise the most common component of fish communities migrating upstream through coastal waterways in Queensland.

Conversely, larger bodied species are more susceptible to shallow water depth barriers often experienced through culverts during low flow conditions, whereby flows can be spread out across multiple culvert barrels. Retrofitting vertical baffles under these conditions would only minimally increase the depth of water through the culverts, and remediation of the water surface barrier would not be achieved. However, the ability of horizontal baffles to incorporate low and high flow slots in-conjunction with resting pools increases the depth of water through culverts, remediating the water surface drop barrier and providing increased fish passage for larger bodied species. The capital cost associated with horizontal baffles may be higher than for vertical baffles, however, this may be offset by the greater design life, improved fish passage and reduced likelihood of damage from flood flows i.e. vertical baffles are prone to dislodging after floods and are often impacted by corrosion over time, requiring replacement.

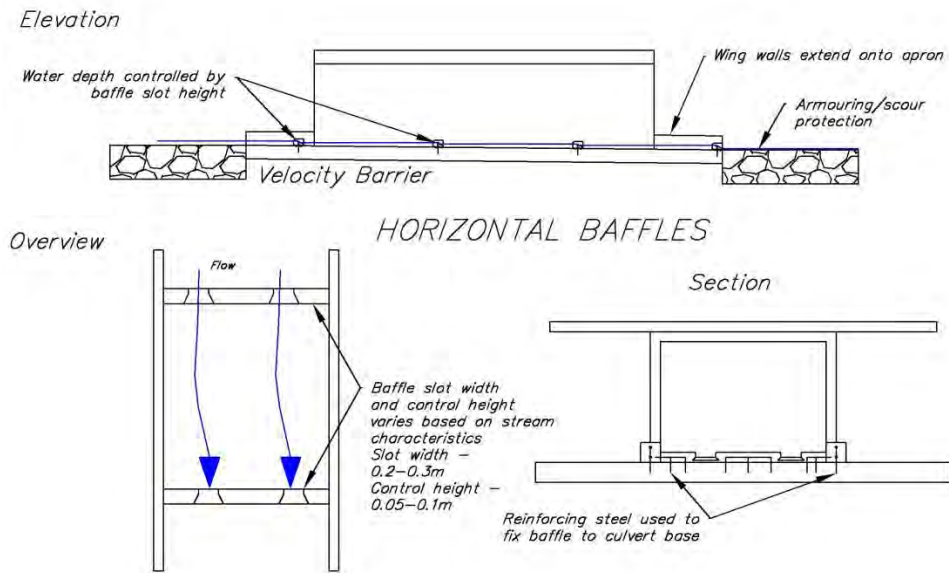


**Figure 10.** a) Retrofitting horizontal culvert baffles in operation under Paradise Road on Slacks Creek. Note: Nib wall to divert all base attraction flows down the fishway. Prior to remediating this barrier, the flow was spread out across four 2.4 m wide culvert barrels creating a shallow water surface barrier under base flow conditions. b) Horizontal baffles with the boxing recently removed c) Predominantly showing Juvenile sea mullet and striped gudgeon captured successfully ascending through the horizontal culvert baffle fishway at catch rates of 256 and 793 individuals per day respectively.

In addition to the baffles, rock fill is commonly added to the floor of the culvert barrels. This creates a more natural bed and helps improve fish passage by further breaking up flow and providing shelter for fish as they move through the culverts. Culvert structures that consist of multiple barrels and are located on larger streams often incorporate a low flow channel. Low flow channels are formed by setting one or more barrel(s) at a lower level. All water is directed through this channel during periods of low flow and helps maintain an adequate depth for fish to swim past the structure.

**Table 5. Showing advantages, disadvantages and conceptual design of horizontal culvert baffles**

TYPE	DESCRIPTION	ADVANTAGES	DISADVANTAGES
<b>Horizontal baffles – culvert barrel/apron</b>	Formed/precast concrete baffle fixed to culvert floor.	Resting pools provided.	Reduced functionality during high flow conditions.
	Baffle protrusion into culvert barrel – 0.2 - 0.5 m  Spacing between baffles – 2.0 - 5.0 m	Minimal reduction in water conveyance capacity of culverts.  All reinforced concrete components make this design less susceptible to damage during high flow.  Remediates water surface barriers during low flows	Potential for sediment build-up – maintenance consideration.



## Greater Brisbane Regional Overview

The South-East Queensland region covers an area of approximately 23,000 km<sup>2</sup> incorporating a total of 14 catchments (SEQ Catchments 2018). The region extends from the Noosa, Maroochy and Mooloolah catchments in the north, out to the upper Brisbane and Lockyer catchments in the west, down through to the regions southern boundaries of the Logan-Albert and Gold Coast catchments in the south. For most of the region, headwaters of major rivers originate in the coastal hinterlands, including the Sunshine and Gold Coast hinterlands as well as the Great Dividing Range, and drain east towards the greater Moreton Bay region.

Figure 11 below displays a regional map of South-East Queensland, with the LGA boundaries outlined in bold (MBRC, BCC, ICC, LCC, RCC and GCCC). This map also shows the defined project boundaries, as coloured waterways identified on the map. The spatial stream layer depicted on the map is the Queensland Waterways for Waterway Barrier Works layer.

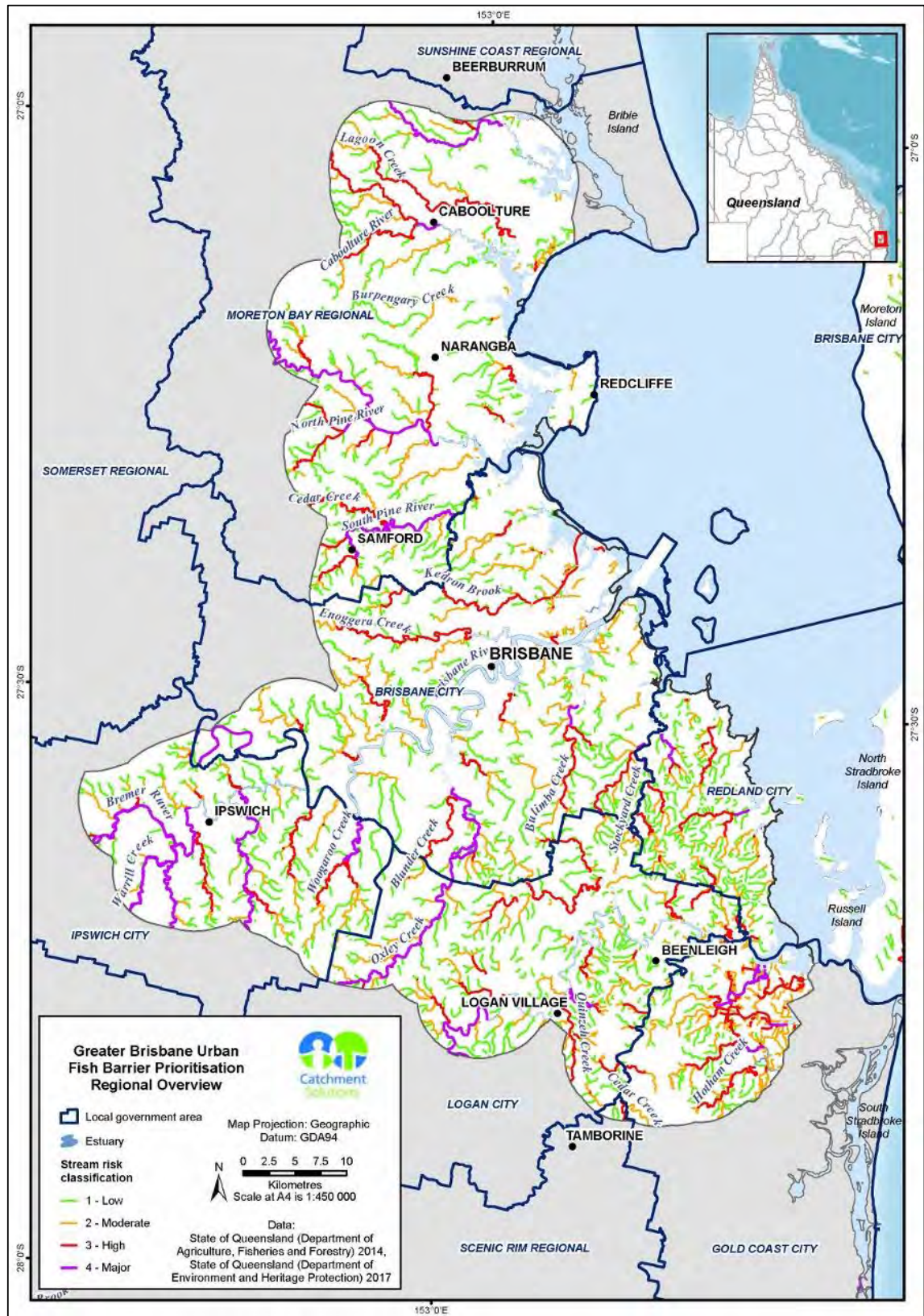


Figure 11. South-East Queensland regional overview, with local government area boundaries shown

South-East Queensland is one of the most highly urbanised and populated regions in Australia, accommodating 3.3 million of Queensland's 4.7 million residents (Queensland Government Statisticians Office 2018). Despite the many areas of exceptional biodiversity in the upper reaches and associated national parks of the regions catchments, the majority of the lower reaches have been cleared or heavily modified due to urbanisation and the pressures associated with population growth (Queensland Government 2017). Generally, current land usage in South-East Queensland is dominated by residential, industrial and commercial development, whilst in the regional districts agricultural land and transport corridors further fragment native wildlife habitats. Infestations of the region by introduced species is also recognised to place further pressure on native flora and fauna, with many localised population decreases of native species observed.

Due to the intensive land use, the overall water quality of most of the regions systems has declined. Clearing of native forests and riparian vegetation has contributed to the decline in water quality and has also had detrimental impacts on instream habitat such as woody debris and vegetation overhangs. De-stabilisation of the river banks and surrounding plains has resulted in extensive erosion and regular sediment run-off following heavy precipitation throughout the region, with high nutrient and pollutant loading causing eutrophication throughout many systems. Run-off has also been dramatically intensified through the extent of impenetrable surfaces such as rooves and roads, deflecting water as opposed to absorbing it. Figure 12 maps the intensity of land usage in South-East Queensland, in which catchment condition was used as important criteria throughout the barrier scoring process. The image clearly illustrates the intensity of land usage in South-East Queensland, with over half of the total project area ranking as the most intensive land use.

Water storage infrastructure throughout the region for domestic, industrial and agricultural supply usage is extensive, with Seqwater owning and operating 26 major dams and 51 weirs which supply up to 90% of the regions drinking water (Seqwater 2016). Whilst undoubtedly serving a purpose for societal welfare, these large, significant head loss barriers cause many issues for the aquatic communities of the catchments they impede (Poff et al. 1997). Not only do they form impassable barriers and fracture longitudinal connectivity, but barriers also impact the natural flow regimes of waterways (Kennard and Balcombe 2014). Changes such as reduced stream flow frequency, diminished flow magnitudes and changes in seasonal flow timings all have confounding impacts on native aquatic assemblages (Lytle and Poff 2004).

Seqwater's total list of 77 owned and operated water storage facilities are only a snapshot of the total number of fish passage barriers in South-East Queensland, with many other gauging stations, weirs, causeways and culvert crossings known to significantly obstruct fish passage within the region (Kennard and Balcombe 2014).

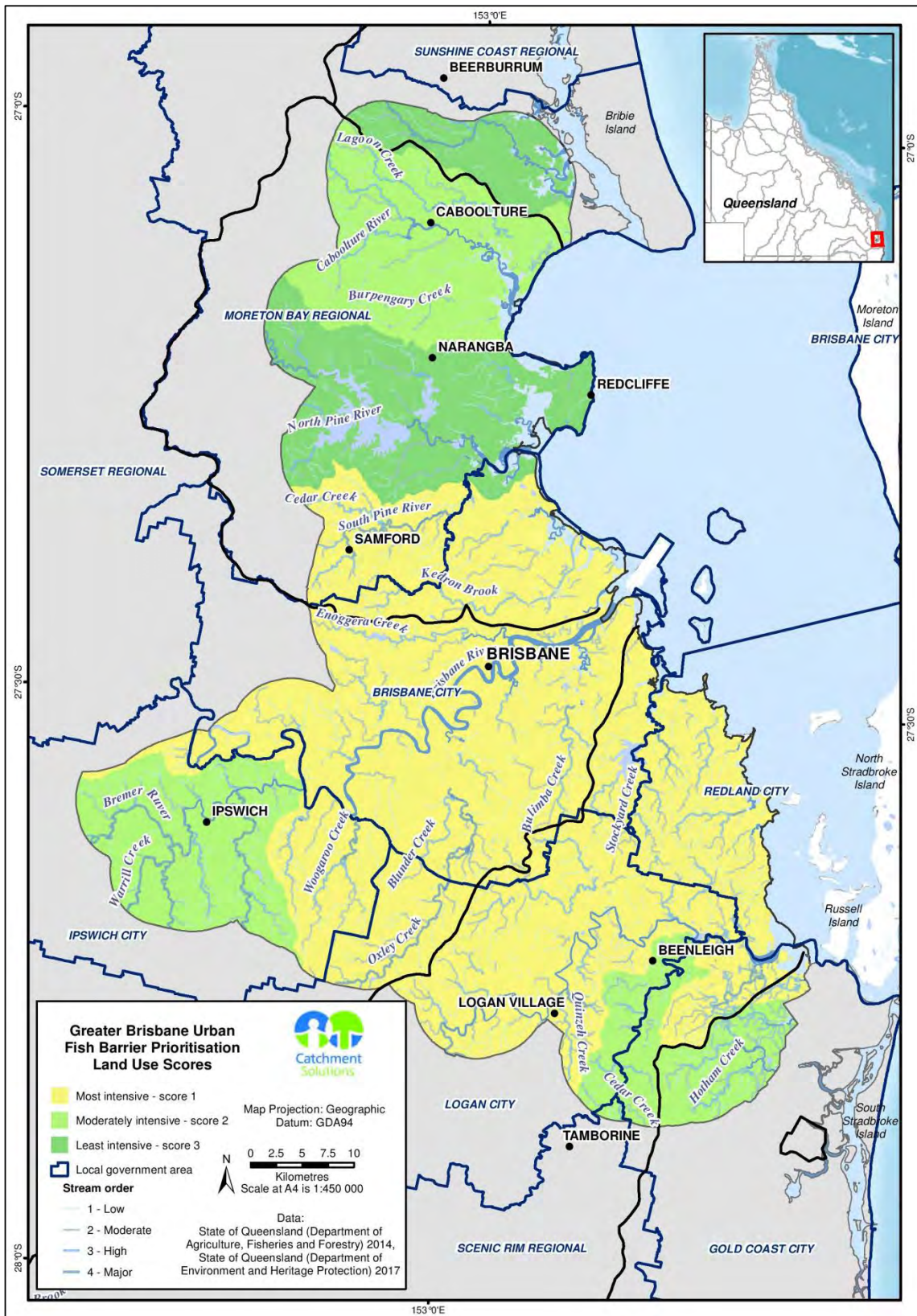


Figure 12. Map of South-East Queensland with regional land usage highlighted



## Fish Migration

For the current study, the definition of diadromy has included fish species that migrate between estuarine and freshwater environments, and that this migration is important to maintain population distribution and aquatic ecosystem health. Fish which undertake migrations between these two contrasting environments have to overcome significant physiological challenges, including overcoming the osmotic barrier between saltwater and freshwater. Migration can also impact the fitness and survival of fish, requiring energy allocation for swimming and increasing the risk of mortality during migration (Miles, 2007). Fish which migrate between saltwater and freshwater environments do so at great cost, and therefore these migrations must be important.

For the purpose of this report, the term 'diadromous' is used for fish in which migration between estuarine and freshwater environments is obligate in order to (adapted from Mallen- Cooper 1999):

- Contribute to its abundance,
- Maintain its natural distribution,
- Maintain aquatic ecosystem health, and
- For those species of fisheries importance; maintain sustainable fisheries

## Greater Brisbane Freshwater Fish Communities Overview

In undertaking a fish passage barrier prioritisation in the Greater Brisbane region, it was fundamental to the overall project outcomes to have a sound understanding of the fish species present within the region. Having this understanding is critical when evaluating potential fish passage barriers, as knowledge on the biological processes and different life-cycle approaches which drive the species that inhabit these waterways, can potentially intensify the impacts of certain barrier types. This is particularly significant when it comes to understanding the diadromous fish present within waterways, as these migratory species require unimpeded passage from saltwater riverine reaches of the system right up to the upstream freshwater stream reaches (Harris 1988; Rolls et al. 2014).

When undertaking a review of the freshwater fish species present within the project area, it was decided that an approach would be taken to make the species list as current as possible. To do this, Queensland Government Ecosystem Health Monitoring Program (EHMP) data was obtained, which includes all fish survey data from 110 surveyed waterways within the 14 catchments of South-East Queensland. These fish community surveys have been undertaken annually since 2003 and are used as grading criteria in the annual 'Ecosystem Health Report Cards' produced by the program. To this dataset, all of Catchment Solutions own recorded fish surveys over the last five years within freshwaters of South-East Queensland were added, which provided several additional species to the overall species list.

The finalised list comprised of a total of 59 fish species being identified within freshwaters of South-East Queensland since 2003. This can be broken down into five species categories based on migration classifications (Table 6);

- 4 Marine vagrant species - Species which occasionally, through natural dispersal, will enter freshwater habitats for periods of time, however biologically are not obliged to do so.
- 18 Diadromous species - True migratory species which at some point, and often at regular intervals, require unimpeded access between fresh and saltwater to complete their life-cycle and maintain species distribution.
- 27 Potamodromous species - Species which migrate wholly within freshwater habitats, and can complete their entire life-cycle within these environments.
- 1 Insufficient knowledge species - The snub-nosed garfish (*A. sclerolepis*) was unable to be categorised into a distinguished migration classification, as this species is known to complete its entire life-cycle in freshwater habitats, and in riverine saltwater habitats.
- 9 Pest fish species - These species are all potamodromous fish and exist wholly within freshwater environments, however were kept separate from native fish in their own classification.

This dataset displays the diverse range of species that exist within South-East Queensland streams, with almost half (44%) of the native fish population found within freshwaters of the region requiring unimpeded access to estuarine habitats to maintain sustainable populations. The number and type of barriers within aquatic ecosystems and the distance to the first low-passability barrier in each high ordered stream can often be the limiting factor in determining the health of a particular waterway's fish assemblage. High ordered and connected lowland aquatic ecosystems in the region generally contain diverse and abundant fish communities, with a high proportion of diadromous species. The cumulative impact of barriers along high ordered streams has the ability to reduce upstream fish diversity, particularly diadromous species, and in some instances may cause localised extinctions upstream of the barrier (Bunn and Arthington, 2002). Therefore, the amount of connected in-stream habitat longitudinally from the tidal interface to the first barrier is extremely important. In summary, the greater the amount of connected in-stream habitat, the greater the diversity and abundance of diadromous species, ultimately resulting in better condition and more resilient fish communities.

The number of in-stream barriers located within streams significantly reduce the ability of diadromous species to reach upstream nursery areas. On occasions, diadromous species may be able to use intermittent high flow conditions that 'drown out' barriers, enabling them to ascend upstream, but only if they are present at the barrier when the barrier experiences these conditions, and possess swimming abilities sufficient to ascend past the barrier. The likelihood of the 'right' conditions prevailing at the next upstream barrier, and the next after that, is reduced each time. Additionally, juvenile life stages of some diadromous fish species appear to favour the tail end of high flow conditions through to low flow conditions when undertaking their upstream migration. This may be due to juvenile species not possessing the same swimming abilities as adults, as they don't have the same muscle mass to propel them through the water. Therefore, 'drown out' conditions may predominantly favour stronger swimming returning adults. The cumulative impact of barriers and amount of connected in-stream habitat between barriers, are extremely important spatial attributes influencing the composition of Greater Brisbane fish communities.

It was determined that 66% of the native species found in the regions streams are deemed to be of socio-economic importance through conservation status, commercial, recreational, indigenous and aquarium trade fisheries. Species including Australian bass (*P. novemaculeata*), jungle perch (*K. rupestris*), sea mullet (*M. cephalus*) and freshwater mullet (*T. petardi*) are all key diadromous species with significant economic

value. Further to this, four species present in the region are listed as threatened species on the EPBC Act (1999), including the endangered Mary River cod (*M. mariensis*) and Oxleyan pygmy perch (*N. oxleyana*), the vulnerable Queensland lungfish (*N. forsteri*) and Honey blue-eye (*P. mellis*). In-addition to these four species, the status of freshwater mullet (*T. petardi*) and the potential listing of this species under the EPBC Act (1999) is currently under review. This is due to significant declines in population abundance across its known range.

Note, this species list is an overall species list for South-East Queensland and all of these species were considered in the barrier prioritisation process. Some of these species have been surveyed within the defined project catchments, however not within defined project boundaries. For example, headwaters of the Brisbane River catchment were outside the defined project boundary, whereas the lower reaches of the Brisbane River catchment were within the project boundary, however, all fish species recorded in the Brisbane River catchment have been included. Additionally, some of these species in the table have been surveyed within South-East Queensland, however not within the defined project catchments, for example, catchments between and including Burpengary and Doonan Creeks were outside project boundary, yet fish species recorded in these catchments have been included. These species have been identified throughout the species list table.



Figure 13. Showing fish species occurring in SEQ waterways. See Table 6 for common and species name.

**Table 6. Freshwater fish species recorded in SEQ waterways, including migration class, common name, species name and importance to commercial, recreational, indigenous or aquarium trade fisheries. Note: Letter e.g. (A) after common name refers to species with a fish image in Figure 13 above.**

Migration Classification	Common name	Species	Importance
Marine Vagrant (n= 4)	Bull shark	<i>Carcharhinus leucas</i>	C, R
	Dusky flathead	<i>Platycephalus fuscus</i>	C, R, I
	Estuary glassfish (R)	<i>Ambassis marianus</i>	-
	Yellowfin bream (S)	<i>Acanthopagrus australis</i>	C, R, I
Diadromous (n= 18)	Australian bass (N)	<i>Percaletes novemaculeata</i>	R, I, A
	Bullrout (W)	<i>Notesthes robusta</i>	A
	Common silverbiddy	<i>Gerres subfasciatus</i>	-
	Cox's gudgeon	<i>Gobiomorphus coxii</i>	-
	Empire gudgeon (D)	<i>Hypseleotris compressa</i>	A
	Freshwater mullet (V)	<i>Trachystoma petardi</i>	R, I
	Fork- tailed catfish (M)	<i>Arius graeffei</i>	I, A
	Jungle perch (H)	<i>Kuhlia rupestris</i>	R, I, A
	Lamprey species <sup>2</sup>	<i>Mordacia sp.</i>	-
	Large- mouth goby	<i>Redigobius macrostoma</i>	-
	Long- finned eel (B)	<i>Anguilla reinhardtii</i>	C, R, I
	Pacific shortfin eel	<i>Anguilla australis</i>	C, R, I
	Roman- nosed goby	<i>Awaous acritosus</i>	-
	Sea mullet (Q)	<i>Mugil cephalus</i>	C, R, I
	Speckled goby (F)	<i>Redigobius bikolanus</i>	-
	Striped gudgeon (G)	<i>Gobiomorphus australis</i>	A
Tamar goby <sup>2</sup>	<i>Afurcagobius tamarensis</i>	-	
Tarpon (X)	<i>Megalops cyprinoides</i>	R, A	
Potamodromous (n= 27)	Agassizi's glassfish (A)	<i>Ambassis agassizii</i>	A
	Australian smelt (J)	<i>Retropinna semoni</i>	A
	Banded grunter (K)	<i>Amniataba percoides</i>	A
	Bony bream (O)	<i>Nematalosa erebi</i>	-
	Common galaxias <sup>2</sup>	<i>Galaxias maculatus</i>	-
	Crimson- spotted rainbowfish (L)	<i>Melanotaenia duboulayi</i>	A
	Dwarf flathead gudgeon (T,b)	<i>Philypnodon macrostomus</i>	-
	Eel- tailed catfish	<i>Tandanus tandanus</i>	R, I, A
	Firetail gudgeon (E)	<i>Hypseleotris galii</i>	A
	Flathead gudgeon (T,a)	<i>Philypnodon grandiceps</i>	I
	Unspecked hardyhead	<i>Craterocephalus fulvus (I)</i>	A
	Honey blue- eye <sup>2</sup>	<i>Pseudomugil mellis</i>	S, A
Marjorie's hardyhead	<i>Craterocephalus marjoriae</i>	-	

	Mary River cod (P)	<i>Maccullochella mariensis</i>	S
	Mouth almighty	<i>Glossamia aprion</i>	A
	Ornate rainbowfish	<i>Rhadinocestrus ornatus</i>	A
	Oxleyan pygmy perch <sup>2</sup>	<i>Nannoperca oxleyana</i>	S, A
	Pacific blue- eye (C)	<i>Pseudomugil signifer</i>	A
	Purple- spotted gudgeon	<i>Mogurnda adspersa</i>	A
	Queensland lungfish	<i>Neoceratodus forsteri</i>	S
	Rendahl's catfish <sup>1</sup>	<i>Porochilus rendahli</i>	I
	Sleepy cod <sup>1</sup>	<i>Oxyeleotris lineolatus</i>	A
	Spangled perch (U)	<i>Leiopotherapon unicolor</i>	I
	Swamp eel	<i>Ophisternon sp.</i>	-
	Unspecked hardyhead	<i>Craterocephalus fulvus</i>	A
	Western carp gudgeon	<i>Hypseleotris klunzingeri</i>	-
	Yellowbelly	<i>Macquaria ambigua</i>	R, I, A
Insufficient Knowledge (n= 1)	Snub- nosed garfish	<i>Arrhamphus sclerolepis</i>	R, I
Pest Fish (n= 9)	Carp	<i>Cyprinus carpio</i>	-
	Goldfish	<i>Carassius auratus</i>	-
	Guppy	<i>Poecilia reticulata</i>	-
	Mosquitofish	<i>Gambusia holbrooki</i>	-
	Oriental weatherloach	<i>Misgurnus anguillicaudatus</i>	-
	Pearl cichlid	<i>Geophagus brasiliensis</i>	-
	Platy	<i>Xiphophorus maculatus</i>	-
	Swordtail	<i>Xiphophorus helleri</i>	-
	Tilapia	<i>Oreochromis mossambicus</i>	-

<sup>1</sup> Species surveyed within project catchments, however not within project boundaries

<sup>2</sup> Species surveyed within South-East Queensland, however not within project catchments

Importance: S= Status, C= Commercial, R= Recreational, I= Indigenous and A= Aquarium

## Methods

### Greater Brisbane Region

The GB region boundary used for the current study was determined by the Federal Government to align with the Targeted Area funding theme ‘Restoring and Maintaining Urban Waterways and Coastal Environments’. The project boundary encompasses all urban and peri-urban catchments surrounding the Brisbane region, from Pimpama River catchment in the south, northwards along the coast to and including Elimbah Creek catchment and west to Ipswich. Headwater reaches of the Brisbane, Caboolture, Bremer and Logan-Albert River systems were outside the project boundary, with the vast majority of the lower and middle reaches of these systems within the project boundary. Smaller coastal rivers and creeks wholly within the project boundary include; South Pine River, Kedron Brook, Oxley, Enoggera, Bulimba, Cedar, Norman, Moggill, Burpengary and King John Creeks to name a few.

### Fish Barrier Prioritisation Process

In order to best achieve the defined objectives of the project, a three-stage selection criteria process used and developed by Moore and Marsden (2008) and Moore (2015) was refined and enhanced with the latest innovative river network analysis technology by Hornby (2015). The three stages involved evaluating the biological, social and economic benefits of providing free fish passage past barriers for the environment and local community. Note: All barriers are defined as ‘potential’ barriers until they have been validated in the field as ‘actual’ barriers in stage two of the process.

#### Stage 1. Catchment Scale GIS Analysis – Spatial & Temporal Habitat Characteristics

Stage 1 of the barrier prioritisation involved identifying all ‘potential’ barriers within the study area using high resolution aerial imagery (Google Earth Pro (GEP) and Queensland Globe (QG)). Barrier information was also acquired from Local Government structure inventories and local community knowledge. A desktop GIS process was then undertaken to efficiently investigate spatial and temporal habitat characteristics associated with each potential barrier on a whole of catchment basis.

Stage 1 of the prioritisation process used a desktop computer running ArcMap 10.2 GIS software. Potential barrier waypoints (kml files) identified using high resolution aerial imagery were imported into ArcMap. Waypoints were assigned to obvious barriers such as weirs and likely potential barriers such as culverts and road crossings. Potential barriers were also assigned to bridges that extend over waterways. Although bridges usually extend over waterways and have no impact on fish passage, on occasions, actual barriers exist underneath the bridge. Waypoints were also assigned along waterways that indicated a barrier may be in place but a structure was not clearly visible. Key barrier traits to look out for in these scenarios include dead trees, which have potentially drowned and died due to the ponding of water caused by a downstream barrier, and ‘lake like’ large bodies of water that are out of character with the rest of the waterway. On occasions when river reaches comprised dense canopy cover, potential barrier waypoints were assigned when well used vehicle tracks appeared to enter one side of a waterway and exit on the other side on a similar trajectory. This is often a telltale sign indicating a causeway of some description.

Each potential barrier waypoint created in GEP and imported into ArcMap was assigned a unique geo-referenced identification number that remained with the potential barrier throughout the three-stage process. Each identification number contains its own geo-spatial dataset that stores location and geometry data for each individual potential barrier. Identified potential barriers were then assessed against five geo-spatial questions relating to the barrier's position in the catchment, type and amount of available upstream habitat, stream hierarchy (Strahler stream order and gradient), proportion of intensive land use (e.g. sugar cane) and number of barriers downstream.

The 100K Queensland east-coast ordered drainage stream network was utilised as the 'base' waterway data layer while identifying potential barriers. All potential barriers on this stream network were assigned a unique waypoint. Fisheries QLD spatial waterway data layer 'Queensland waterways for waterway barrier works' was utilised as the 'base' waterway data layer during GIS analysis in stage 1. This data layer is derived from the 100K Queensland east-coast ordered drainage stream network, however it includes additional data such as stream slope, flow regime, number of fish present, and fish swimming ability. This additional data was used to produce a stream network layer that categorises waterways based on the level of risk any waterway barrier would pose to fisheries resources on each particular stream. Four categories were created, with some categories having more than one stream order within each, i.e. the highest category 'Major' includes coastal stream orders 4-7, as barriers on these ordered waterways were equally determined to be a major risk to fisheries. At the other end of the scale the 'Low' risk category only included first ordered waterways that discharge directly into the estuary. First ordered waterways that did not intersect the estuary were deemed to have low fish habitat values and were removed from the classification.

The specialised river network GIS processing tool 'RivEX' (Hornby 2015) was used to analyse the 100K Queensland Waterway Barrier ordered drainage stream network, apply attributes, perform quality control, calculate distance between barriers and calculate the number of downstream barriers along the stream network. Each potential barrier was then assigned a score (i.e. 1 - 10) depending on how well the criteria was answered for each question. Scores for all questions were combined and totaled and the final rank after stage 1 determined, i.e. highest total score becoming the highest ranking barrier after stage 1. The following attributes were fundamental for a potential in-stream barrier to be given a high score in stage one of the selection criteria process:

- Located on a high ordered stream,
- Minimal to no barriers downstream,
- Good catchment condition, i.e. minimal intensive land use practices,
- Large area of *available* upstream habitat (distance to the next barrier or top of catchment),
- Barrier located in lower reaches, i.e. close to the sea

### Question 1. Stream Hierarchy

Waterways within the Greater Brisbane region were classified into five separate classes based on Fisheries QLD 'Waterway Barrier Works Stream Layer'. Scores were assigned to potential barriers based on the stream risk class they were situated on (Table 7). Potential barriers on major risk waterways score highest. Potential barriers located on first ordered waterways that did not discharge directly into estuarine environments were deemed low priority and were removed.

**Table 7: The five stream classes and associated scoring system for Question 1.**

Option	Stream classification (represented by colour code)	Stream characteristics	Score
a.	Purple (Major risk)	Strahler stream orders 4-7	10
b.	Red (High risk)	Strahler stream orders 2-3 with low gradient Strahler stream order 3 with medium gradient	5
c.	Amber (Moderate risk)	Strahler stream order 3 with high gradient Strahler stream order 2 low/medium gradient	3
d.	Green (low risk)	Strahler stream order 2 with high gradient Strahler stream order 1 within tidal waters	1
e.	<i>Removed</i>	Strahler stream order 1 outside tidal waters	0 -removed

### Question 2. Catchment Condition

Proportion (%) of intensive land use in each sub-catchment the potential barrier is located in. *Example* 'intensive' land use included; Irrigated cropping, manufacturing and industrial, intensive animal husbandry and residential. *Example* 'non-intensive' land use categories include; conservation and natural environment areas, plantation forestry, wetlands, estuaries and grazing native vegetation (Table 8).

**Table 8. Showing proportion (%) of intensive land use and associated scores for each category.**

Option	Proportion (%) Intensive land use within the sub-catchment	Score
a.	0%	5
b.	0.1 - 5%	4
c.	5.1 - 15%	3
d.	15.1 - 30%	2
e.	30.1 - 50%	1
f.	>50.1%	0



### Question 3. Number of Potential Barriers Downstream

Number of potential barriers downstream along the stream network until the declared downstream limit (DDL) e.g. estuary. *Example:* The first potential barrier upstream from the DDL receives a score of 7. The next barrier upstream receives a score of 5. The 25<sup>th</sup> barrier receives a score of 0 (Table 9)

**Table 9. Number of potential barriers downstream and associated score.**

Option	Number of barriers downstream	Score
a.	0	7
b.	1	5
c.	2 – 4	3
d.	5 – 9	2
e.	≥10	0

### Question 4. Distance to Next Barrier Upstream

The total upstream length to the next potential barrier or top of catchment (if there are no barriers) i.e. amount of available upstream habitat if the barrier is remediated. *Example:* 15 km's of stream length (habitat) from barrier 1 to barrier 2, then barrier 1 receives a scores of 4 (Table 10).

**Table 10. Stream length (km) to the next barrier or top of catchment categories and associated score.**

Option	Stream length (km) to the next barrier/or top of catchment	Score
a.	≥25	5
b.	10 - 24.99	4
c.	5 - 9.99	3
d.	2 - 4.99	2
e.	0.5 - 1.99	1
f.	0 - 0.499	0

### Question 5. Barrier's Geographical Position within the Sub-catchment

Question 5 determines the potential barrier's geographic position in the catchment and the amount of stream network inaccessible due to the barrier as a proportion of the total sub-catchment stream network (potential available habitat). This is derived by determining the stream length from the DDL to the potential barrier in question as a proportion (%) of the total stream length in the whole sub-catchment (Table 11). Barriers close to the tidal interface that prevent connectivity to the rest of the catchment score high.

**Table 11. Distance (km) of sub-catchment upstream of barrier as a proportion (%) of total sub-catchment**

Option	Distance (km) of sub-catchment upstream of barrier as a proportion (%) of total sub-catchment.	Score
a.	80 -100%	5
b.	50 -79.99%	4
c.	20 - 49.99%	3
d.	5 - 19.99%	2
e.	1 - 4.99%	1
f.	0 - 0.99%	0

## Stage 2 – Fine Scale, Site- Specific Ecological Assessment

Stage 2 of the prioritisation involves field validation of the top ranked potential barriers (~500) after stage 1 of the process. To achieve this a GPS (Garmin GPSmap76) tracking system was set up in conjunction with a laptop computer using OziExplorer mapping software. This was used to systematically locate the geographic position of each barrier in relation to uniquely identifiable locations (towns, roads, streams), allowing for efficient validation of potential barriers. Once a potential barrier was located and confirmed to be a barrier to fish passage, important information regarding the barrier's physical characteristics were collected. Important barrier parameters collated included: barrier type, number of culverts/pipes, head loss, length, height and width of structure and apron dimensions. Additional information such as photos and site constraint information was also acquired i.e. access for heavy machinery and structure owner.

Detailed ecological information on the stream (Table 13) and flow condition (Table 14), in-stream habitat condition for migratory fish upstream of the barrier (Table 15) and distance from the tidal interface (Table 16) were assessed. Barriers were assigned a score of 1- 5 for each of the ecological criteria. Scores were collated and added to stage 1 scores to obtain an overall score and rank after stage 2. The ecological questions and associated scoring system used to prioritise barriers in the second stage are as follows:

### Question 6. Barrier Type

Assessment criteria for question 6 (barrier type) is displayed below in Table 12. Note: Dam or weir refers to all barriers with a water surface drop. The height of the barrier refers to the head loss over the entire structure. Tidal barrage refers to a barrier located on the tidal interface and/or the tide reaches the barrier.

**Table 12. Barrier type assessment criteria and associated score.**

Option	Barrier Type	Score
a.	Tidal barrage or bund.	5
b.	Dam, weir or culvert apron drop >1.5 m high	4
c.	Dam, weir or culvert apron drop 0.8 m – 1.5 m high.	3
d.	Dam, weir or culvert apron drop <0.8 m high or culvert aperture <60% of bankfull stream width.	2
e.	Culvert aperture that spans >60% of bankfull stream width.	1
f.	No barrier – DO NOT SCORE REMAINING CRITERIA	

### Question 7. Stream/Riparian Condition

Riparian corridor condition within 250 m upstream and downstream of the barrier were assessed on-site. High quality, undisturbed sites are characterised by no apparent clearing of riparian vegetation or bed and bank degradation, invasive weeds, or visible pollution. Assessment criteria for this question is displayed below in Table 13.

**Table 13. Stream/riparian condition assessment criteria and associated score**

Option	Stream/Riparian Condition	Score
a.	High quality-undisturbed.	5
b.	Low disturbance (<25% of upstream habitats degraded as above).	4
c.	Moderate disturbance (25-50% of upstream habitats degraded as above).	3
d.	High disturbance (51-75% of upstream degraded).	2
e.	Very high disturbance (>75% of upstream degraded).	1

### Question 8. Stream Flow Classification

Stream flow characteristics used to assess and score question 8 are displayed below in Table 14.

**Table 14. Stream flow classification assessment criteria and associated score.**

Option	Water Supply/Quantity	Score
a.	High stream permanence with perennial base flow.	5
b.	High stream permanent via supplemented flow.	4
c.	Stream very occasionally dries up with refuge pools.	3
d.	Stream dries seasonally with refuge pools.	2
e.	Stream dries seasonally with no refuge pools.	1

### Question 9. In-stream Habitat Condition – For Migratory Species

In-stream habitat condition within 250 m upstream and downstream of the site were assessed on-site. Assessment criteria options and scores are displayed below in Table 15.

**Table 15. Upstream fish habitat condition for migratory species assessment criteria and associated score.**

Option	Upstream Fish Habitat Condition	Score
a.	Excellent. Diverse and abundant fish habitat (i.e. large woody debris, pool-run-riffle habitats, macrophytes, undercut banks, deep pool refuge)	5
b.	Good. Reasonable amount of suitable fish habitat.	4
c.	Moderate amount of suitable fish habitat.	3
d.	Poor. Little suitable fish habitat.	2
e.	Very poor. Little or no suitable fish habitat.	1

### Question 10. Proximity to Estuary

Proximity to estuary assessment criteria and scores (question 10) are displayed below in Table 16.

**Table 16. Proximity to estuary assessment criteria and associated score.**

Option	Proximity to Estuarine Habitats	Score
a.	In the estuary or on the tidal interface	5
b.	< 500 m from the tidal interface	4
c.	500 m – 2 kms from the tidal interface	3
d.	>2 kms - <5 kms from the tidal interface	2
e.	>5 kms from the tidal interface	1

### Stage 3 – Social, Economic and Fisheries Productivity Prioritisation

The third stage of the prioritisation process involved investigating the social, economic and fisheries productivity benefits of barrier remediation. Importantly, this stage considered the net benefits of improving connectivity versus the economic cost of remediation. This was achieved by assessing all ranked barriers after stage 2. Barriers that can be remediated with low cost fishways while increasing fisheries productivity or restoring vulnerable fish species score high, whereas barriers requiring technical and expensive fishways score lower. Similar to the previous stages of the prioritisation, each criterion contained a question with a range of answers. A separate score (1-5) was assigned for each answer. After all barriers had been analysed, scores were collated, with the highest scoring barrier becoming the top ranked barrier in the GB region. The end result of the third stage is a priority ranked list of the top 50 barriers to fish migration in the GB region. See Appendix 1 for priority ranked list (top 50), including remediation cost and fishway type required.

The following attributes were fundamental for in-stream barriers to score well in this stage three:

- Low cost to remediate,
- Suitable site access for heavy machinery e.g. excavators & concrete pumping trucks,
- Landholder permission to remediate barrier,
- Fishway to benefit listed or restricted species,
- Fishway to benefit commercial and/or recreational and/or indigenous fisheries productivity

The social, economic and fisheries productivity questions and associated scoring system used to prioritise barriers in the third stage included:

#### Question 11. – Estimated Cost

Estimated cost to undertake fishway design, organisation, construction, supervision and approvals can be seen below in Table 17. Fishway monitoring *not* included in cost estimates.

**Table 17. Estimated remediation cost assessment criteria and associated score.**

Option	Estimated Remediation Cost	Score
a.	Low cost: <\$40 k i.e. Removal, small rock-ramp (RR) or short culvert baffle (CB) fishway	5
b.	Low- moderate cost: \$40 - \$80 k i.e. Removal, medium RR, long CB or small cone (C) fishway	4
c.	Moderate cost: \$81 - \$120 k i.e. Removal, high RR/small-medium size C or VS fishway	3
d.	Moderate- high cost: \$121 - \$500 k i.e. Removal, by-pass RR, medium size C or VS fishway	2
e.	High cost: > \$500 k i.e. Removal, large size technical fishway i.e. fish lift or VS fishway	1

### Question 12. – Community & In-kind Support

What local community, financial or in-kind support is available? Community support may refer to local government/community, landcare or NRM group undertaking and/or prioritised to undertake rehabilitation projects along the waterway. Location of project must be in close proximity to barrier site or within sub-catchment. Access refers to the ability of heavy machinery to reach the site and/or landholder/asset owner permission to remediate barrier. Assessment criteria and scores for question 13 are displayed below in Table 18.

**Table 18. Community and in-kind support assessment criteria and associated score.**

Option	Community & In-kind Support	Score
a.	Easy access, good community, financial or in-kind support available	5
b.	Easy access, some community, financial or in-kind support available	3
c.	Easy access, no community, financial or in-kind support available	1
d.	No access or no community, financial or in-kind support available	0

### Question 13. – Conservation Significance

Will improved connectivity have a positive impact on the conservation of listed species? Assessment criteria and scores for question 13 are displayed below in Table 19.

**Table 19. Conservation significance assessment criteria and associated score.**

Option	Conservation Significance	Score
a.	Listed species present.	5
b.	Species that are rare or restricted within the region (but not rare or restricted outside the region, i.e. jungle perch).	3
c.	Only common or abundant species within the region present.	1

### Question 14. – Fisheries Productivity and Economic Benefits

Will the species benefited improve commercial harvest, recreational or indigenous fishing opportunities? Assessment criteria and scores for question 14 are shown below in Table 20.

**Table 20. Fisheries Productivity and economic benefit assessment criteria and associated score.**

Option	Fisheries Productivity & Economic Benefits	Score
a.	High benefit to commercial and/or recreational and/or indigenous fishery species.	5
b.	Moderate benefit to commercial and/or recreational and/or indigenous fishery species	3
c.	Small benefit to commercial and/or recreational and/or indigenous fishery species	1
d.	No benefit to commercial and/or recreational and/or indigenous fishery species	0

### Question 15. – Barrier Passability

Barrier passability (barrier transparency) – How often are fish potentially able to ascend past the barrier?

**Table 21. Barrier Passability assessment criteria and associated score.**

Option	Barrier Passability	Score
a.	<p><b>Low Passability</b></p> <ul style="list-style-type: none"> <li>- Rarely drowns out (e.g. average 1 or less flow event per/yr),</li> <li>- Dams and weirs &gt;1.5 m head loss,</li> <li>- Causeway &gt;2 m high with culvert aperture &lt;20% bank full stream width &amp; head loss &gt;1 m, i.e. raised culvert and/or raised culvert with apron drop</li> </ul>	5
b.	<p><b>Medium Passability</b></p> <ul style="list-style-type: none"> <li>- Occasionally drowns out (e.g. average 2-5 times per/yr),</li> <li>- Weir, causeway, raised culvert or culvert apron drop with head loss = 0.25 – 2 m,</li> <li>- Velocity through culverts may exceed swimming ability of fish during medium &amp; high flows,</li> <li>- Culverts/pipes that span &lt;40 % of bank full stream width</li> </ul>	3
c.	<p><b>High Passability</b></p> <ul style="list-style-type: none"> <li>- Frequently drowns out (most flow events),</li> <li>- Weir, causeway, raised culvert or culvert apron drop with head loss 0.12 - 0.25 m,</li> <li>- Culverts/pipes that span &gt;40 % of bank full stream width,</li> <li>- Culverts - Barrier only for small proportion of flows i.e. velocity barrier during high flows only or shallow water surface barrier only during low base flows</li> </ul>	1

## Results

### Stage 1 - Catchment Scale GIS Analysis

A total of 13,629 potential in-stream barriers were identified (Figure 16). Ipswich City Council (ICC) recorded the highest rate of potential barriers per km<sup>2</sup> at a rate of 4.84 potential barriers per km<sup>2</sup>, followed by Logan City Council (LCC), Redland City Council (RCC), Moreton Bay Regional Council (MBRC), Gold Coast Council (GCCC) and Brisbane City Council (BCC) with 4.38, 4.20, 4.18, 3.76 and 2.48 PB's per km<sup>2</sup> respectively. Following the identification of potential barriers, those that were not located on Fisheries QLD fish passage stream risk classification waterway layer were removed from further assessment, leaving 4,916 potential barriers that were assessed against stage 1 criteria. Three potential barriers received the equal highest stage 1 score of 29 out of a possible 32 points; Elimbah Creek Tidal Causeway, Mt Crosby Weir on the Brisbane River and Kerkin Road Tidal Floodgates on the Pimpama River. The Caboolture River Barrage and Behm Creek Tidal Floodgates each recorded the second highest score in stage 1 with 28 points.

### Stage 2 - Fine Scale Site Specific Ecological Assessment

A total of 522 potential barriers were assessed in the field during the second stage of the prioritisation. Actual barriers to fish passage accounted for 264 (51%) of the field validated potential barriers (Figure 17), the remaining 258 non-barriers predominantly consisted of bridges, logs (Figure 14), bed control structures and full-width culvert configurations constructed within the stream bed and/ or with a low flow channel and roughening. A further 217 potential barriers were removed via desktop that were identified on local government structure inventories and confirmed by respective council officers as total span bridges. The 264 fish barriers were assessed against site specific ecological criteria set out for stage 2, before advancing to stage 3 of the prioritisation process. The tidal causeway barrier on Elimbah Creek (barrier ID 3728) was the highest scoring barrier in stage 2, scoring 23 out of a maximum 25 points, to bring its combined stage 1 and 2 score to 52 points and an overall rank of 1. Four fish barriers recorded the equal second highest score (22) in stage 2; Luscombe Weir on the Albert River (ID 10352), Caboolture River Barrage (ID 13941), and Pimpama River (ID 13801) and Behm Creek (ID 13800) Tidal Floodgates.



Figure 14. Showing example potential barriers identified via aerial imagery & assessed in the field as not affecting fish passage

### Stage 3 – Social, Economic and Fisheries Productivity Prioritisation

The third and final stage involved assessing the top 264 ranked barriers after stage 2. The end product was a priority ranked list of the top 50 barriers to fish passage in the Greater Brisbane (GB) region. The top-ranking barrier in stage 3 was the DNRM gauging weir on Warrill Creek (ID 8231) with a score of 20 out of a possible 25 points. Scores for the three stages were totalled to acquire the final priority rank. The Caboolture River Barrage acquired the highest score after 3 stages (70 points) becoming the number one ranked priority fish barrier in the GB region, followed by Elimbah Creek Tidal Causeway with 69 points and an overall rank of two (Table 22). Luscombe Weir on the Albert River and Mt Crosby Weir (ID 12850) on the Brisbane River each scored 68 points and an overall rank of three, followed by the Pimpama River Tidal Floodgates and Stanmore Road Causeway on the Albert River equal with a score of 67 points and a rank of five. The location and priority rank of the top 50 barriers is shown in Figure 18. Details of the top 50 priority ranked barriers including remediation options and indicative estimated costs are provided in Appendix 1.

### Remediated Barriers

Four high priority ranked barriers were remediated as part of this project: Berrys Weir on the Bremer River (overall rank 7<sup>th</sup>), Leitchs Crossing on the South Pine River (11<sup>th</sup>), Paradise Road Causeway on Slacks Creek (36<sup>th</sup>)(Figure 15) and Hilliards Creek Weir (36<sup>th</sup>). These remediated barriers have been removed from the three-stage scoring assessment found within this report. The location of these remediated barriers and their associated fishways can be seen in Figure 16. Case studies with information regarding fishway type and monitoring results can be found in Appendix 2.



Figure 15. Showing one of the four priority ranked barriers remediated as part of this project; Slacks Creek, (Paradise Road) 17 ridge rock-ramp and horizontal culvert baffle fishway (photo courtesy of Leo Lee).



**Table 22. Top 36 priority ranked fish barriers, including: total score after each assessment stage, overall final rank, barrier ID, barrier name and configuration and name of waterway each barrier is located on.**

Barrier ID	Waterway	Barrier Configuration/Name	Stage 1 Score	Stage 2 Score	Stage 3 Score	Final Rank
13941	Caboolture River	Tidal Weir- ~3 m head loss (Redundant structure)	28	22	20	1
3728	Elimbah Creek	Tidal Causeway- ~1 m head loss and small pipe culvert	29	23	17	2
10352	Albert River	Weir- Luscombe weir (Redundant structure)	27	22	19	3
12850	Brisbane River	Weir- Mt Crosby Weir	29	20	19	3
13801	Pimpama River	Tidal Flood Gates- Kerkin Rd	29	22	13	5
10351	Albert River	Tidal Pipe Causeway- Stanmore Rd	27	21	16	5
4374	Tingalpa Creek	Dam- Leslie Harrison Dam	27	21	15	7
13800	Behm Creek	Tidal Gates- Jacobs Well Rd	28	22	13	7
218	South Pine River	Culvert Causeway & Apron Drop- Bunya Crossing	27	16	19	9
12199	Enoggera Creek	Tidal Weir- Hulme St, 1.2 m head loss	25	21	15	10
2279	North Pine River	Dam- North Pine Dam	26	18	15	11
2252	North Pine River	Culvert Causeway & Apron Drop- Young's Crossing	26	18	14	12
8231	Warrill Creek	DNRM V-Notch Gauging Weir- ~800 mm head loss	22	15	21	12
8933	Bremer River	DNRM V- Notch Gauging Weir- ~300 mm head loss	25	14	19	12
4876	Hilliards Creek	Causeway & Buried Pipe- Fellmonger Pk	20	19	18	15
4170	Scrubby Creek	Causeway & Apron Drop- Queens Rd	20	19	18	15
13807	Warrill Creek	Gabion Basket and Sheet Pile Weir- ~ 1 m head loss	23	15	19	15
13911	Hotham Creek	Tidal Bund – Private Property	24	18	14	18
10719	King John Creek	1 x Small pipe + 300 mm drop - Private Property	26	17	13	18
5810	Sandy Creek	Tidal Floodgates - Loves Rd - Main West Arm	23	17	15	20
11864	Norman Creek	Apron Drop- ~300 mm drop into Estuary – Hanlon Pk	23	16	16	20
2107	Freshwater Creek	Tidal Bund - Further investigation required during flow	26	18	10	22
5807	Sandy Creek Trib.	Tidal Gates (East)- School Rd	23	16	15	22
2278	North Pine River	Weir - 3 m high @ Petrie Town- Seqwater	22	16	16	22
13992	King John Creek	1 x small pipe + 500 mm drop into Estuary	26	15	13	22
12433	Moggill Creek	Old pipes & concrete - 750 mm head loss - Moggill Rd	19	19	15	26
2277	North Pine River	Causeway + 2 small pipes - next to sporting fields	23	16	14	26
4890	Hilliards Creek	1.5 m high Weir + culverts @ DPI Research St.	17	17	19	26
7083	Quinzeh Creek	1.5 m large rock weir on estuarine interface	19	20	14	26
13942	Waraba Creek	Weir- Waraba Weir ~1.5 m head loss	17	16	20	26
13996	Cabbage Tree Creek	Weir- ~500 mm rock weir- Est interface @ AFL oval	20	20	13	26
2106	Freshwater Creek	Bund - Further investigation during flow	24	18	10	32
9649	Bundamba Creek	Weir- Rock/Bed Control	26	12	14	32
12435	Moggill Creek	2 x Small pipes + 300 mm apron drop @ Kilkivan Ave	18	18	16	32
6388	Scrubby Creek	Relic Causeway/weir - 0.8 m high - D/S Logan Motorway	17	17	18	32
6387	Scrubby Creek	Weir, Small Pipe & Apron Drop- ~1.5 m, Gilmore Rd	17	17	18	32

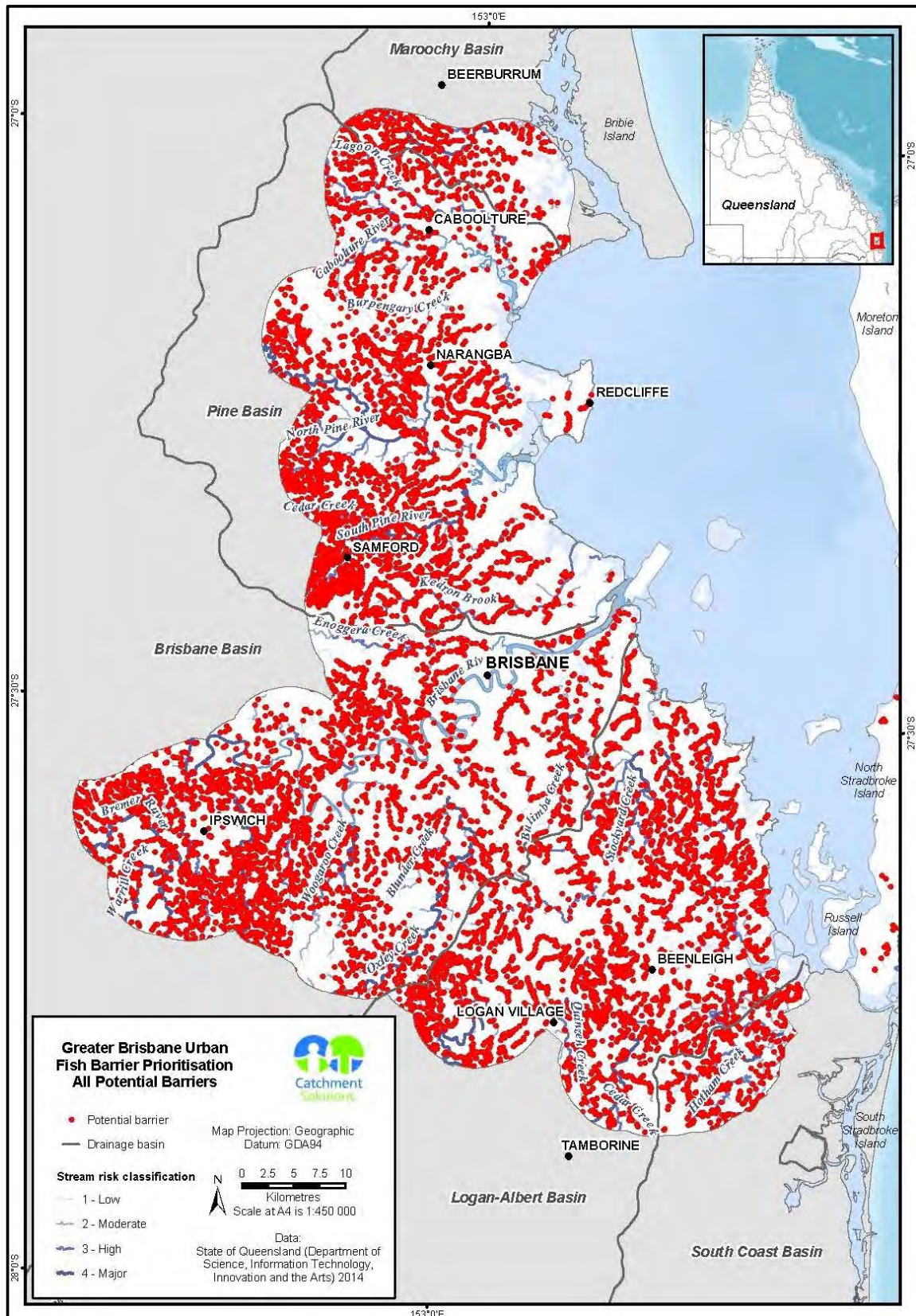


Figure 16. Locations of 13,629 potential barriers identified in the current study.

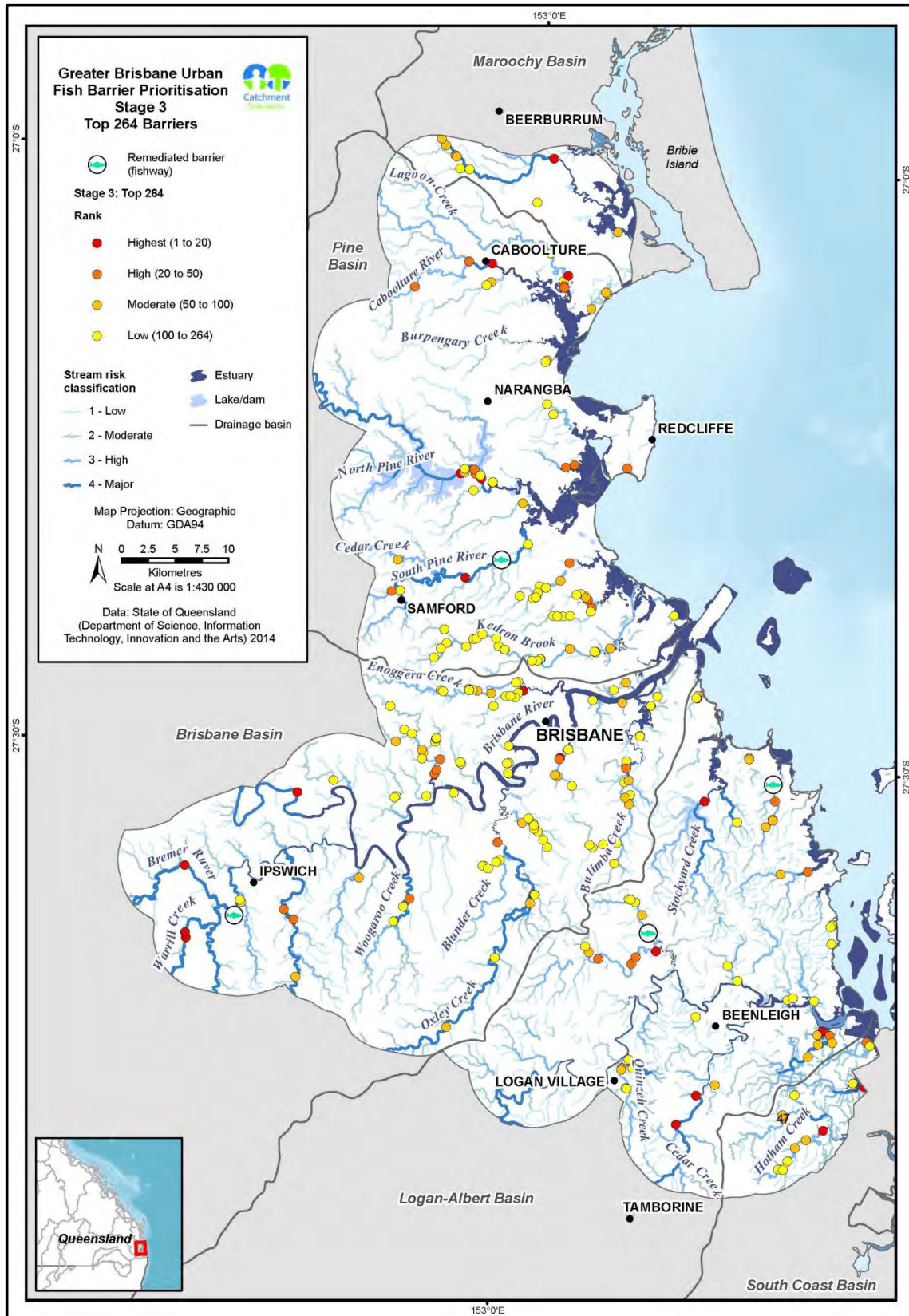


Figure 17. Showing the location of the top 264 barriers after stage 2 of the prioritisation