REGIONAL STEWARDSHIP STORIES

Healthy Land & Water Stewardship report

FRESHWATER

Embracing and protecting the unique freshwater life of SEQ

SEQ is home to iconic species

South East Queensland (SEQ) is a region renowned for its rich biodiversity, particularly within its diverse freshwater habitats. Freshwater is essential for sustaining both nature and human life, impacting us in ways we may not always notice. It provides drinking water, supports agriculture, offers recreational opportunities and maintains vital ecosystem functions such as nutrient cycling and flood regulation. The region's rivers, creeks, and wetlands support an incredible variety of life, playing a crucial role in maintaining the health and balance of local ecosystems. These habitats are home to a unique array of species, many of which are found nowhere else in the world. The presence of these species serves as indicators of healthy freshwater systems.

Among the most iconic of SEQ's freshwater inhabitants is the platypus. With its distinctive duckbill and webbed feet, and one of only two egg-laying mammals in the world, the platypus is a symbol of Australia's iconic wildlife. Equally remarkable is the Australian lungfish, a living fossil that has remained relatively unchanged for millions of years. These species, along with many others, are not just important as natural curiosities; they are integral to the ecological health of SEQ's waterways, contributing to the intricate web of life that sustains the region.

Threats and the health condition of our waterways

The survival of SEQ's freshwater species is under significant threat, primarily due to the loss of riparian vegetation and the impact of sediment pollution from land clearing. Riparian vegetation, which lines the edges of waterways, plays a crucial role in maintaining healthy ecosystems by stabilising banks, filtering pollutants, and providing habitat for native species like the platypus and lungfish. Its removal, often a result of urban development and agricultural expansion leaves waterways exposed to erosion, leading to increased sediment runoff. Other threats such as invasive species and climate change further challenge the ecosystem's ability to support its species. Conservation efforts are now more vital than ever.

Long-term monitoring of ecosystems has become increasingly valuable to understand the waterway conditions and provide critical insights for decision-makers to foster resilient, healthy regions. The Ecosystem Health Monitoring Program (EHMP),

one of Australia's most comprehensive monitoring initiatives, has been tracking the health of SEQ's freshwater, estuarine, and marine ecosystems for over 20 years[1].

The freshwater fish communities (Figure 1), freshwater riparian extent and condition (Figure 2), and freshwater wetland extent (Figure 3) are monitored, with the results communicated though the SEQ Report Card.

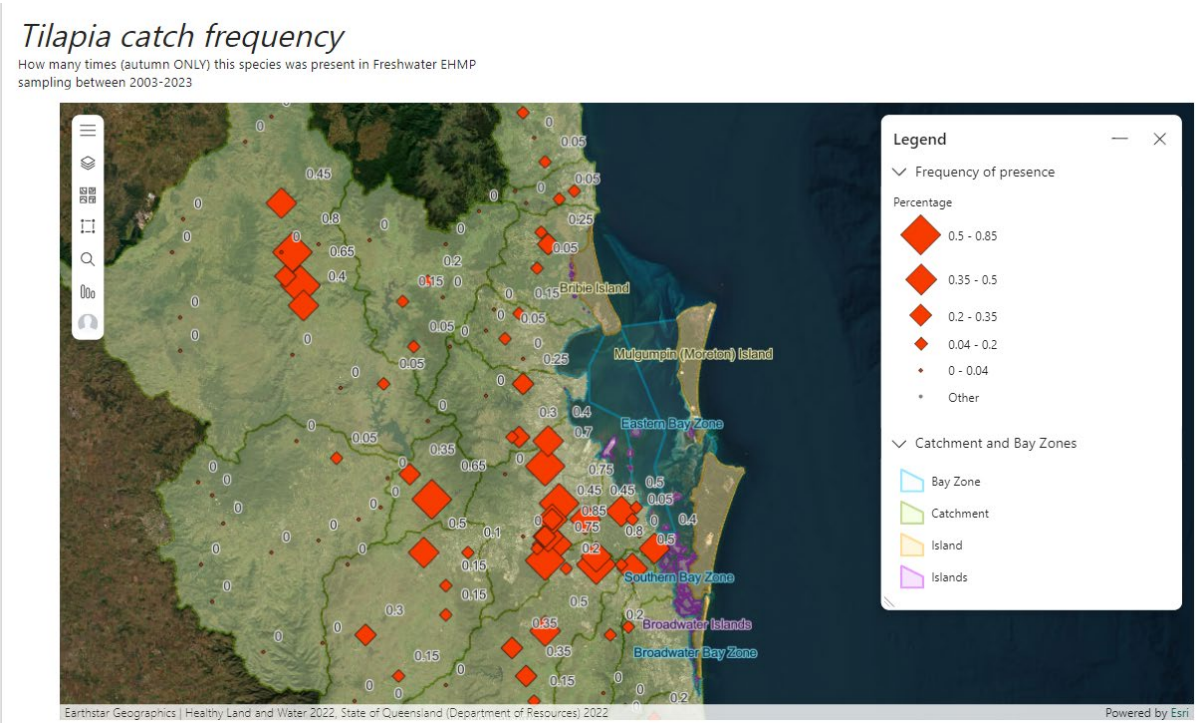

Figure 1 above: Map of freshwater fish community (using exotic fish (Tilapia) as an example) from Freshwater EHMP data since 2003. Image: Healthy Land & Water

[1] https://reportcard.hlw.org.au/

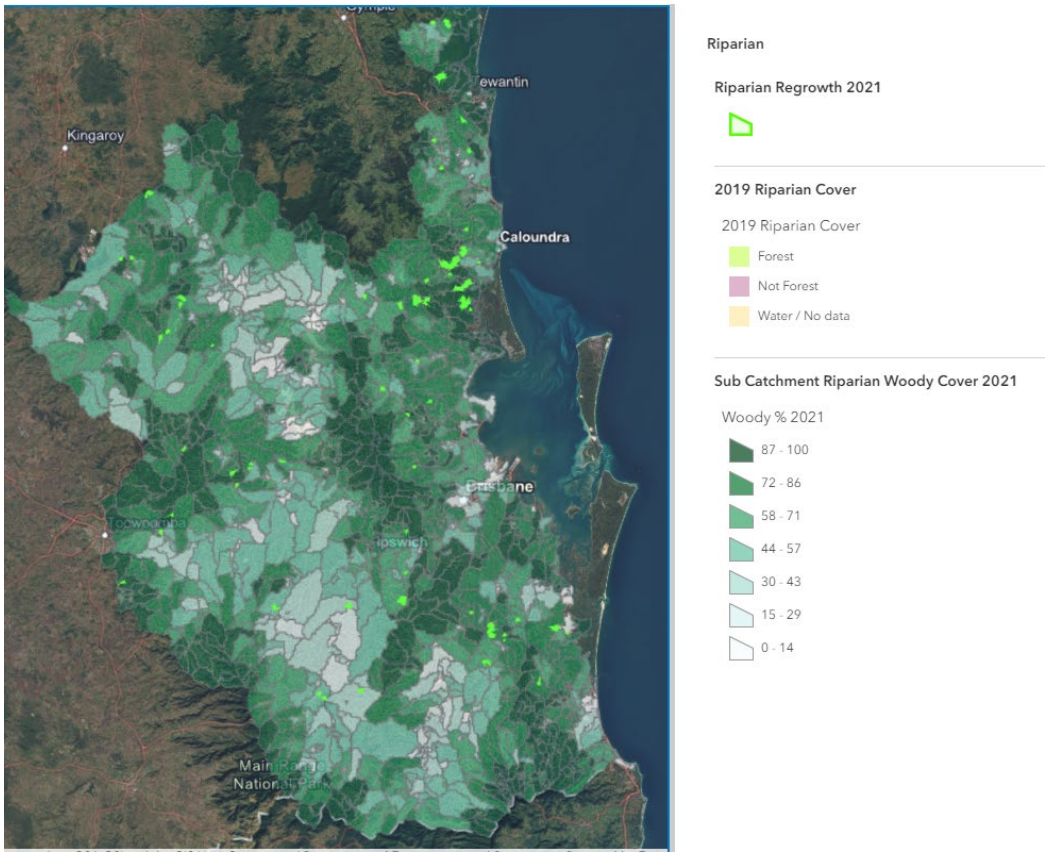

Figure 2: Map of freshwater riparian regrowth from EHMP habitat data. Image: Healthy Land & Water

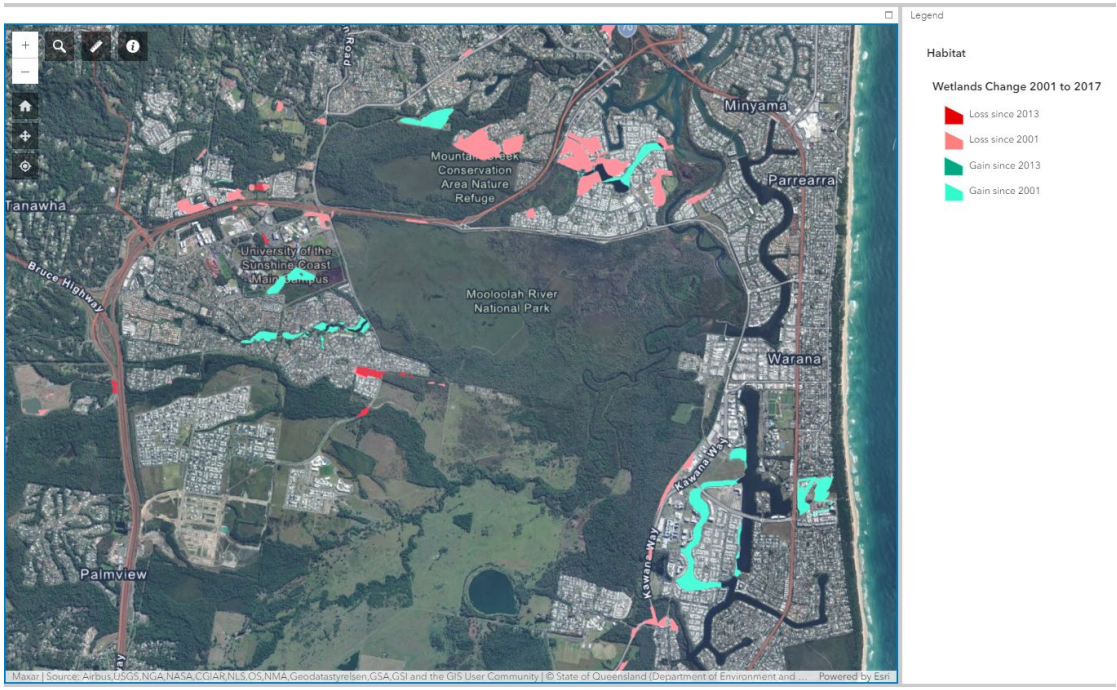

Figure 3: Map (zoom in Mooloolah River) of freshwater wetlands extent changes between 2001 to 2017 from EHMP habitat data. Source: Healthy Land & Water.

Stewardship action

All in for region-wide action

Conservation and restoration initiatives, including ecosystem health monitoring, habitat restoration, pest species control and pollution reductions are being implemented across SEQ.

These efforts are supported by local and state government agencies, local communities, and conservation organisations all working together to protect and restore the region's freshwater ecosystems.

Community action key to success

Public awareness and involvement are also key to the success of these initiatives. By participating in conservation activities, supporting sustainable practices, and advocating for stronger environmental protections, residents of SEQ can help ensure that its iconic freshwater species continue to thrive for generations to come.

Not only is SEQ home to iconic species, but it is also a region where the health of our ecosystems reflects our collective commitment to preserving the natural world. The challenges are significant, but with concerted effort and community involvement, the future of SEQ's freshwater species can be secured.

Success story: PlatypusWatch – Community leads surveys to indicate freshwater habitat health

PlatypusWatch[2] is a community-based citizen science program that gathers population data from SEQ waterways to raise awareness of platypus conservation. Annual platypus surveys began in 2005 and were volunteer driven by the Moggill Creek Catchment Group[3]. In collaboration with eight local councils and state governments, conservation groups, and local communities, the Wildlife Preservation Society of Queensland (Wildlife Queensland) coordinated PlatypusWatch, a central hub for coordinating platypus research. The program legacy of stewardship is a shining example of environmental stewardship, empowering communities to protect one of Australia's most iconic species (Figure 4).

The Platypus eDNA Project was launched in 2016 and uses environmental DNA (eDNA) to sample waterways as well as traditional survey methods to document and map platypus distribution and abundance[4].The Platypus eDNA project conducted more than 595 samples across SEQ from the last five years. The eDNA data, along with observational surveys and ecological models, helps researchers identify the habitat niche of the platypus, track changes over time and identify where conservation actions are needed. While this very special monotreme is still

[2] https://wildlife.org.au/our-work/conservation-programs/platypuswatch-network/
[3] https://www.moggillcreek.org.au/events-activities/platypus-survey/

[4] https://wildlife.org.au/project/platypuswatch-edna-survey-project/

present across much of its historical range, platypus populations have declined by 27% over 30 years due to habitat degradation, pollution, and climate change.

Beyond data collection, PlatypusWatch plays a vital role in raising community awareness and education. The program complements hands-on school and community projects and supports scientific research and educational publications. Over the last five years, 68 community engagement and education events have been held in SEQ with more than 1,500 participants in attendance. The program's success highlights the importance of community involvement in conservation, showing that when people come together with a shared purpose, they can make a significant impact on the preservation of biodiversity. The program also complements ongoing revegetation events to restore riparian habitats [5]. As SEQ continues to grow and change, the stewardship provided by PlatypusWatch will be crucial in ensuring that this iconic species remains a thriving part of the region's natural heritage.

A Quote from PlatypusWatch: "Stewardship is valuable in wildlife conservation efforts and it takes community to be the drivers of protecting our precious wildlife. The PlatypusWatch community involves passionate people from urban to rural areas, councils to catchment groups, all who are dedicated to keep this species thriving. They are up in the early hours of the morning, joining an observational survey or applying for grants to support the platypus habitat in their catchment. They are beyond passionate, they have unwavering commitment and we could not do it without them!" Dr Tamielle Brunt Wildlife Queensland PlatypusWatch Project Officer

Figure 4 above: Platypus workshop at Reynolds Creek May 2024 in collaboration with Scenic Rim Regional Council, Healthy Land & Water and Resilience Rivers Initiative. (Image: Scenic Rim Regional Council).

Success story: Lungfish Habitat Rehabilitation – Innovative program to restore stream habitat

[5] https://www.facebook.com/story.php?story_fbid=859834246178303&id=100064552069669&m_entstream_source=group&_rdr

The Australian lungfish is the oldest known living vertebrate, remaining unchanged from its current form for over 100 million years. It is listed as a vulnerable species under the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. While the numbers of Australian lungfish in the Brisbane River remain strong, their breeding opportunities have been impacted by repeated significant flood events. The aquatic plants they depend on for food, to lay their eggs and protect the vulnerable young lungfish have been scoured throughout large areas of the river systems they live in and have not recovered. Surveys conducted by Seqwater have found fewer juvenile lungfish since the damage was sustained, raising concerns that without intervention, the reduced breeding opportunities may negatively impact the population[6].

This Lungfish Habitat Rehabilitation in the Mid Brisbane area forms part of a broader strategy that Seqwater has developed to ensure the survival of the Australian lungfish in SEQ rivers[7] supported by the state government. Other key project collaborators include Healthy Land & Water, Griffith University, Somerset Wivenhoe Fish Stocking Association and the Australian New Guinea Fish Association. The program has increased knowledge of macrophyte restoration techniques, and the critical importance of instream macrophyte habitat for lungfish and other aquatic species (Figure 5). This valuable information will enable a swift response to future flood events that may cause similar damage to instream macrophytes. It will also support other aquatic habitat restoration efforts in flood affected rivers like the Mary and Burnett River systems, where lungfish also live. The success of the current efforts lays a strong foundation for continued restoration and long-term ecosystem recovery.

Figure 5: Healthy Land & Water lungfish habitat rehabilitation team

[6] https://www.seqwater.com.au/news/ancient-fish-species-swimming-strong-mid-brisbane-river
[7] https://hlw.org.au/portfolio/lungfish#gsc.tab=0

Success story: Brisbane River Cod Recovery Strategy – Restocking native fish for a better fishing future

The Brisbane River was once home to the Brisbane River cod, known as the Bumgur by the Jinibara people. Historical records suggest that several massive fish kills, caused by a combination of factors such as vegetation removal, siltation, overfishing, collapsed riverbanks from livestock, and poisoning from early mining activities, led to the extinction of this cod in the Brisbane River system during the 1920s to 1940s[8,9]. These cod are the top predator in the freshwater food chain, and their reintroduction to their former habitats will help restore balance to our waterways by controlling exotic pest fish such as tilapia and carp. Since the mid-1980s, efforts to restore the ecosystem have included the restocking of Mary River cod to replace the now extinct Brisbane River cod in the Brisbane, Stanley, and Bremer River systems. This activity undertaken by various organisations has resulted in tens of thousands of fish being restocked.

In 2020, the community-based Somerset & Wivenhoe Fish Stocking Association[10] initiated the Brisbane River Cod Recovery Strategy in conjunction with the state governments and local councils. This initiative not only aims to restock native fish but to also restore and improve riparian vegetation for fish habitats and provide and enhance in-stream fish habitat (Figure 6). With assistance provided through the jointly funded Commonwealth-State Disaster Recovery Funding Arrangements an electrofishing survey was conducted on the greater Brisbane River catchment throughout October 2023. Results were encouraging with large specimens up to 30 kg caught in the mid and upper Stanley River, indicating either remnant Bumgur or the success of Mary River cod restocking (Figure 7). Some cod have also reached adult sizes in the Brisbane River. The recovery effort has gained widespread support, with contributions from state government, councils, NGO, landowners, businesses, anglers, conservationists, local fishing clubs and interested members of the public. Further support/investment is needed to continue the recovery project and for follow-up monitoring.

[8] Brisbane-River-Cod-Recovery-Strategy-V2.1-PUBLIC.pdf (sweetwaterfishing.com.au)
[9] Endangered Cod Re-discovered in upper Brisbane Catchment | Somerset Wivenhoe Fish Stocking Assn (sweetwaterfishing.com.au)
[10] https://swfsa.sweetwaterfishing.com.au/

Figure 6: Releasing cod fingerlings as part of the Somerset-Wivenhoe Fish Stocking Association's Brisbane River Cod Recovery project. (Image:: Ipswich City Council).

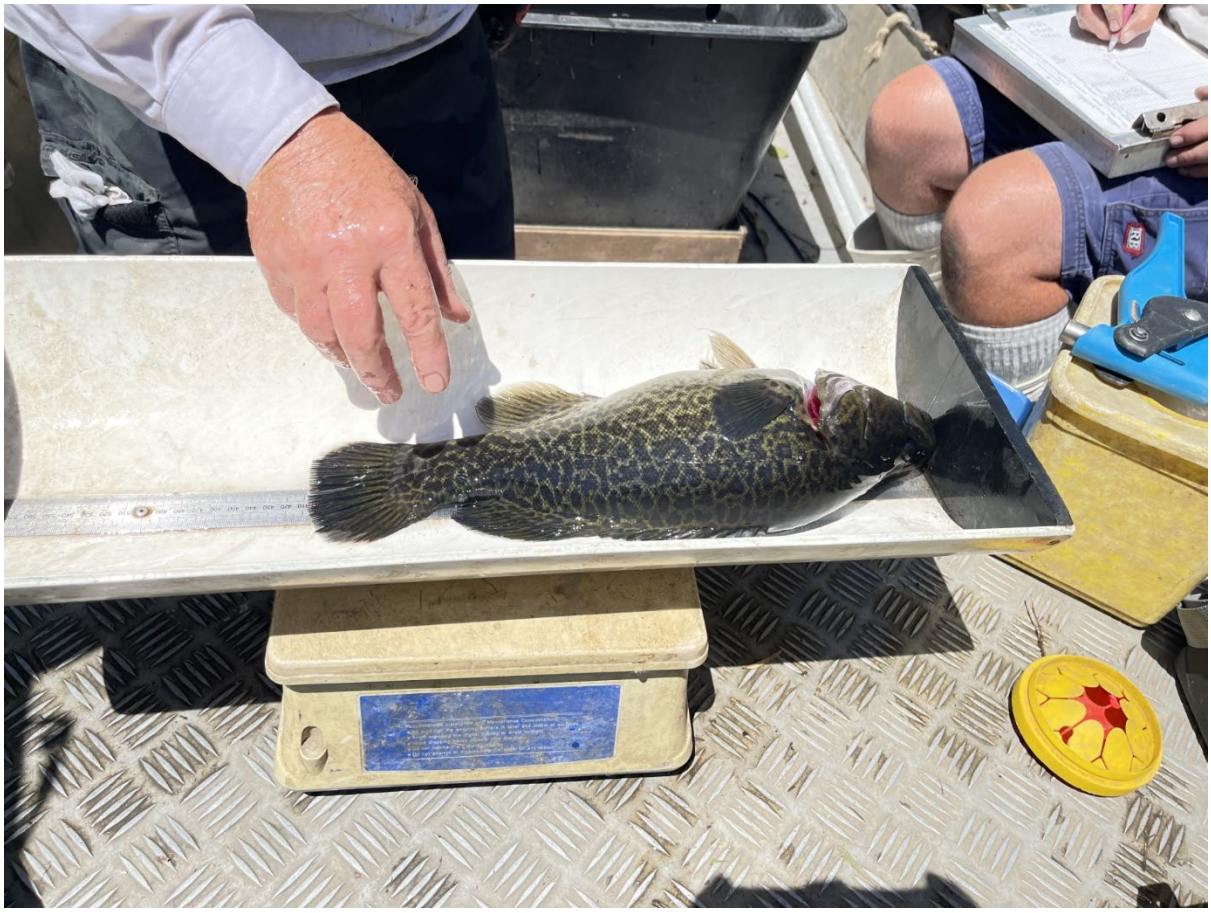

Figure 7: Healthy Mary River Cod surveyed after 3 years of restocking into waters that had no cod present for over 80 years. Image: SWFSA recovery monitoring in Oct 2023.