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Fish barrier removal and river connectivity support glenelg river tupong populations

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Fish barrier removal and river connectivity support Glenelg river tupong populations.

Stephen Ryan, Bryce Morden and Tori Perrin



Tupong Life History

- Tupong are a migratory native fish that inhabit estuaries, creeks and rivers, including the Glenelg River. Connectivity is thought to be a major factor influencing the health of the species, as Tupong require access to the sea and freshwater to complete their lifecycles.
- Increases in river flow in spring and summer are thought to stimulate the movement of young Tupong from the ocean into coastal rivers and further upstream into freshwater reaches. Maintaining suitable freshwater habitat is critical to ensure the fish have sufficient habitat and food resources to feed, grow and breed. Adult Tupong then migrate back to the estuary or sea to spawn on large winter freshes.

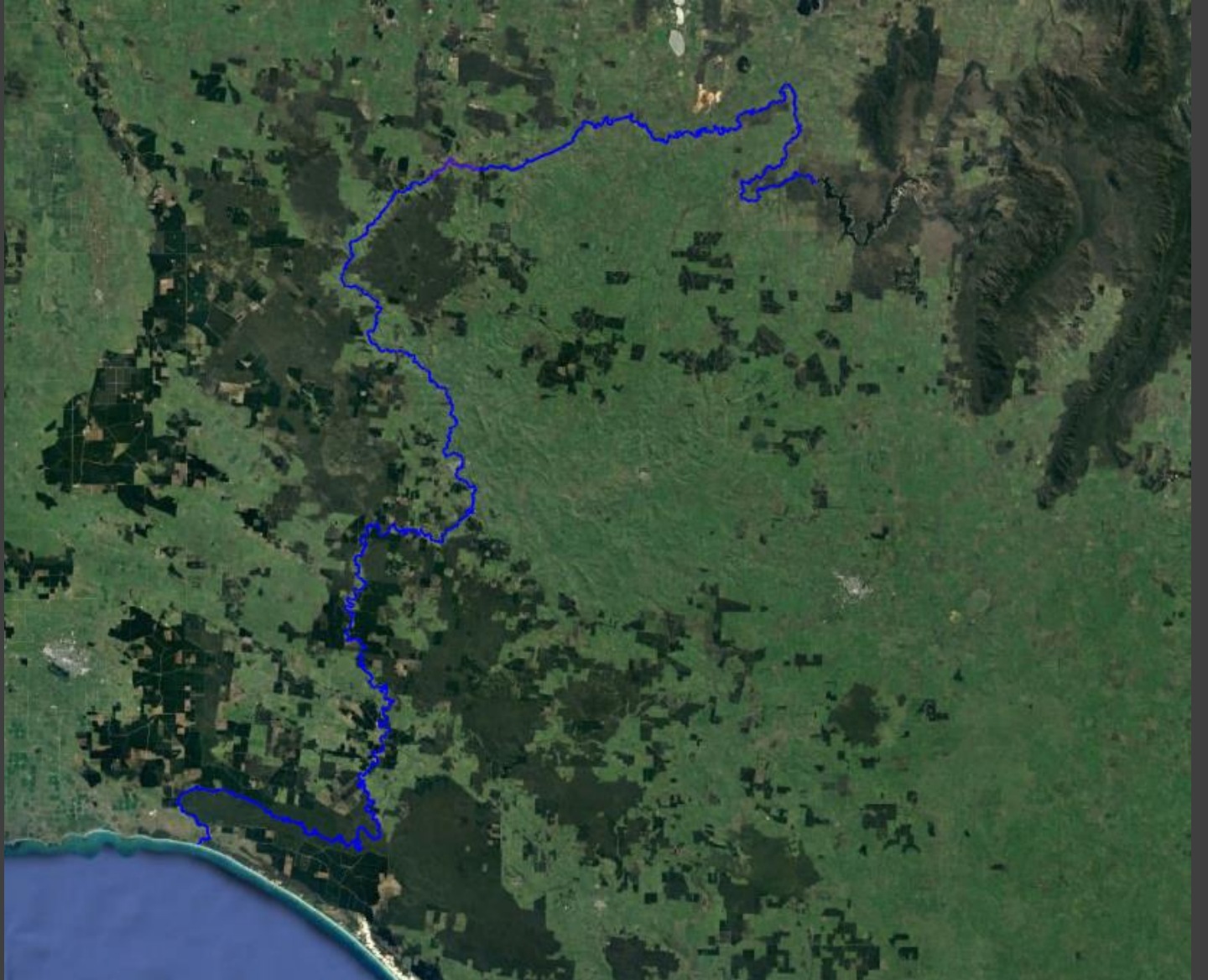




US Dept of State Geographer
© 2014 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat

Google earth

Imagery Date: 4/10/2013 29°24'37.08" S 135°21'24.66" E elev. 110 m eye alt 4897.60 km



The Glenelg Basin

Historic land clearance, erosion and sedimentation



Desnagging throughout the 1960s and 70s



The Glenelg Basin

Pest plants and animals (i.e. Carp, blackberry, pine wildlings)



The Glenelg Basin

River regulation





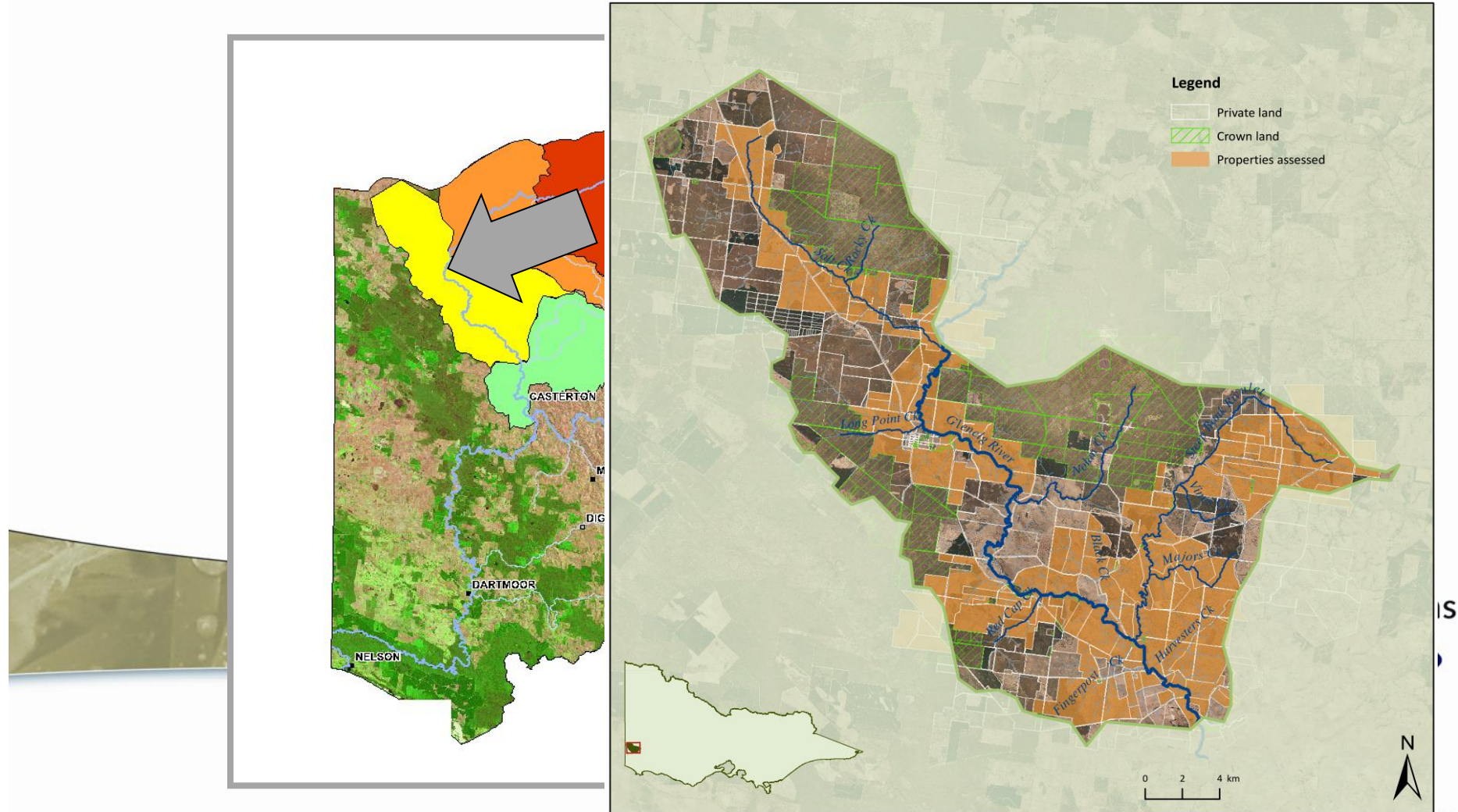
Fish Barriers

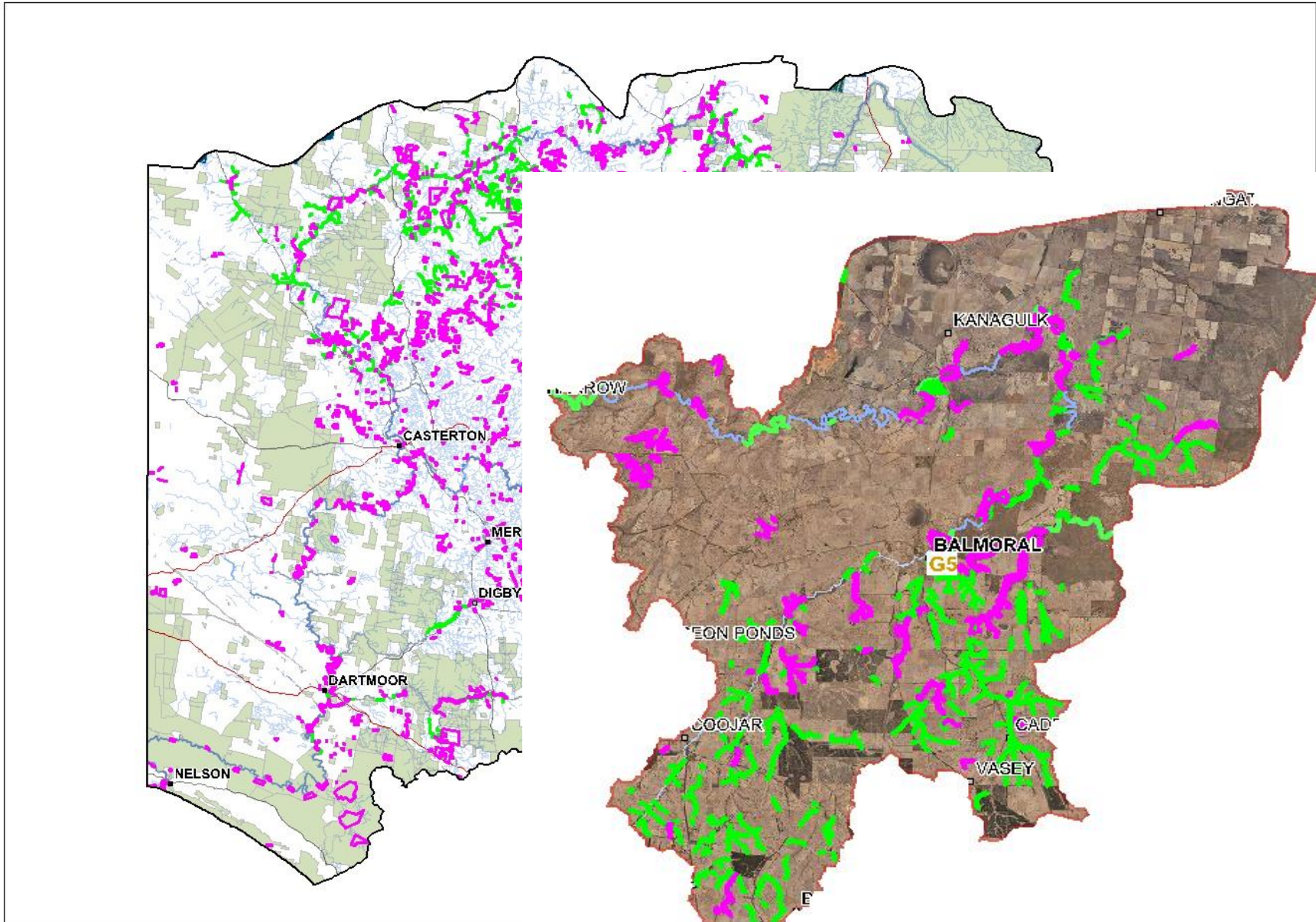
Integration- Large Scale River Restoration Project

- Sand management
- Fencing and revegetation
- Environmental Flows
- Large wood reintroduction
- Urban waterway restoration
- Cross tenure weed control program
- Carp management
- Glenelg estuary management
- Engaging landholders and prioritising works
- Fish barrier removal



Waterway Action Plans







Sand management

Up to 30,000m³ of excess bedload removed per year

Large Wood Reintroduction

- By 2008, 870 logs had been placed along 8.5 km of the Glenelg River at Casterton
- In 2008 blackfish numbers were 281% higher in re-snagged reaches
- Improved recreational fishing opportunities



Judas Carp Trials

- Monitoring and controlling of Carp commenced in 2004
- 'Judas Carp' can potentially identify hotspots and play a role in reducing Carp numbers to more manageable levels



TEXT-a-CARP

**042 TXT CARP
STOP THE
SPREAD OF CARP**

TEXT-a-CARP get involved in Carp management in the Glenelg River.

In recent times Carp numbers have increased in the Glenelg River.

To reduce Carp numbers Glenelg Hopkins CMA has started a new phase of Carp management.

Text-a-Carp gives the public an opportunity to alert the CMA via SMS if they see or catch a Carp.

People can SMS details which could include: location, date, size and possibly a photo.

The CMA will then use this information alongside a tracking program to better understand Carp movements so they can manage numbers.

It is important to manage carp numbers as they muddy our rivers and compete with native fish.

“0428 982 277”



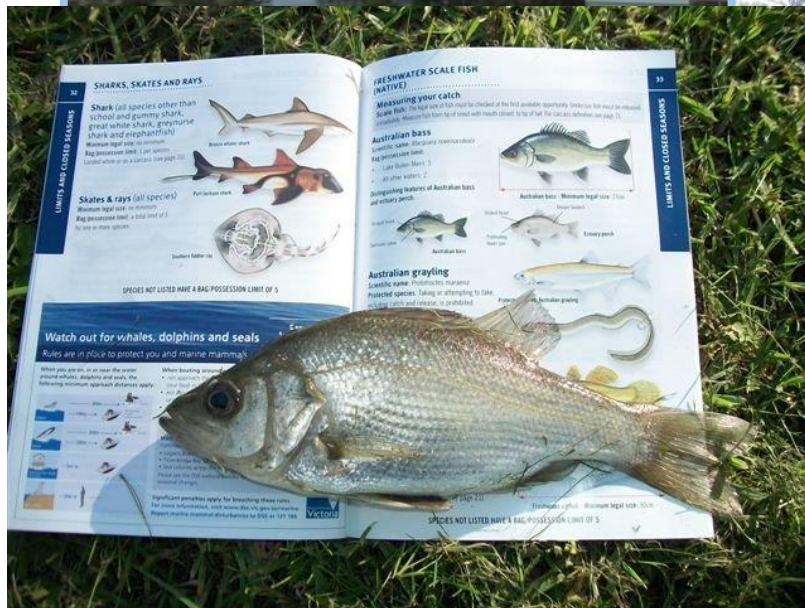
Glenelg Hopkins



CMA

Environmental Water Delivery

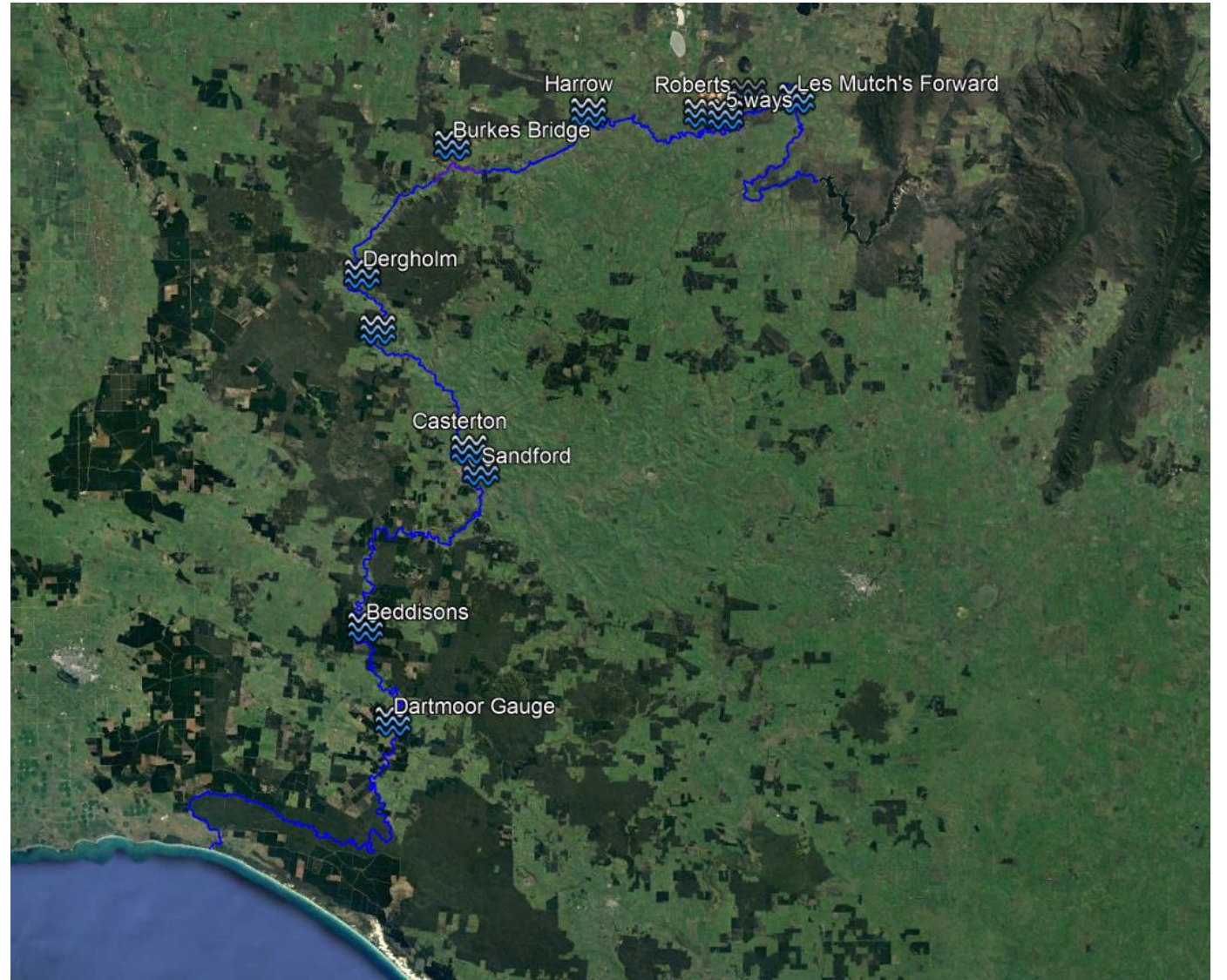
- Construction of three environmental water delivery structures delivering around 20,000 ML to the river
- Environmental flows have reduced salinity levels by up to 80% at some sites
- Increased populations of EPBC-listed Variegated Pygmy Perch (increased by 150%)







12 Fish Barriers removed

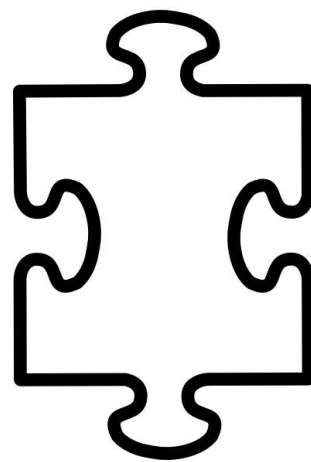




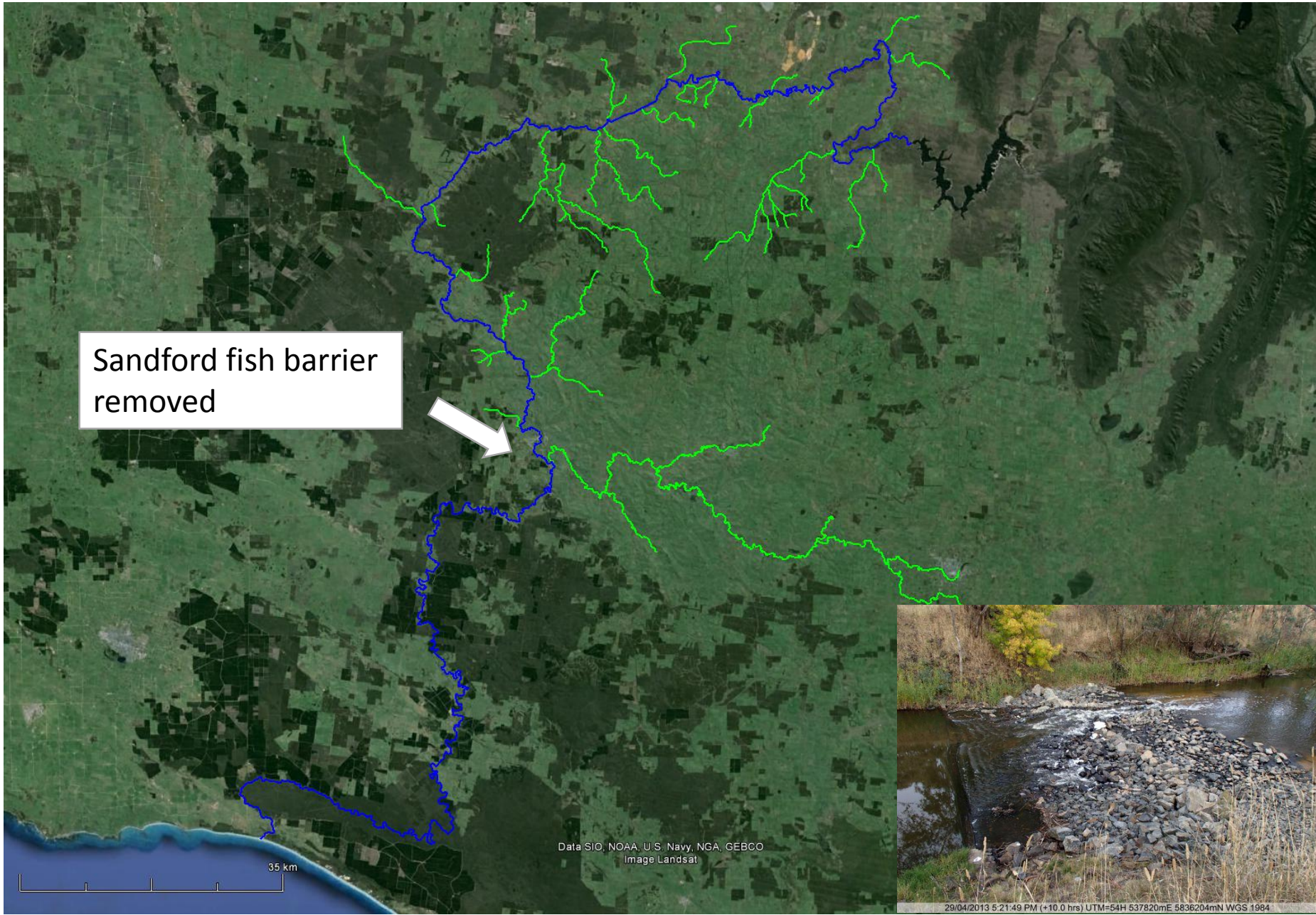


Sandford Gauge

The last piece of the puzzle









Annual VEFMAP Tupong Captures
2009-2018

2009

2010

2011

2012

2013

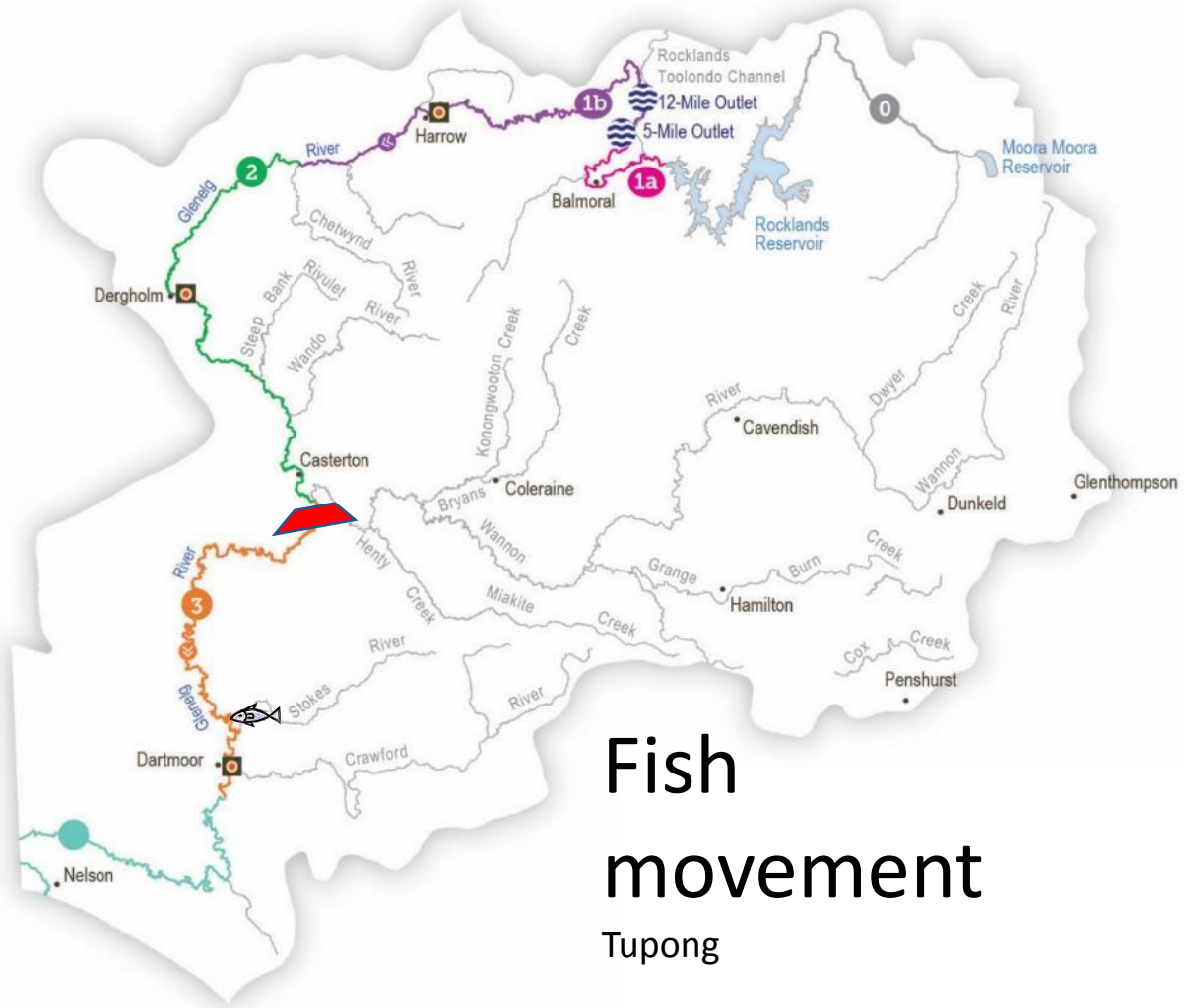
2014

2015

2016

2017

2018



Fish movement Tupong

2009

2010

2011

2012

2013

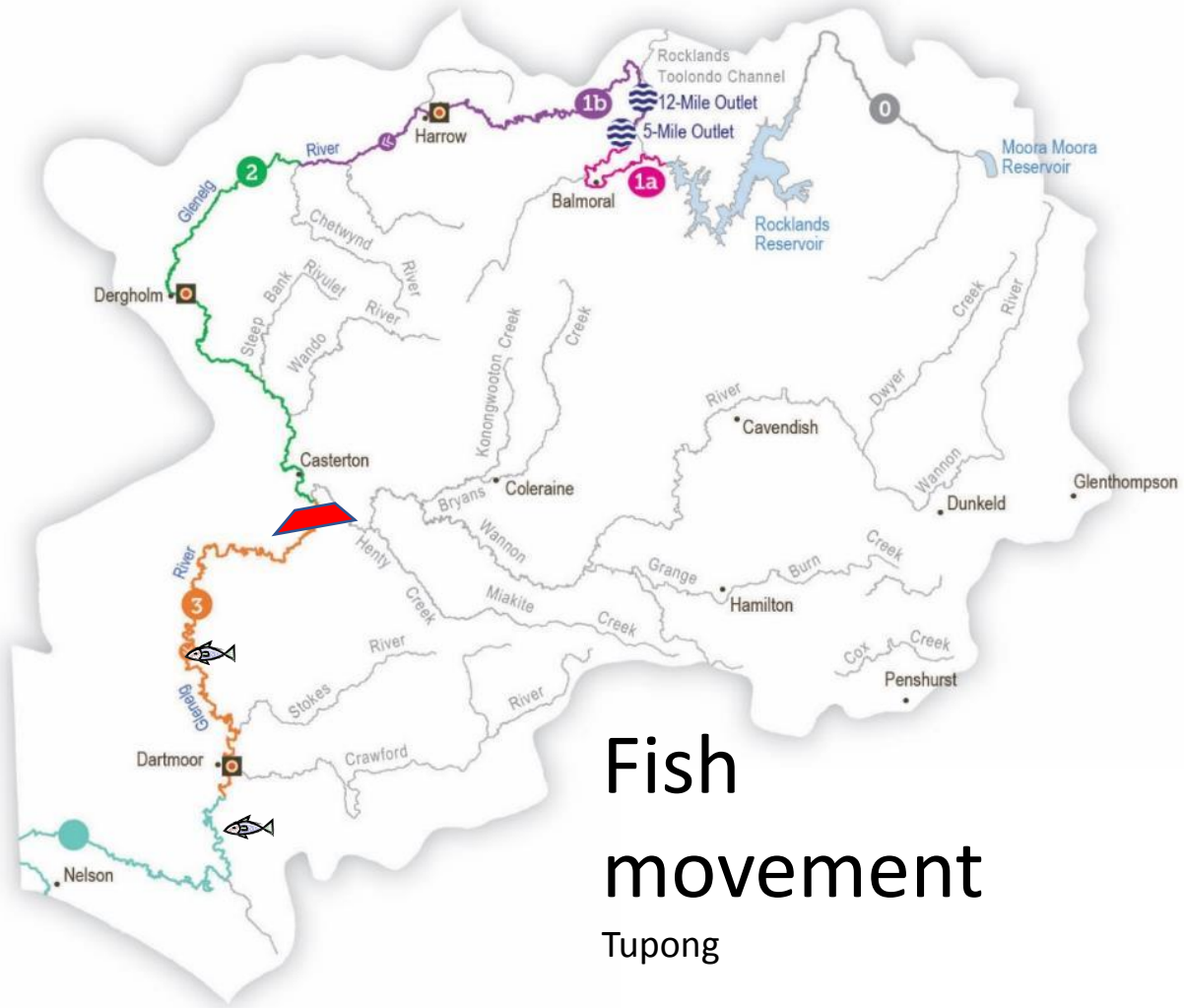
2014

2015

2016

2017

2018



Fish
movement
Tupong

2009

2010

2011

2012

2013

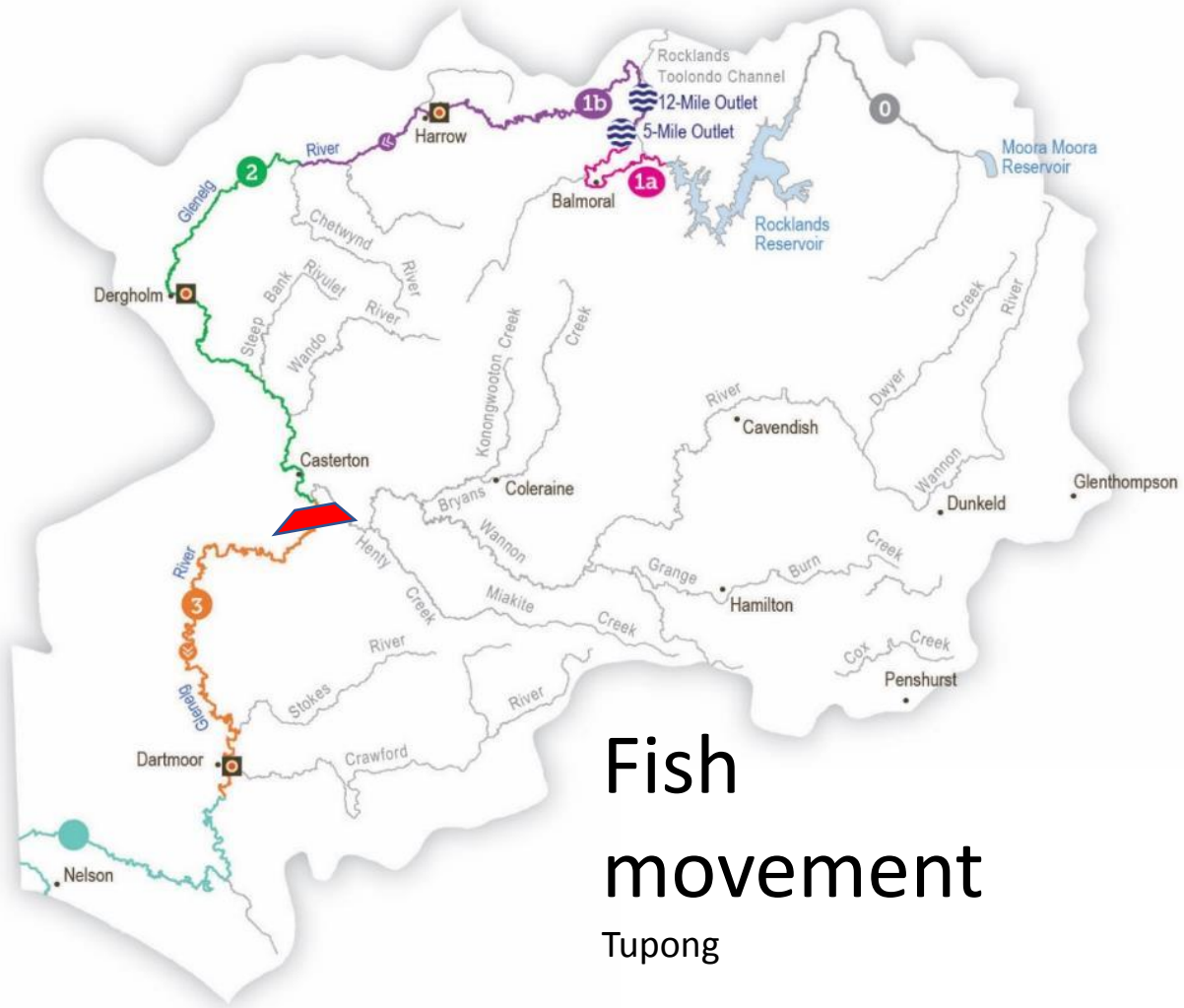
2014

2015

2016

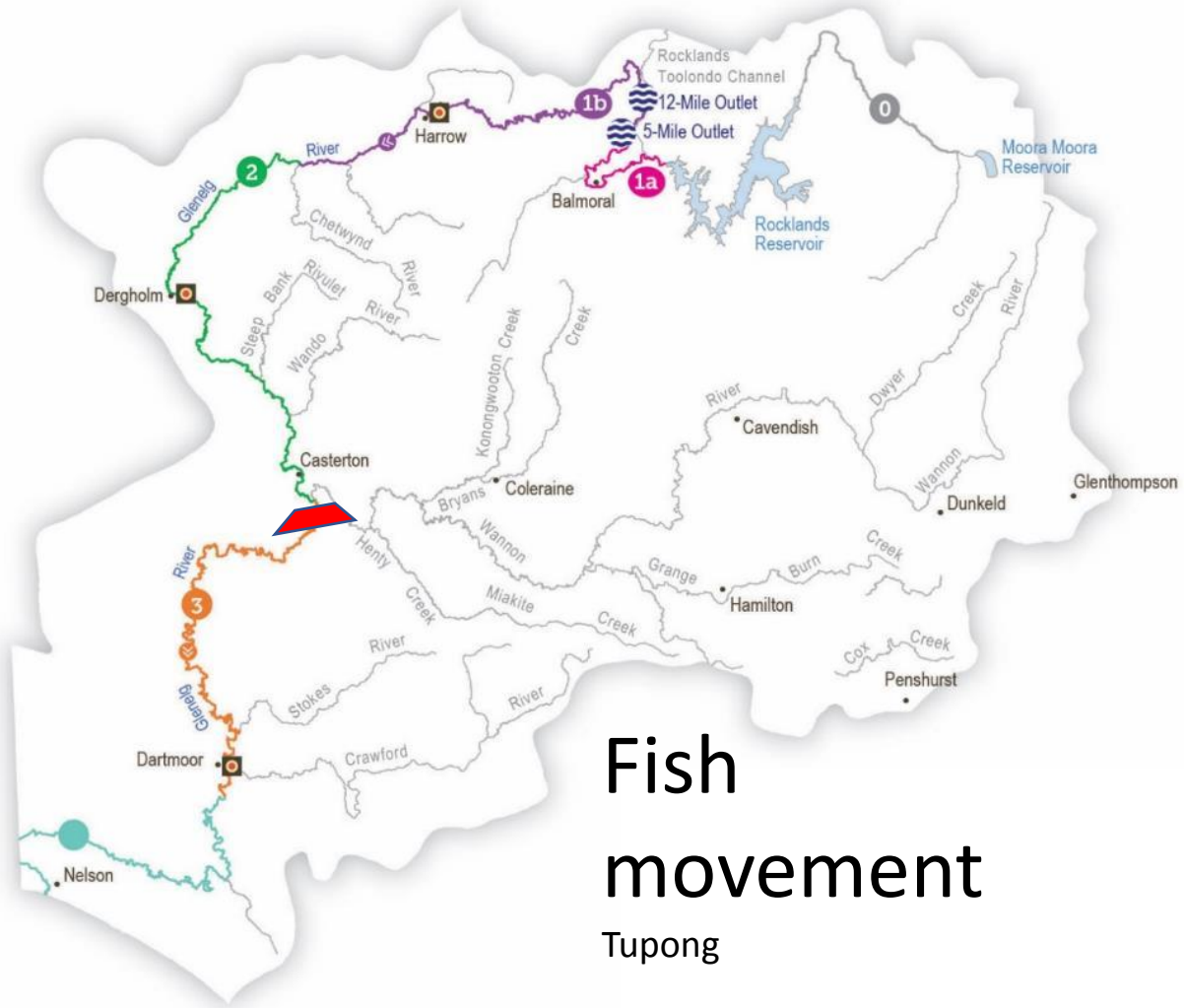
2017

2018



Fish movement Tupong

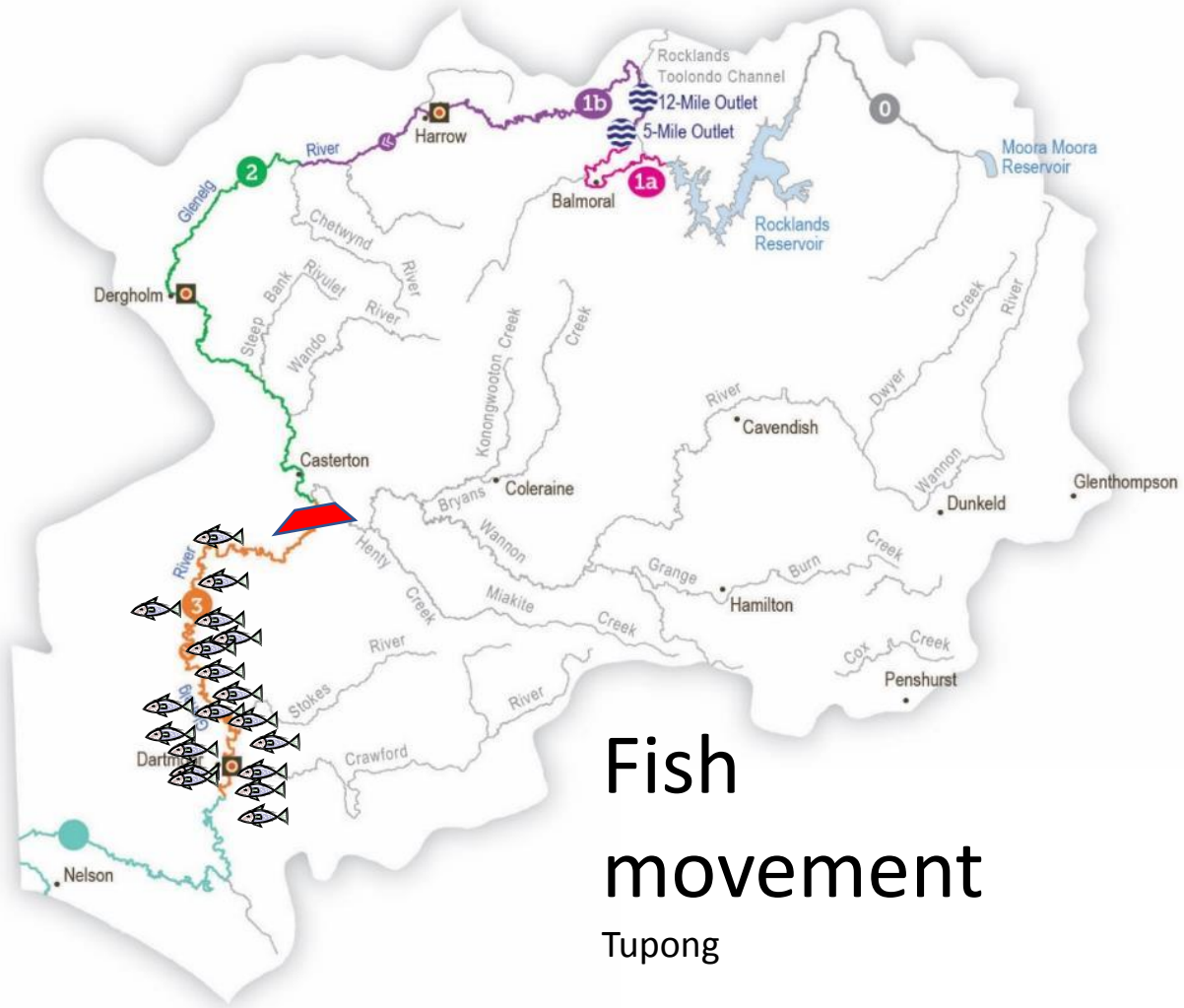
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018



Fish movement

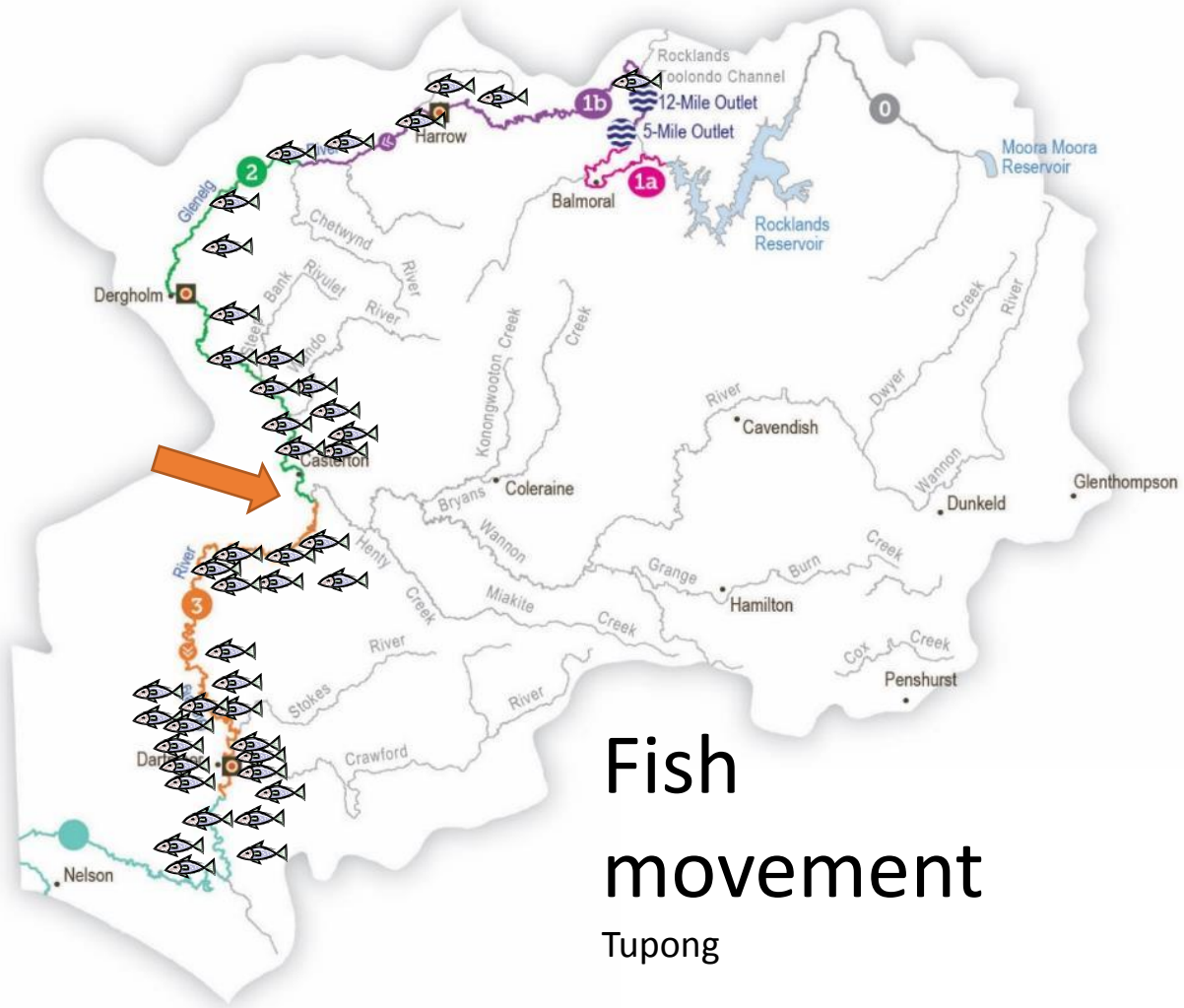
Tupong

- 2009
- 2010
- 2011
- 2012
- 2013**
- 2014
- 2015
- 2016
- 2017
- 2018



Fish movement Tupong

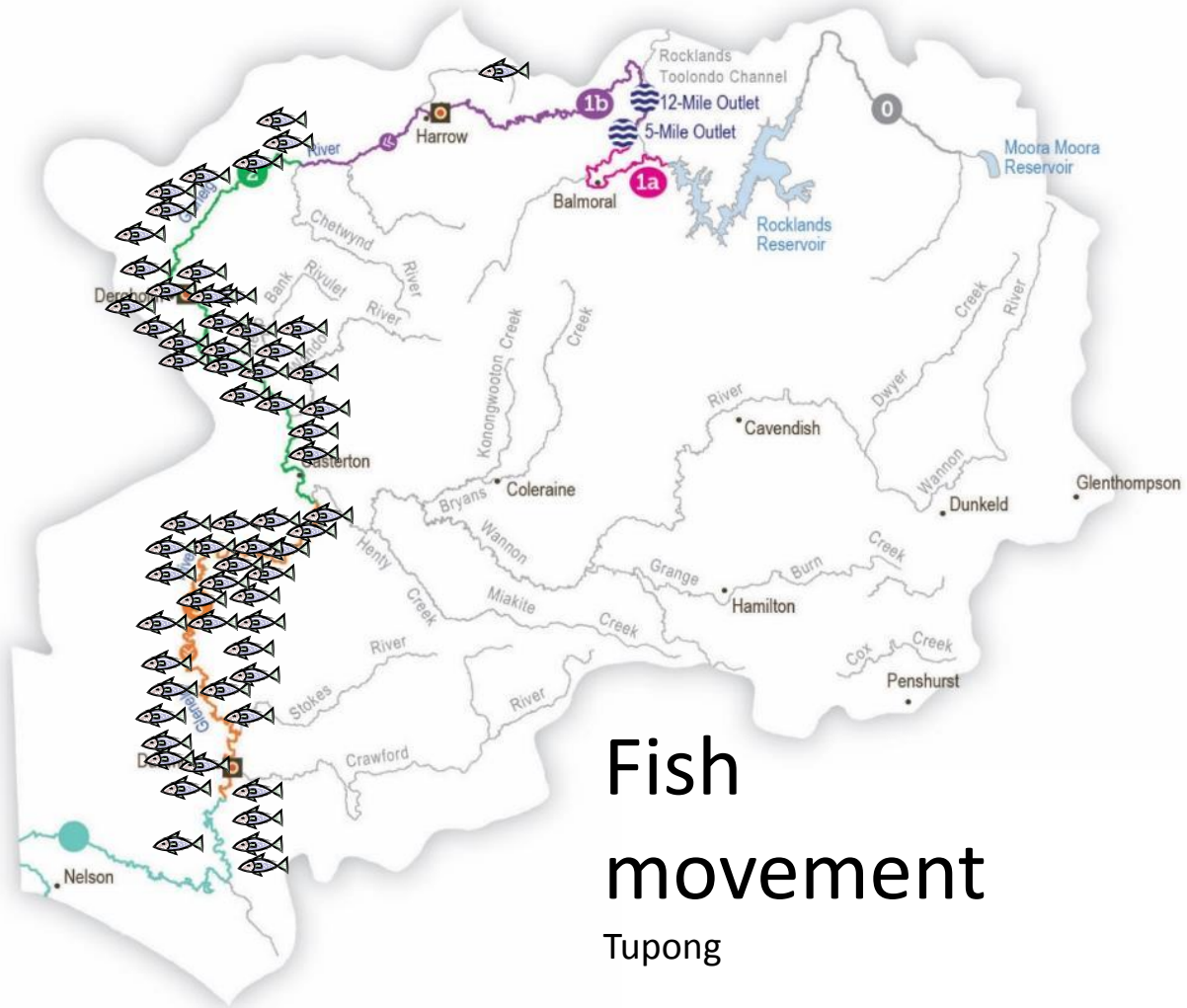
- 2009
- 2010
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Fish movement

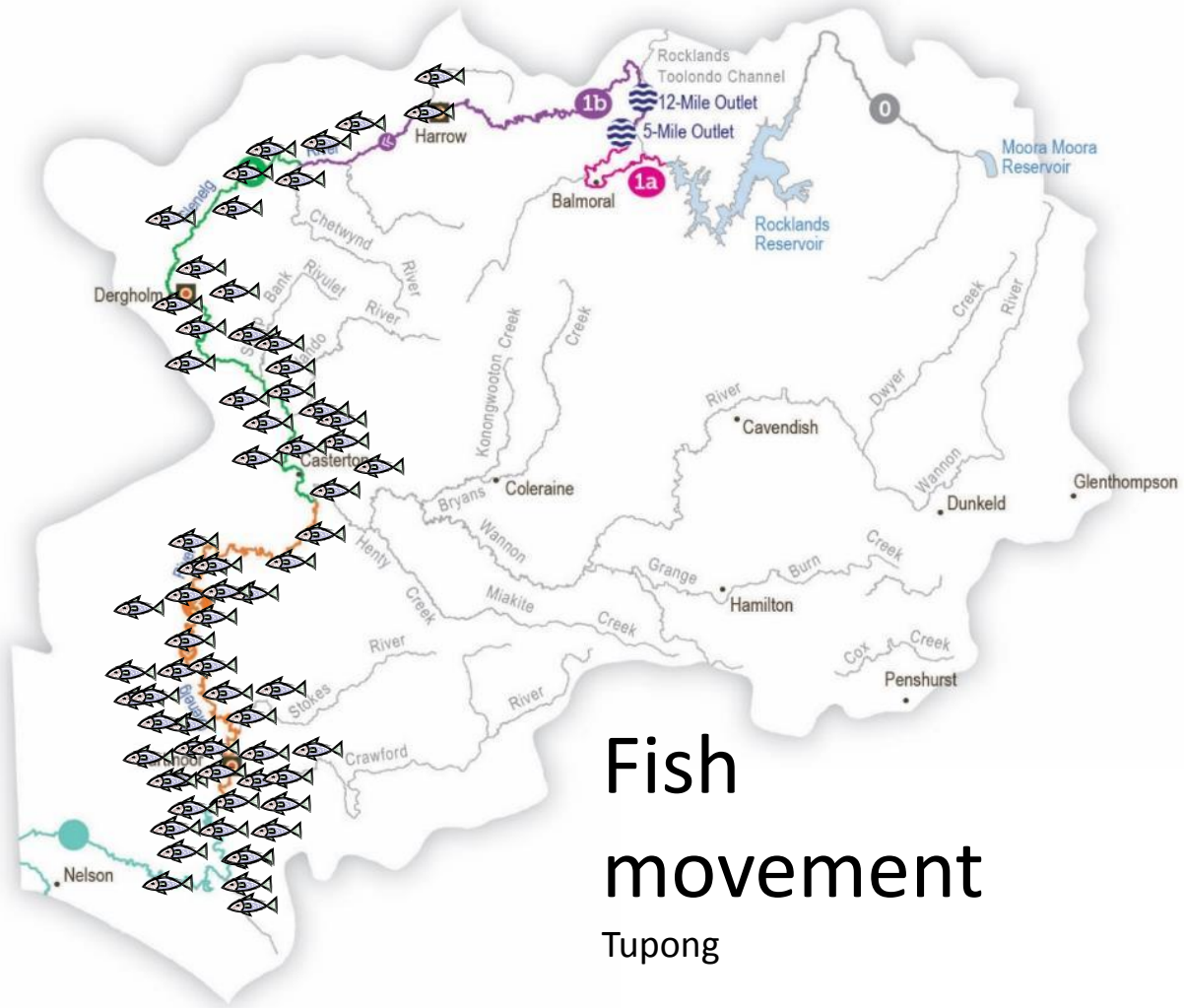
Tupong

- 2009
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- 2016
- 2017
- 2018



Fish movement Tupong

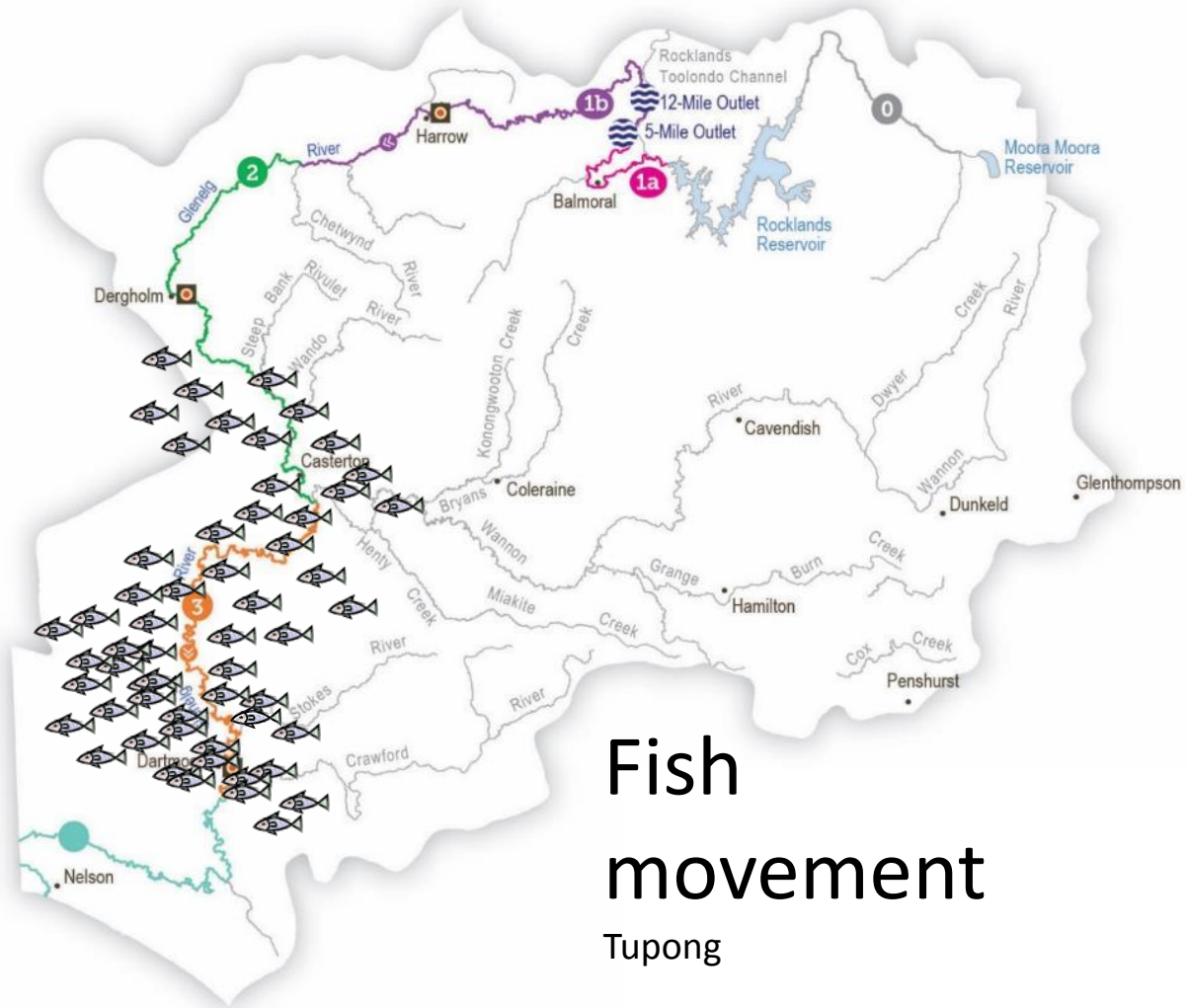
- 2009
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- 2016**
- 2017
- 2018



Fish movement

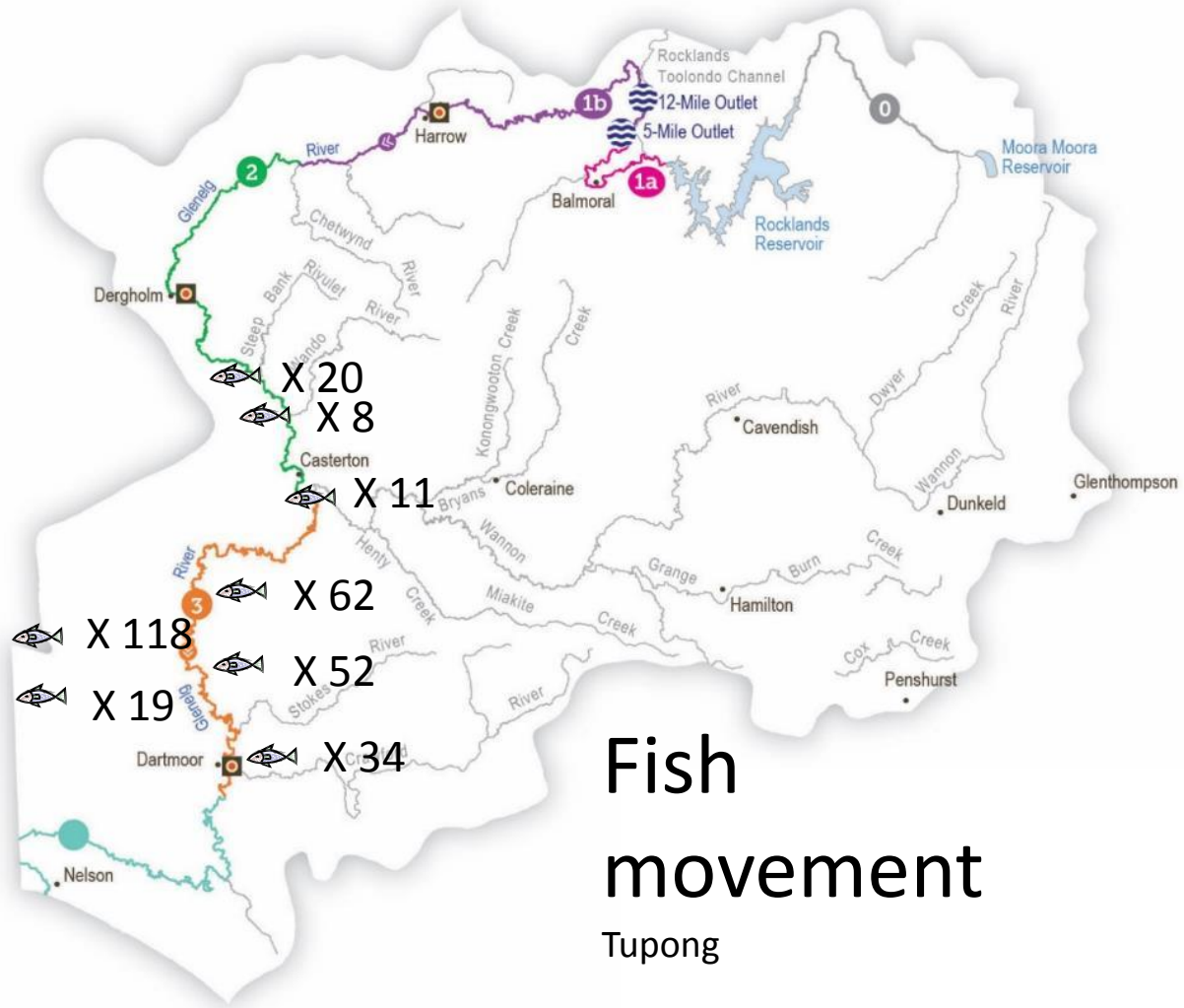
Tupong

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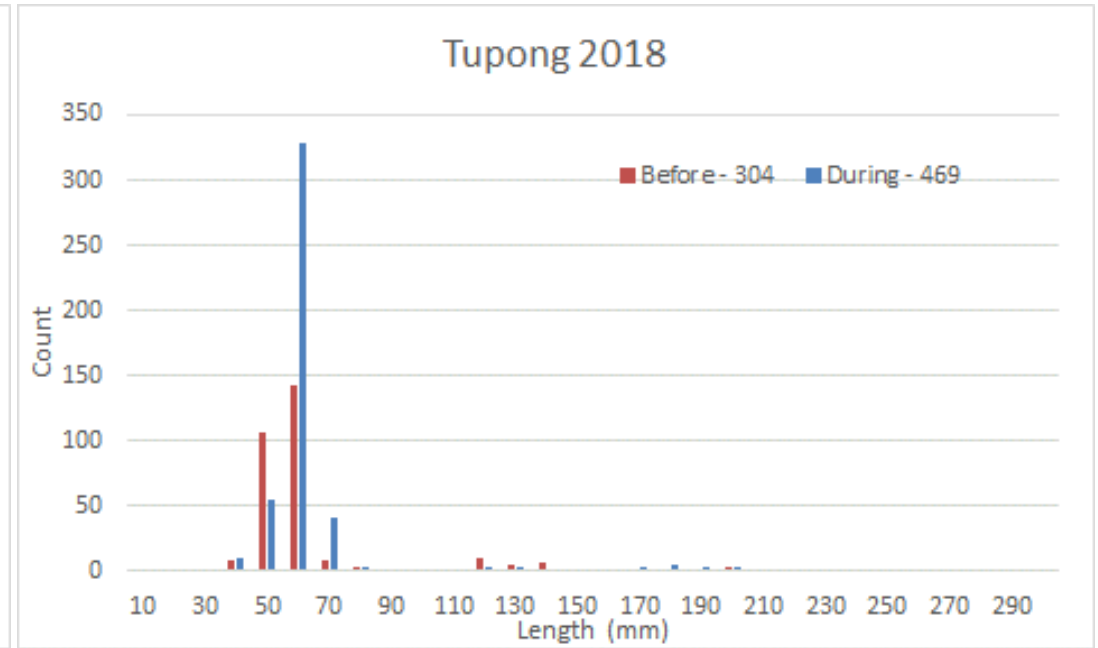
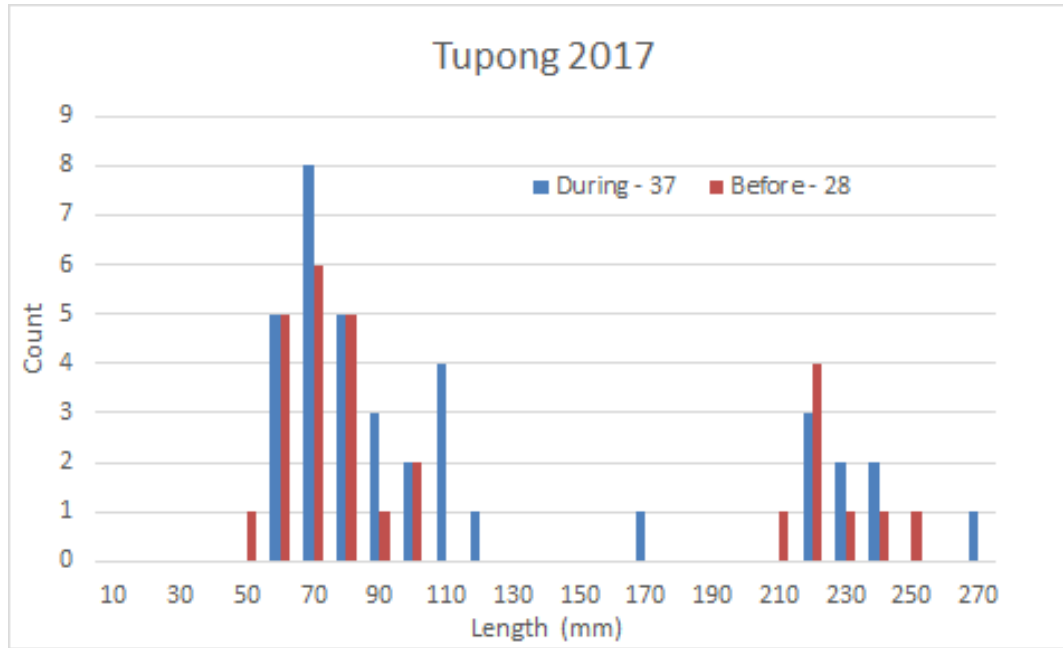


Fish movement Tupong

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- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018



Upstream migration continues



Summary

- Migratory species have recolonised upstream reaches with increased distribution and abundance of Tupong into upper Glenelg, which can be attributed to increased connectivity, the removal of fish barriers and the delivery of environmental water in recent years.
- Tupong have increased their range with large individuals captured upstream of Balmoral, in excess of 300 km upstream the River Mouth.
- Tupong number in 2018 is the highest observed during the 10-year history of VEFMAP in the Glenelg River and over half (53%) of were considered YOY fish.



Acknowledgements

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- Austral Research and Consulting



Environment,
Land, Water
and Planning

a u s t r a l
research and consulting
