



**Central Coast Council**

# Tuggerah Lakes:

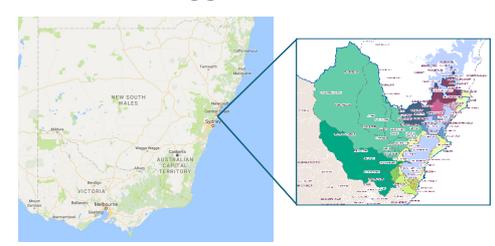
## Perception v Reality

*10 years of implementation of the Tuggerah Lakes Estuary Management Plan*

NSW Coastal Conference  
29 October 2019

V McCann<sup>1</sup>, N McGarahan<sup>1</sup>, M Barnett<sup>1</sup>, D Hargreaves<sup>1</sup>, N Carson<sup>1</sup>, M James<sup>1</sup>, L Sulkowski<sup>1</sup>,  
A Ferguson<sup>2</sup>, R Swanson<sup>2</sup>, P Scanes<sup>2</sup>, J Potts<sup>2</sup>, C Balada<sup>2</sup>, A Wright<sup>2</sup>  
<sup>1</sup>Central Coast Council, Woyah, NSW  
<sup>2</sup>Environment, Energy and Science (Department of Planning, Industry and Environment), Sydney, NSW

### Where is Tuggerah Lakes?





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### Tuggerah Lakes basics

**Average Retention Times**

- 520 days
- 460 days
- 220 days

Studies have shown that entrance modification will not improve water quality

- **Major flushing:**
  - 5 major tributaries – 228km of rivers and creeks
  - Average Annual Flow = 193,000 ML/year
- **Minor flushing:**
  - Limited oceanic exchange < 1%
  - Tides generally limited to the Entrance

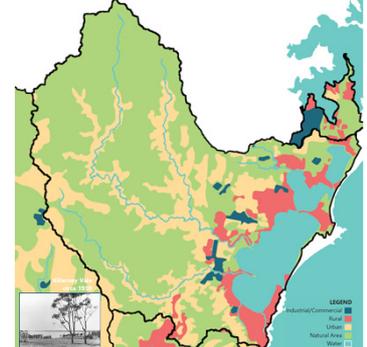


if you are looking at the estuary and wondering how to manage it, then you have your back to the real problem



### 80+ years of change

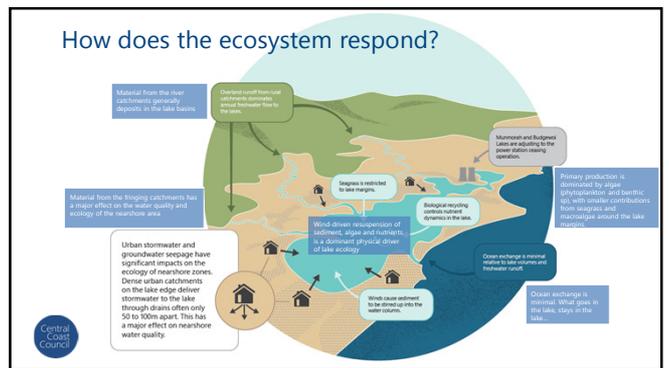
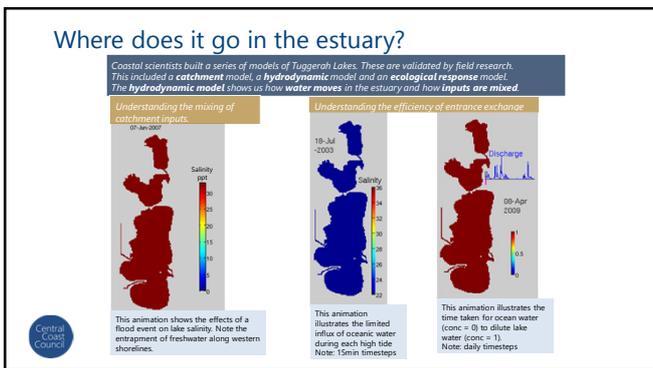
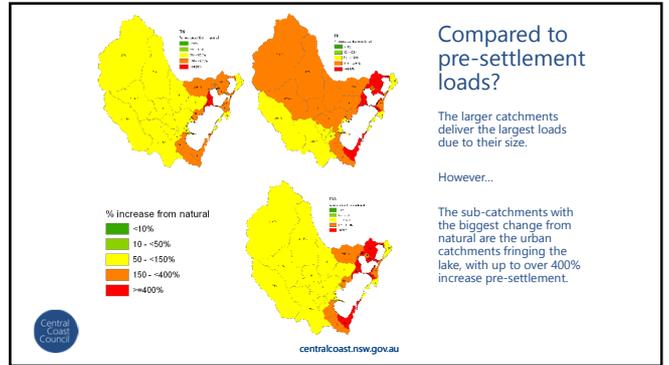
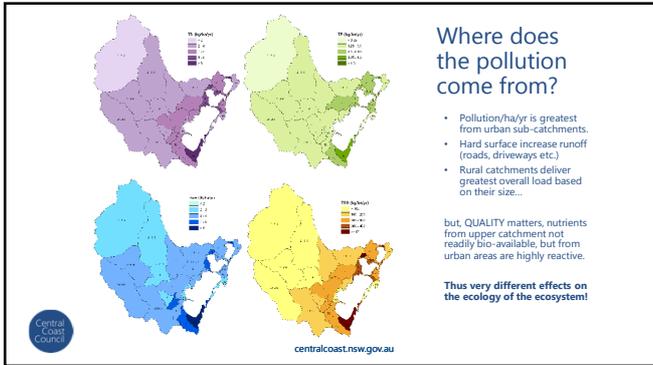
- Clearing of valley floors and floodplains
- Loss of natural wetland and saltmarsh filters
- Streambank erosion
- Foreshore modification
- Increased hard surfaces
- Stormwater pollution
  - Nutrients
  - Sediment
  - Gross pollutants



**LEGEND**

- Industrial/Commercial
- Rural
- Urban
- Natural Area
- Water







### Recent results and trends

- Council has an established monitoring program which has been running monthly since 2011
- The CCW MER is consistent with the NSW MER and is considered industry best-practice

**Pressure indicators:**

- Turbidity - monthly
- Nutrients - monthly
- Total Suspended Solids - monthly

**Response indicators:**

- Chl-a (microalgae) - monthly
- Seagrass depth range - yearly

**The Grades explained**

- A** - The total number of benchmarks for most (more than one) of the year. Overall trend (2011 to present) is 'Good'
- B** - The total number of benchmarks for most (more than one) of the year. Overall trend (2011 to present) is 'Fair'
- C** - The total number of benchmarks for most (more than one) of the year. Overall trend (2011 to present) is 'Fair'
- D** - The total number of benchmarks for most (more than one) of the year. Overall trend (2011 to present) is 'Fair'
- E** - The total number of benchmarks for most (more than one) of the year. Overall trend (2011 to present) is 'Fair'
- F** - The total number of benchmarks for most (more than one) of the year. Overall trend (2011 to present) is 'Fair'

**Water Quality Overall Grade 2017-18**  
**A-C**

### How does Tuggerah Lakes compare to other estuaries?

**2017-18 Water Quality Overall Grades**

**Legend for Water Quality Overall Grades:**

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### Putting plans into action...

- 1992** NSW Estuary Management Manual
- 1996** Estuary Process Study
- 2001** Estuary Management Study
- 2006** Estuary Management Plan gazetted
- 2008-2019** Funding, implementation, Monitoring and Evaluation → Improved understanding
- 2019-2021** New Coastal Management Program
- 2021 on** Commence implementation of CMP

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### Implementation of the Tuggerah Lakes Estuary Management Plan

**Grant Expenditure 2008-2020**  
**\$26.5 million**

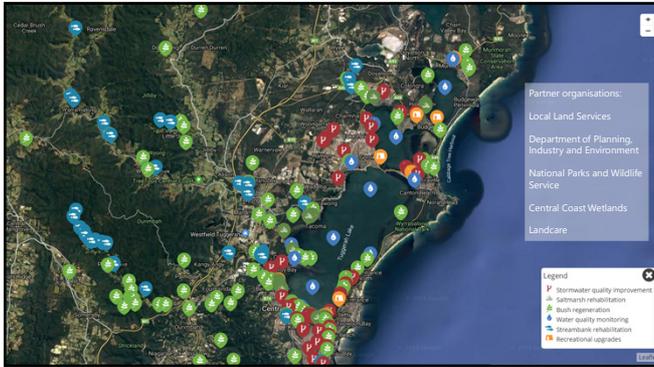
Category	Percentage
Administration	5%
NSW	6%
Education & engagement	10%
Beach streambank rehabilitation	21%
Forest revegetation	21%
Urban streambank rehabilitation	7%
Nitrogen Weed/WOCC control	6%
Rural pest management	11%
Landcare support	<1%
Foreshore biodiversity management	1%
Stormwater management draw & reuse	6%
Foreshore recreation - sand nourishment	2%
Foreshore recreation - weed management	2%
Foreshore recreation - facilities	1%

**Other funding sources:**

- 2008-13** Caring for our Country: \$20 million
- 2014-17** National Landcare Programme: \$3.25 million
- 2017-20** Improving your Local Parks and Environment: \$3 million
- 2019-2022** Environment Restoration Fund: \$4.7 million

In addition to grant funding, Council commits approximately \$5 million per annum to estuary improvement programs and projects

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### Connecting Coast, Catchment & Community

#### Reaching out to the community

- Factsheets & handbook
- Website
- Online map of projects
- 4 new eBooks
- Parker Platypus books
- Annual waterway report card
- Landcare support – 80 groups
- 10+ community ecotours per year
- Business workshops
- Preschool, Primary and High School Programs
- Youtube videos & digital animation
- Cinema advertising
- Social Media Waterways Weekly
- Annual Lakes Festival

Short film series – screened in local cinemas – 140,000 views in 2018-19

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### What's next for Tuggerah Lakes

- Continue to implement current \$3m grant
- Plan for a further \$4.7m grant
- Prepare a new CMP for Tuggerah Lakes (collaborate!)
- Publish the 2018 & 2019 Waterway Report Cards
- Spatial map of water quality results
- Expert Panel & Working Group
- Implement, Evaluate and Report on delivery of new CMP

The estuary is responding positively to good long-term management – so how do we bring the community along for the journey?

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Central  
Coast  
Council

Thanks for listening ☺

Questions?

### Implementation of the Tuggerah Lakes Estuary Management Plan

**Planning, Monitoring, Evaluation and Reporting**

- Wetland Management Plan
- Saltmarsh Rehabilitation Plans
- Streambank Rehabilitation Plans
- Foreshore Recreation Plan
- Stormwater Management Plan
- Estuary Education Strategy
- Design and Approvals for work projects
- Estuary Modelling
- MER water quality monitoring program
- Annual Report Cards

**On-Ground Works**

**SALTMARSH**

- 3ha of saltmarsh reconstruction
- 30ha of saltmarsh rehabilitation

**RIVERS AND CREEKS**

- 15km of urban stream rehabilitation
- 40km of rural stream rehabilitation
- 520ha of improved riparian management (through landholder engagement and LCC agreements)

**WETLANDS**

- Over 400ha of natural wetland rehabilitation & management
- Partnership program with NPWS

**NOXIOUS WEED CONTROL & FERAL PESTS**

- 1570ha of land managed for noxious and environmental weeds
- 1290ha of land managed for pigs, rabbits and foxes

**FORESHORES**

- 30ha of foreshore biodiversity improvements
- 4 new foreshore beaches
- Shared pathway extensions, fitness equipment, new playgrounds (Council funded)
- Wrack collection infrastructure
- Saltmarsh boardwalks, viewing platforms
- Extensive educational signage

**STORMWATER**

- 225 Grits, pollutant traps
- 33 constructed wetlands
- ~10 new devices per annum (Stormwater Levy)
- Extensive maintenance program

**WRACK AND ALGAE COLLECTION**

- ~14,000m<sup>3</sup> of wrack and algae removed each year
- Strategic wrack collection program to assist circulation

**Award winning Community Education Program**

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