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# Fish Passage Studies IV: Are Fishways Cost Beneficial?

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# Are fishways cost beneficial?

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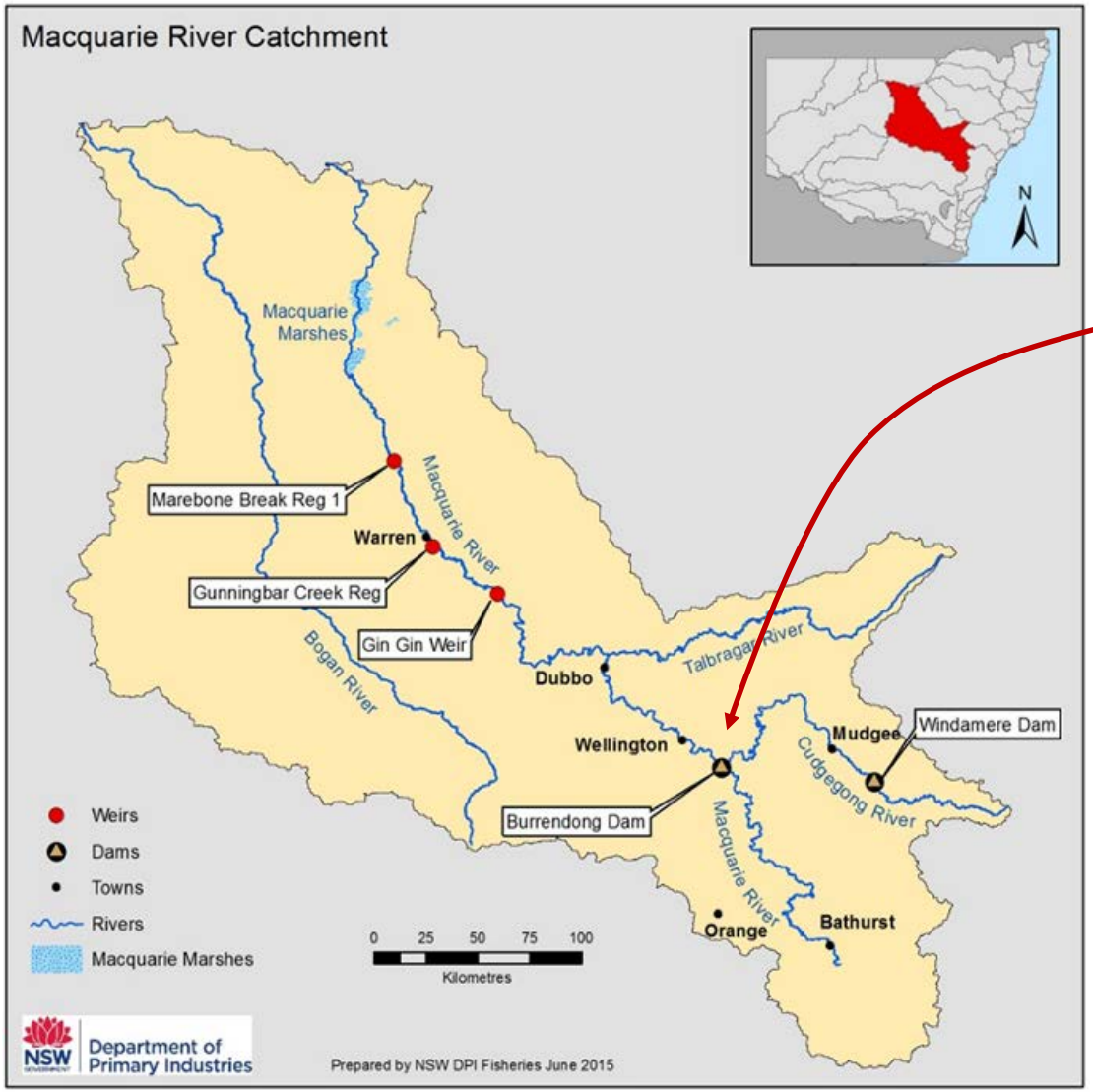
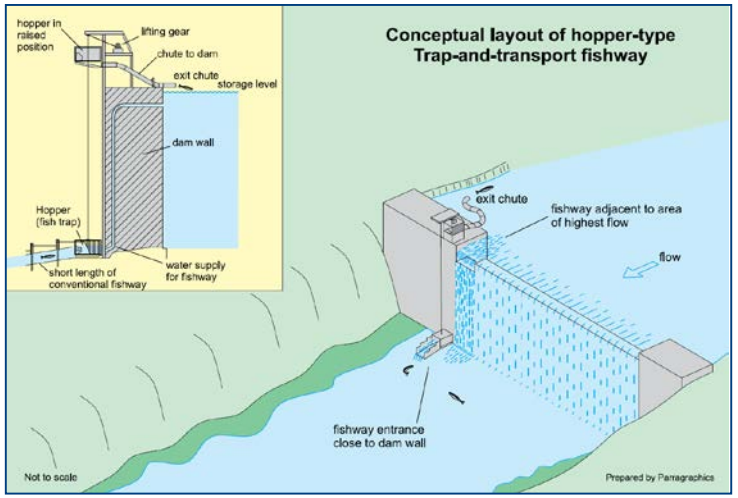
# Burrendong Dam Upgrade

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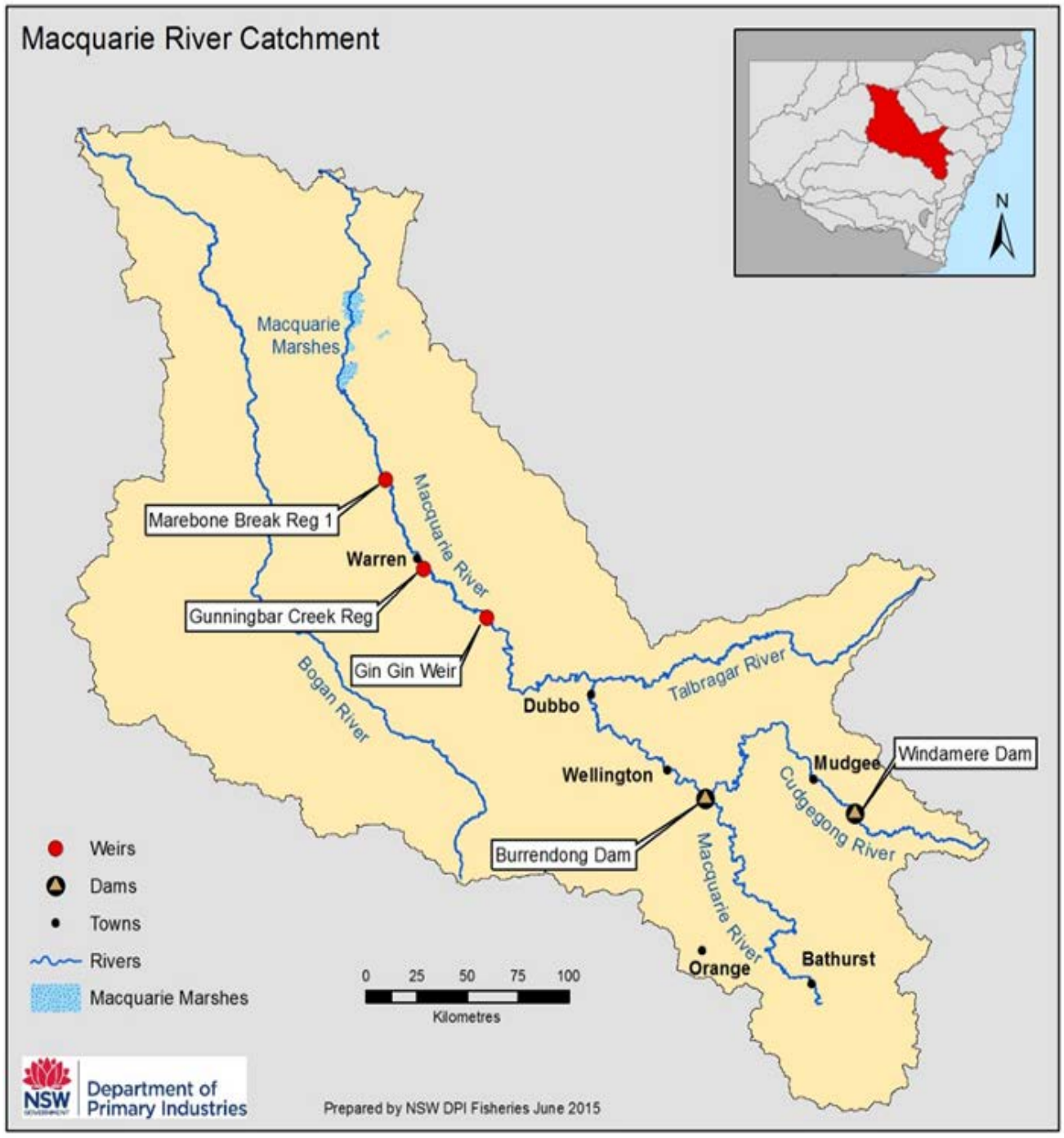
# Macquarie River Catchment




# Burrendong Dam Upgrade Fishways

- **High Level Fishway - $75.3 M**
- **Fishway Offsets (3) - $18.1 M**
- **Savings - $57.2 M**
- **Cost concerns**
- **Cost beneficial???**

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# Cost-Benefit Analysis

- Process of quantifying costs and benefits of a project over a specified period (e.g. 30 years), and those of its alternatives, in order to have a single scale of comparison for unbiased evaluation.
- Employed mainly in financial analyses, it includes those environmental and social costs and benefits that can be reasonably quantified.
- Strict NSW Treasury Guidelines

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# Cost-Benefit Analysis

- Costs over asset life
  - Capital
  - Maintenance
  - Social
  - Environmental

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# Fishway Costs

| Cost Component | Burrendong Dam Fishway | Fishways Offsets Program |
|---|---|---|
| **Capital Expenditure** | 73,738,000 | **17,697,000** |
| **Maintenance Costs** | 2,269,000 | **613,000** |
| **Terminal Value** | (739,000) | **(177,000)** |
| **Total Project Costs** | **75,268,000** | **18,132,000** |

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# Cost-Benefit Analysis

- Financial
- Social
- Environmental

- ‘Use Value’
- ‘Non-use Value’
  - ’Willingness-to-pay’

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# Willingness-to-Pay Survey

- NSW Residents – 3000+
- Demographic info
- Site info
- Project info
- Willingness-to-pay
  - – Perceived value

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# Willingness-to-Pay Survey

- **Average Household**
  - **Burrendong Fishway $44.39**
  - **Fishway Offsets $31.50**
- **NSW Households**
  - **Burrendong Fishway $114 M**
  - **Fishway Offsets $ 81 M**

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# Cost-Benefit Analysis

| Project Scenario | Burrendong Dam Fishway | Fishway Offset Program |
|---|---|---|
| **Total Project Costs** | $75.3 million | $18.1 million |
| **Total Project Benefits** | $114.2 million | $81.1 million |
| **Net Project Benefit (NPV)** | $39.0 million | $63.0 million |
| **Benefit/Cost Ratio** | 1.52 | 4.48 |

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# Cost-Benefit Analysis

- Sensitivity Analysis (+/- 20 %)
- Burrendong Fishway
  - Break-even WTP = $29.25 (34 % reduction)
- Fishway Offsets
  - Break-even WTP = $7.00 (78 % reduction)

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# Burrendong Dam Fishways

- Cost-beneficial
  - Fishway Offsets
- Societal values
- Report
- Poor public knowledge

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