The Shoalhaven River experience: balancing water needs for supply and river health

Presenter: Maree Abood
NSW Department of Water and Energy

Session:B3B

10th International Riversymposium & Environmental Flows Conference 3-6 September 2007, Brisbane, Australia

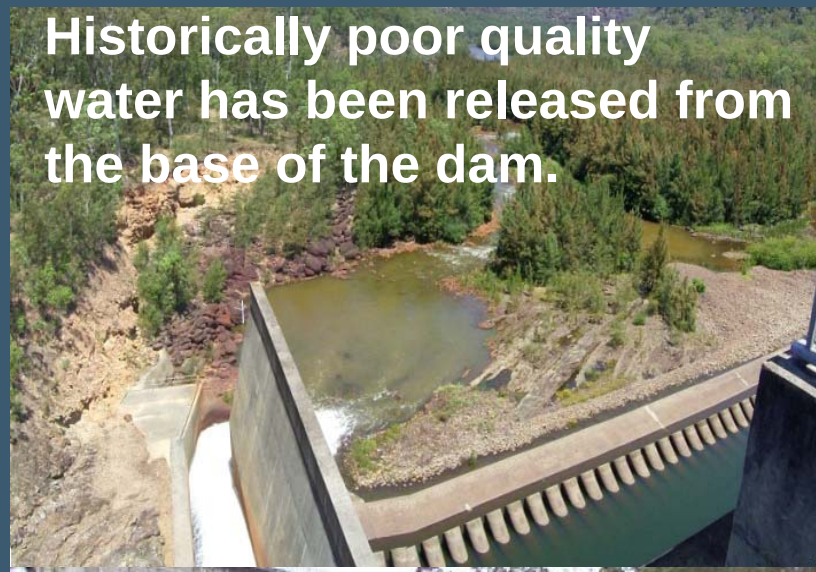
Project objective

1. optimise the existing Shoalhaven Water Supply Transfer Scheme to increase the long term available water supply to greater Sydney by around 30 gigalitres a year; and
2. a new improved **environmental flow** for downstream of Tallowa Dam.

Greater Sydney water supply scheme

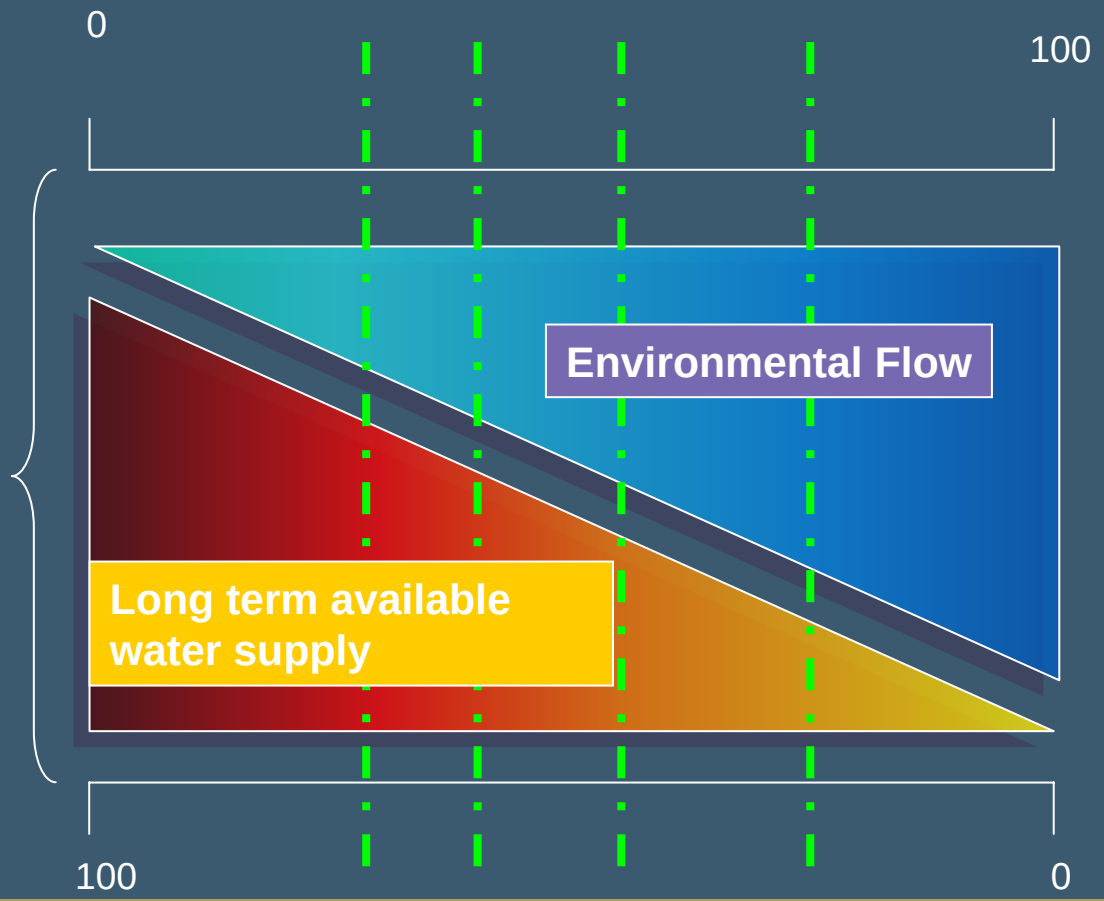
Interim rule and associated issues

- only protects up to 90 ML/day
- cold water releases from base of dam
- no fish passage above and below Tallowa Dam
- extraction impacts on low and moderate flows in drought
- long term average extraction is ~15 GL/yr

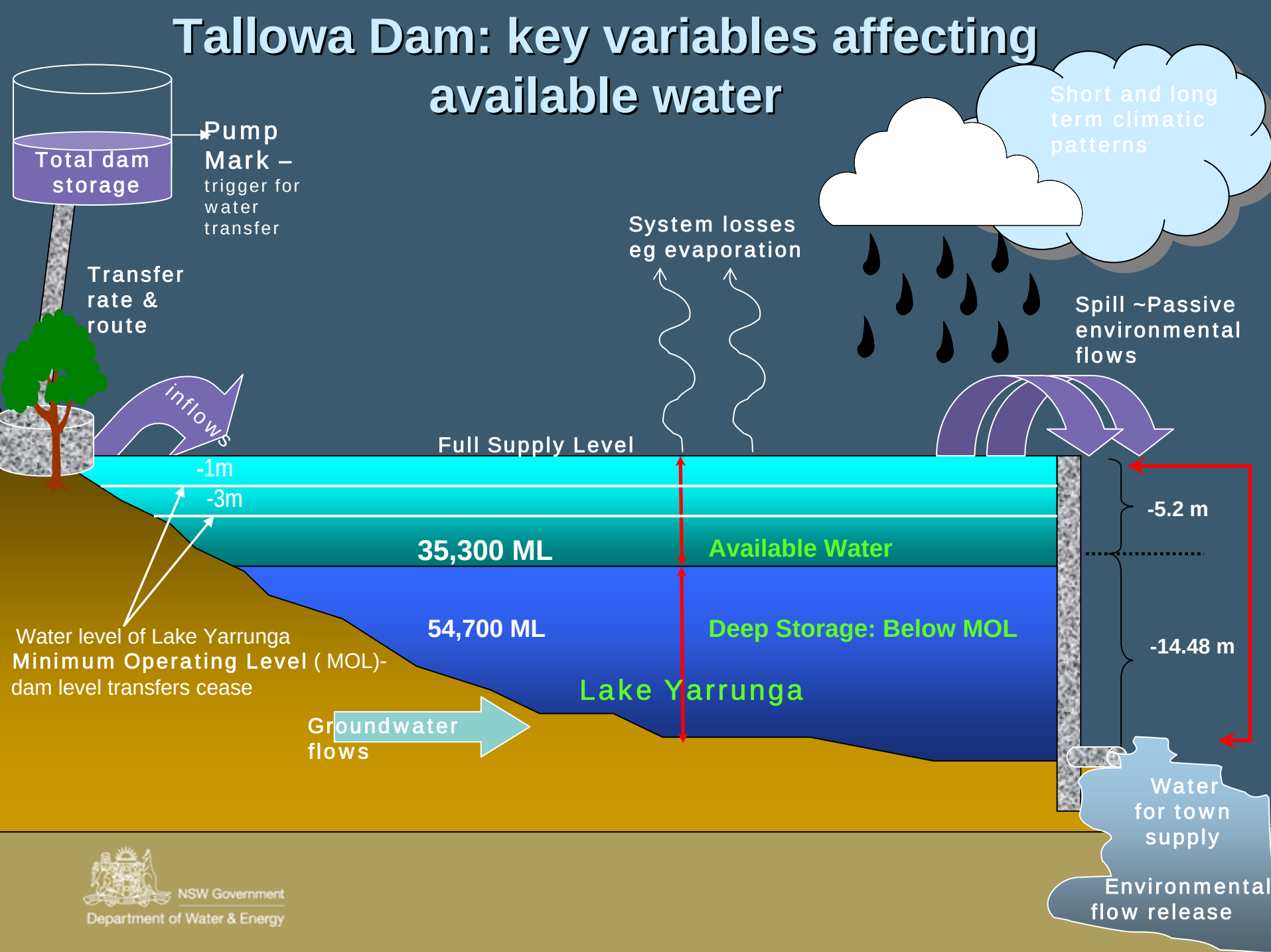


Challenge: supply for Australia's largest city vs river health

- *trade-off* between long term available water supply & minimise deviation from 'natural' flow pattern
- *probabilistic* task reliant on interaction of ranges of variables



Tallowa Dam: key variables affecting available water

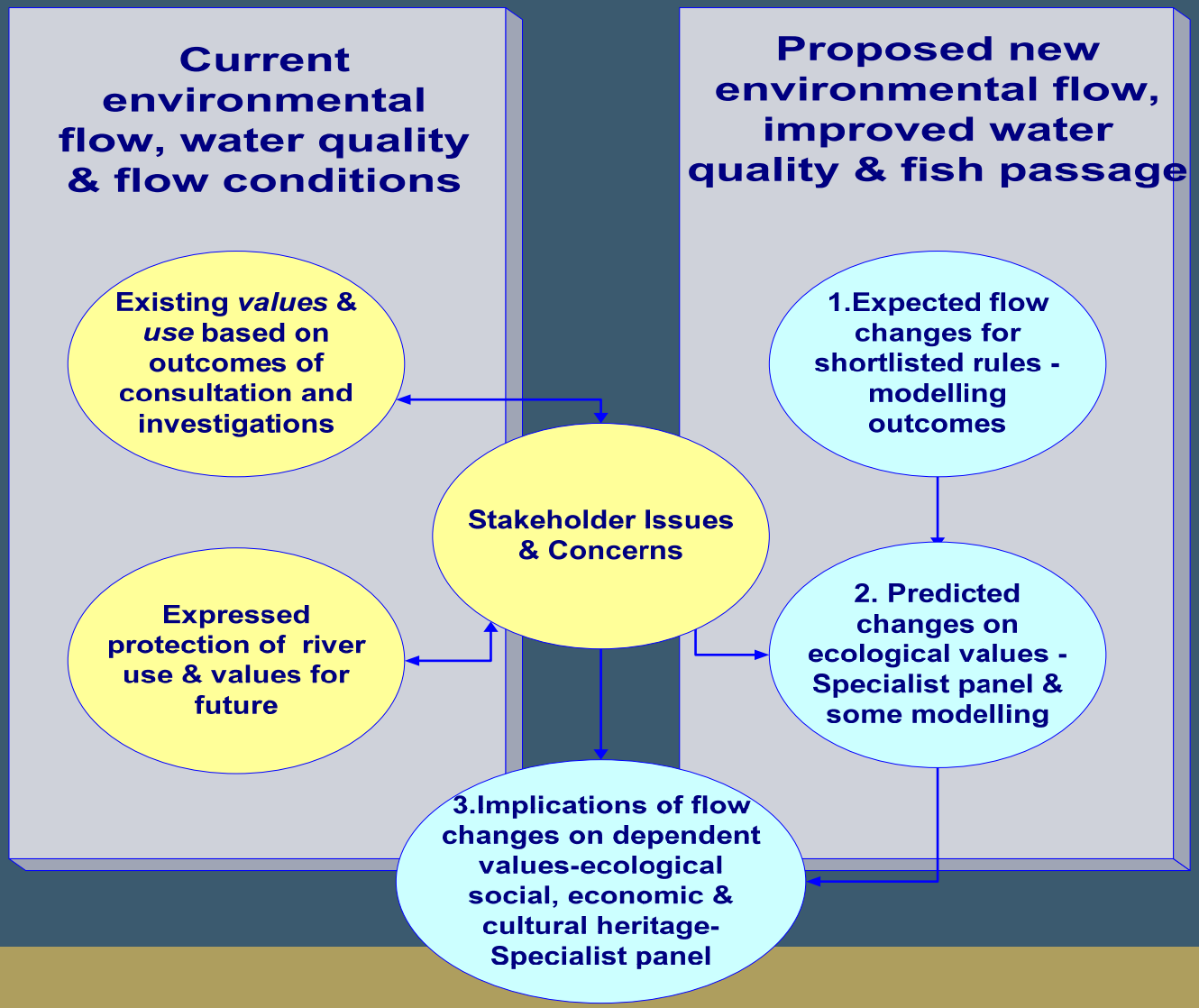


NSW Government
Department of Water & Energy

Steps to develop new environmental flow

- Shoalhaven Scientific Advisory Panel
- knowledge review
- investigations
- values and uses assessment and community comment
- determination of recommended environmental flow regime

Integration framework



Understanding flow patterns and predicting change

- robust hydrological modelling & analytic method developed
- Scenario development
- iterative process – optimising system

Flow - ecology evaluation

- specialist panel - predict likely ecological response to changed flow patterns
- qualitative risk assessment framework
- some flow thresholds identified- but still only indicators of complex process
- role of moderate flows in ecological process less understood

Integration of Social, Economic and Cultural Assessments

- each anthropogenic discipline has a different approach & focus to assessing potential change to society
- different outputs -both qualitative to quantitative
- specialist panel – similar qualitative risk assessment framework

Cost benefit analysis (CBA)

- CBA assess costs and benefits of a project, including the environmental, social and direct economic impacts
- limited by valuation process & ability to translate biophysical information into environmental outcomes
- only indicative of relative changes to ecosystem services – anthropogenic focus

Role of consultation

- extensive consultation process
- Shoalhaven Community Reference Group
- integral to Social Assessment- major source of information particularly for identifying values and uses

Successful outcome !

March 2007 NSW Government announced a new environmental rule (80/20) which included:

- **100% protection of low flows** ranging between 150ML/day to 371ML/day;
- **20%** of all inflows above 80th percentile to protect a portion of **moderate and high flows**;
- Two way fishway and water quality improvements

Lessons learnt

- robust method for describing flow changes is critical
- suite of tools required for IWRM – often specialised skills needed however often disparate advice

Lessons learnt

- Effective communication reliant on:
  - ability to translate complex information for broad range audiences
  - support tools for explaining technical information eg tidal animation graphic

Lessons learnt

- more practical application guidelines needed to assess the benefits and costs of a broad range of competing water and river use values
- CBA: valuation of biophysical process needs:
  - to be locale specific; &
  - improved process to derive metric for expressed better environmental outcomes.

Thank you

For further information on the *Shoalhaven Water Supply Transfer and Environmental Flows Project* see *http://www.dnr.nsw.gov.au/water/shoalhaven.shtml*