



Cotter R. pre- eflows



Cotter R. post-eflows



Kosciuszko NP hydro diversion

Environmental water: ecological goods & services - gains & losses



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Water for the environment



Most discussion has been about losses to agricultural production & little about possible gains from an improved environment



Some debate about more complete costing of losses and gains – absolutely needed








NWI, Water Act 2007, Water for the future policy are all directed to ecological protection & restoration & are driving water reform








Defining relevant ecological goods & services will provide a better base for defining desired outcomes & for valuing the potential costs & values derived from environmental watering.

Critical questions

-  How do we value ecological goods & services?
-  What are the ecological outcomes that we want to achieve?
-  To achieve them, how much water is needed, & when?
-  Note that these are not necessarily related to natural flows or percentage volumes
-  Different from – What ecological changes might occur if some amount was released?

Ecological goods & services

-  River ecological goods & services are much more than just water & there are costs associated with ecological damage & benefits that may be gained
-  Regulation functions – waste treatment, nutrient regulation, biological control
-  Habitat – refugia, nurseries, complexity, vertical structure, connectedness
-  Production – genetic resources, recreation, food, raw materials
-  Information – aesthetic value, recreation, culture art, history, science & education

Regulation services

Low flows - toxic algal blooms

Costs – loss of waste treatment

- water treatment
- community costs – water transport

Value – waste treatment – cost reduction

- nutrient management
- biological control – e.g. carp



Habitat services

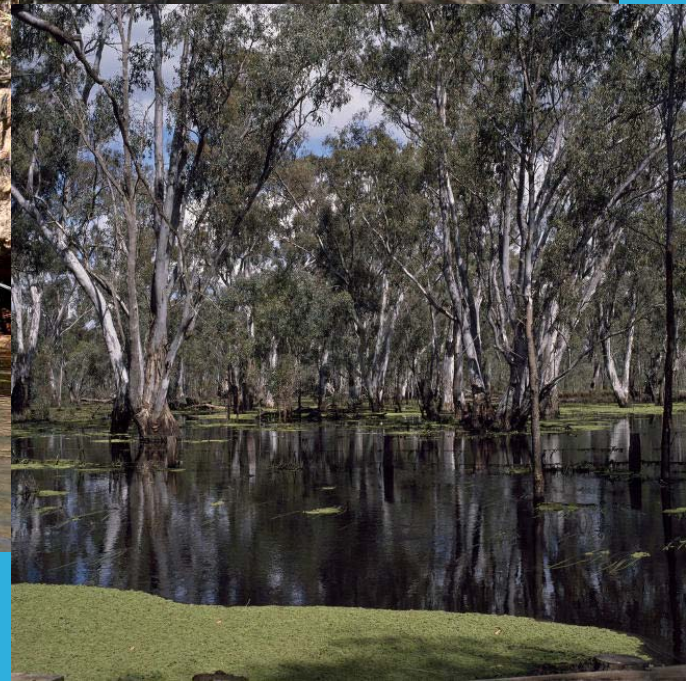


Costs

- nurseries
- corridors
- refugia
- recreation & tourism opportunities

Values –

- recovery from drought
- Maintenance of biodiversity
- ecological function
- connectedness - migration



Production services

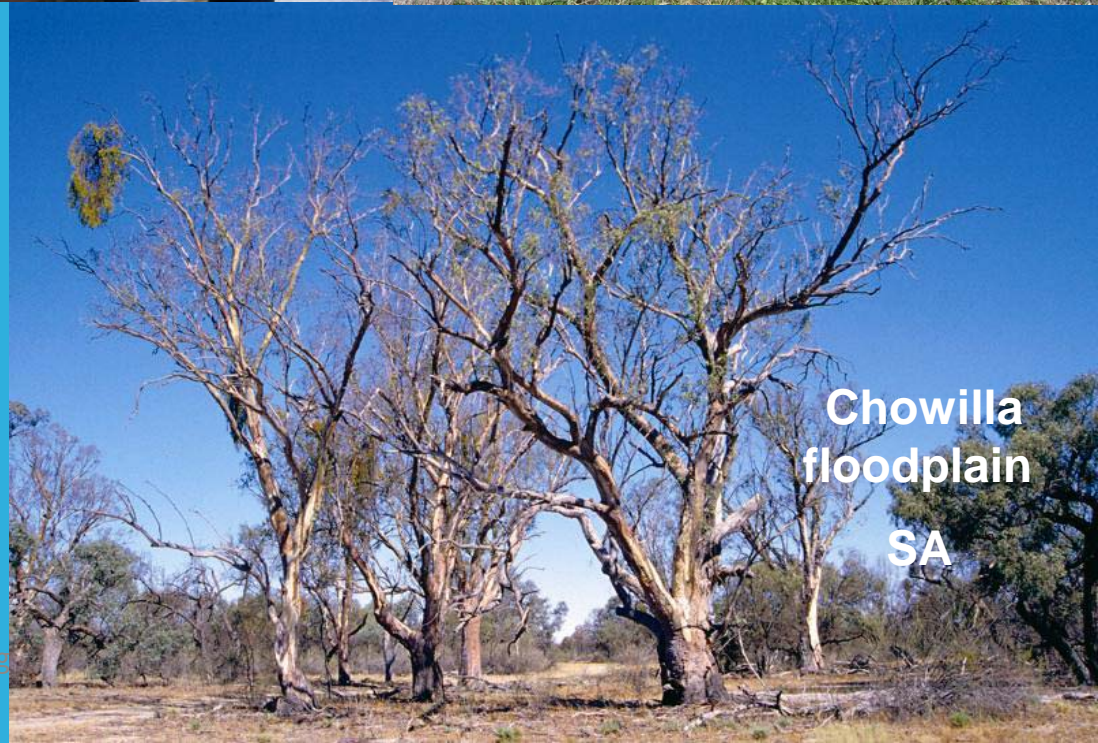


Costs

- Forests
- Recreational & commercial species
- Food chain
- Genetic resources
- Ecosystem function damage

Values

- Human resource use
- Adaptation to changed conditions



Chowilla
floodplain
SA

Information – aesthetics services

Costs



- Recreation amenity
- Heritage/history
- Scientific discovery

Values

- Attractive environment
- understanding river function
- Sense of belonging
- Valuing environment
- Art



Is water to the sea wasted?

-  No – but depends on where the priorities are set
-  Water in the channel & on the floodplain provides ecological goods & services from which benefits are gained
-  These goods & services have real value to communities & the environment