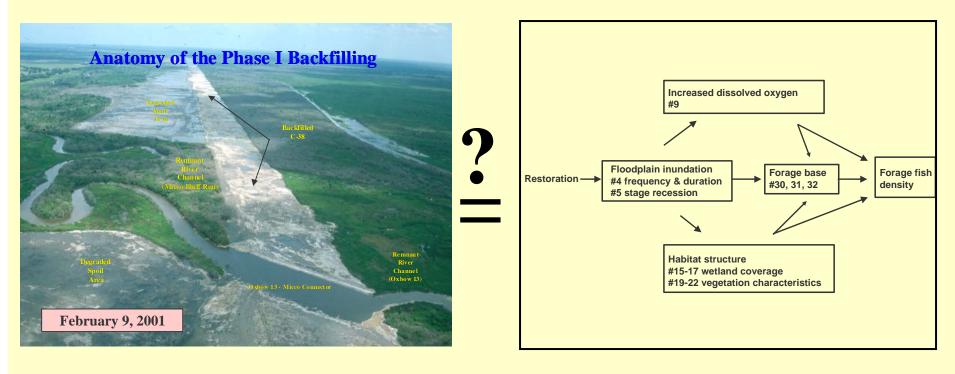
Overview - Key Points

- Multiple stressors interacting and in combination – integrated restoration plan
- Time for action is now planning needs to move on to implementation
- Ecosystem approach is key to successful monitoring, research, and adaptive management
- Look to successfully implemented largescale programs for guidance

The Kissimmee River Restoration Project Developing Restoration Expectations (Metrics) Long-term Process (1992-1995) with External Advisors

Key Product – Dedicated Issue of Restoration Ecology (1995)



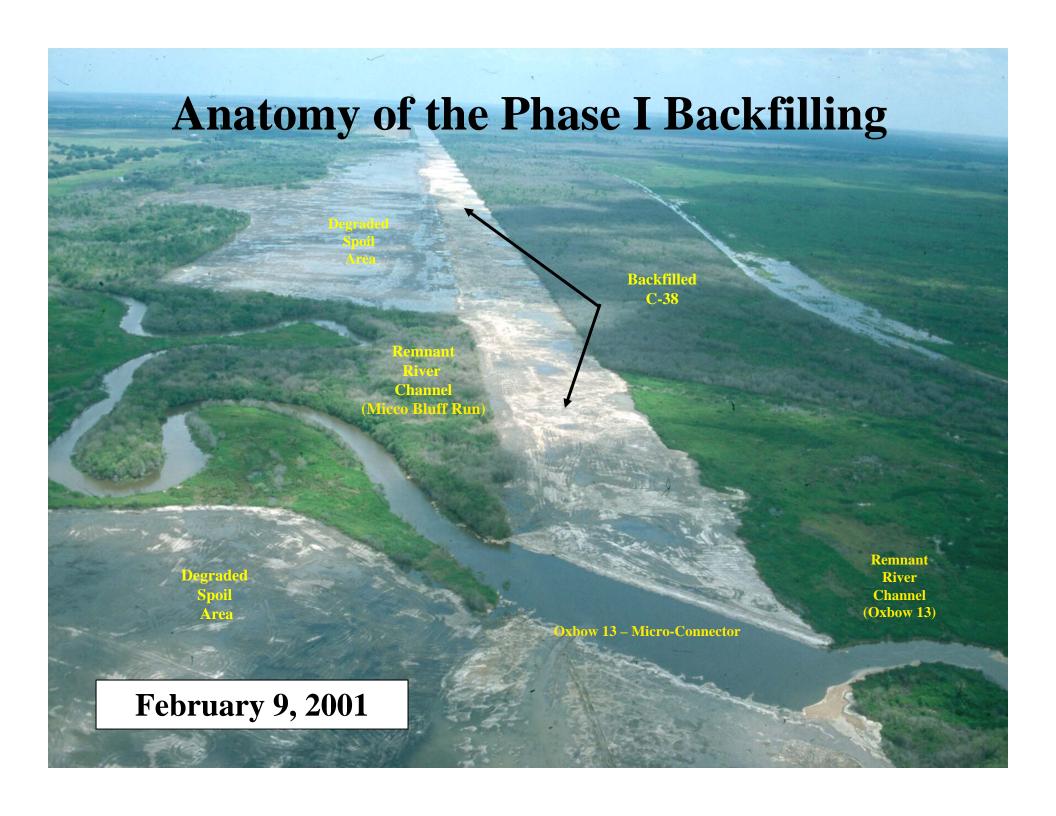
Restoration of the Kissimmee River

Applying restoration expectations









Simple Conceptual Model

Restoration ---- Abiotic ---- Biotic

Flow

Geomorphic Substratum

Hydrologic

Dissolved Oxygen

Hydroperiod

Algae

Plants

Invertebrates

Fish

Amphibians

Birds

60 Restoration Expectations (Metrics)

- Hydrology 6
- Geomorphology 2
 Amphibians 2
- Water Quality 4
- Vegetation 10

- Algae 2
- Fish 7
- Birds 11
- Invertebrates 11
 Listed Species 5

Expectations linked to an experimental design, location and frequency of measurements, methods to be used, and ways to analyze and report the resulting data.

http://my.sfwmd.gov/portal/page/portal/sfwmdmain/home%20page

Southeast Queensland, Australia - 2007

- 15 major catchments
- 22,672 km²
- 19 local government areas
- Population 2.5 m
- Fastest growing region in Australia





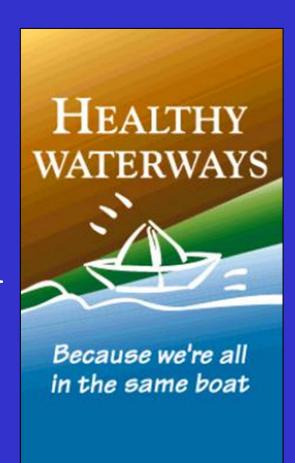
The Restoration and Evaluation Partnership

3 levels of government

- Local councils (6)
- State Government agencies (6)
- plus Federal funding

Strong research support

- 3 Universities
- CSIRO
- 3 Cooperative Research Centres



Community & industry advisory groups (>40)

- indigenous
- conservation
- · catchment & landcare
- commercial industry
- rural industry





















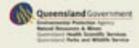
























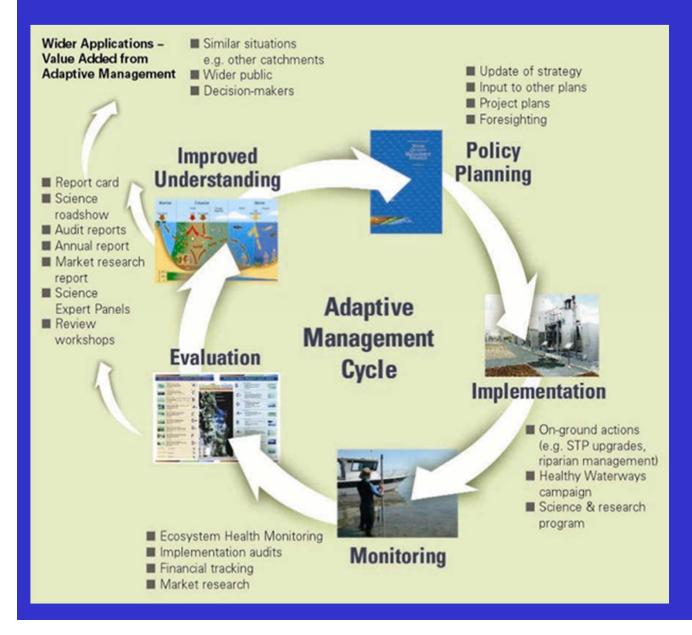








Adaptive Management Framework



- ongoing knowledge acquisition
- critical role of monitoring
- continuous improvement in the identification and implementation of management.
- effective
 communication of
 knowledge for
 policy/planning

Ecosystem Health Monitoring Program

Freshwater EHMP

- Designed stage 3; Implemented 2002



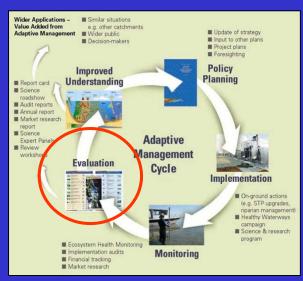


120 freshwater sites (sampled 2x/yr)



Report Cards on Progress





Ecosystem Health

A comprehensive monitoring program
The Ecosystem health Monitoring program (ETHAP) delivers
a regional assessment of ecosystem health for the vaterways of South Ests Queensianed. With its "cerchment to
coast", philosophy, the program targets both freshwater and
substantininariane environments, in so, mere extending from
Noces in the north, pouch to the NOW border and vest to
voterow, health incorporating a range of biological, physical
and chemical indicators. The monitoring of epiproprietal
indicators for the estudient lambs component of the Endi dicators for the estudient lambs component of the Chiff
stanted in Meretto Bay in 1990, especied north to the
COOQ, and the Coop of the Coop of the Chiff
expended into the freshwater catchinents in 2002, with a
superiod into the freshwater catchinents in 2002, with 6 such set of 120 feetsweet sizes now being mensioned in 6 out of
the Coop of the Coop of the Coop of the Coop of the Coop of the Coop
to the Coop of the Coop of the Coop of the Coop of the Coop
to the Coop of the Co ital of 120 freshweter sites now being monitored in South East Queensland's rivers and streams

A partnership approach

A parmership approach
The EMM was established in response to requests by the
10 Local Governments and other stakeholders in South
East Queeniand for provision of an independent sudit of
the effectiveness of environmental protection and management measures undertaken by their agencies. The
general measures undertaken by their agencies. The
Gatchinents Persentilip on bahaf of the vertical stakeholders and is implemented by a large team of experts
from the Queeniand Government (Natural Resources and
Mines, Environmental Protection Approx. Queeniand Health
Scientific Services), universities (University of Queeniand,
Griffin University) and GBMO.

Integrated into an adaptive management framework

The EHMP reports on regional ecosystem health condi-The BMM reports on regional ecosystem health condi-tion, which can be used to provide long-term freebleck on protect Boshh East Chaenaland catchments, waterways and Moresto Bay, and to identify energing issues that may require management intervention. To achieve this, the program is embedded into the Partnership's adoptive man-agement framework that links manifoling to management objectives and regular view and evolution of the effec-ciation of the property of the property of the original condi-position of the effect of the condition of the effec-tive condition of the effect of

The EHMP has received national and international recog-nition, and is considered one of the best comprehensive marine, estuarine and freshwater ecosystem health monitor-ing progrems in Australia.

Detailed information on the indicators and methode employed in the EHMP can be found in the Ecosystem Health Monitoring Program 2002 - 2003 Annual Technical Report published by the MBWCP, or by visiting the Healthy Waterways

Freshwater Report Card 2004 Estuarine and Marine Report Card 2004 Continued high inorgenic nutrients in upper reaches Legend Catchment border Mooloolah River Noosa Catchment Moreton Bay - Overall rating Excellent No change in grade from last year, with all indicators of health once again showing consistently good results Good Good water quality but degraded riperian hebits Fair Poor Fail Pumisestone Fessage Generally good water quality with poorer values in the southern pass NG No Grade Caboolture River Waterway B 2003 2004 grade grade Mercochy-Mooloolah Catchments Low dissolved axygen and high nutrients in upper rea Streams in the Mooloolah River catchment consistently in better health than those in the Maroochy River catchment, but streams in both catchments generally in moderate to appl condition. Bramble Bay High phosphorus levels in the upper reacher Stanley-Kilcoy Catchment Rivers and streams generally in good condition with a six increase in grade from last year essociated with continuing improvement in the health of fish communities. Cabbage Tree Creek Caboolture-Pumicestone Catchments Central Bay Tingalpa Creek High nutrient levels especially phorus and low dissolved ox Brisbane River High nutrients and turbidity, low dissolved axygen Oxley Creek Eastern Bay Pine Catchments Upper Brisbane Catchment Streams generally in fair condi-tion and would achieve a highe rating in the absence of dams most indicators of health for Spring 2003 contributed to a decline in grade for this catchment from a C last year to a D + this year rating in the absence or dams creating a barrier to fish move ment Eastern Banks Logan River Increase in Lyngbya blooms compared to Poor water quality but improv turbidity in upper reaches Bremer River Mid-Brisbane Catchment Lower Brisbane Catchment The high degree of urban and industrial development in this catchment is associ-ated with consistently poor results for nutrients and both equatic meconivertebrate and fish communities Continued high nutrient levels but reduced from previous years Waterloo Bay Good water quality with stable seagrass meadows throughout Albert River Lockyer Catchment Poor flushing and point source nutrient loading Pimpama River © High nutrients and low dissolved oxygen levels Fair water quality ■ Ecosystem health substan-tially better in Autumn 2004 than Spring 2003, which contributed to an increase in grade from C + last year to the present A-Coomera River Bremer Catchment Good water quality but degraded riperian habitat Nerang River Good water quality but highly urbanised lower reaches Logen-Albert Catchments Tallebudgera Creek Currumbin Creek