An aerial photograph of the Hauraki Gulf coastline, showing green land, blue water, and a large body of water. The text is overlaid in red.

The Hauraki Gulf
Do we know enough to reverse the
decline?

Yes!

Drs Simon Thrush & Malcolm Green

Hauraki Gulf State of the Environment Report launch &
Seminar, Auckland Museum, 9 August, 2011

Visioning the future of the Hauraki Gulf

- Diverse, multi-use, productive, enjoyable, accessible, resilient...
- How do we get there from here?
 - ★ Societal buy in
 - ★ Developing a framework
 - ★ Setting objectives
 - ★ Action
 - ★ Adaptation



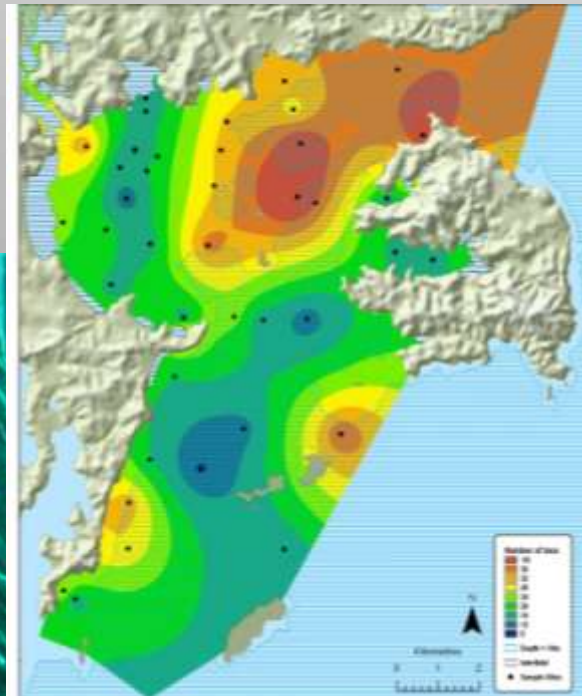
Making decisions now!

- A fuller and more open assessment of critical of trade offs
- Definition of ecosystem bottom lines
- Better priority setting
- Better targeting for achievable restoration
- Better assessment of loss of resilience
- Better spatial planning
- Inertia by analysis
- Making decision with uncertainty
- Adaptive processes

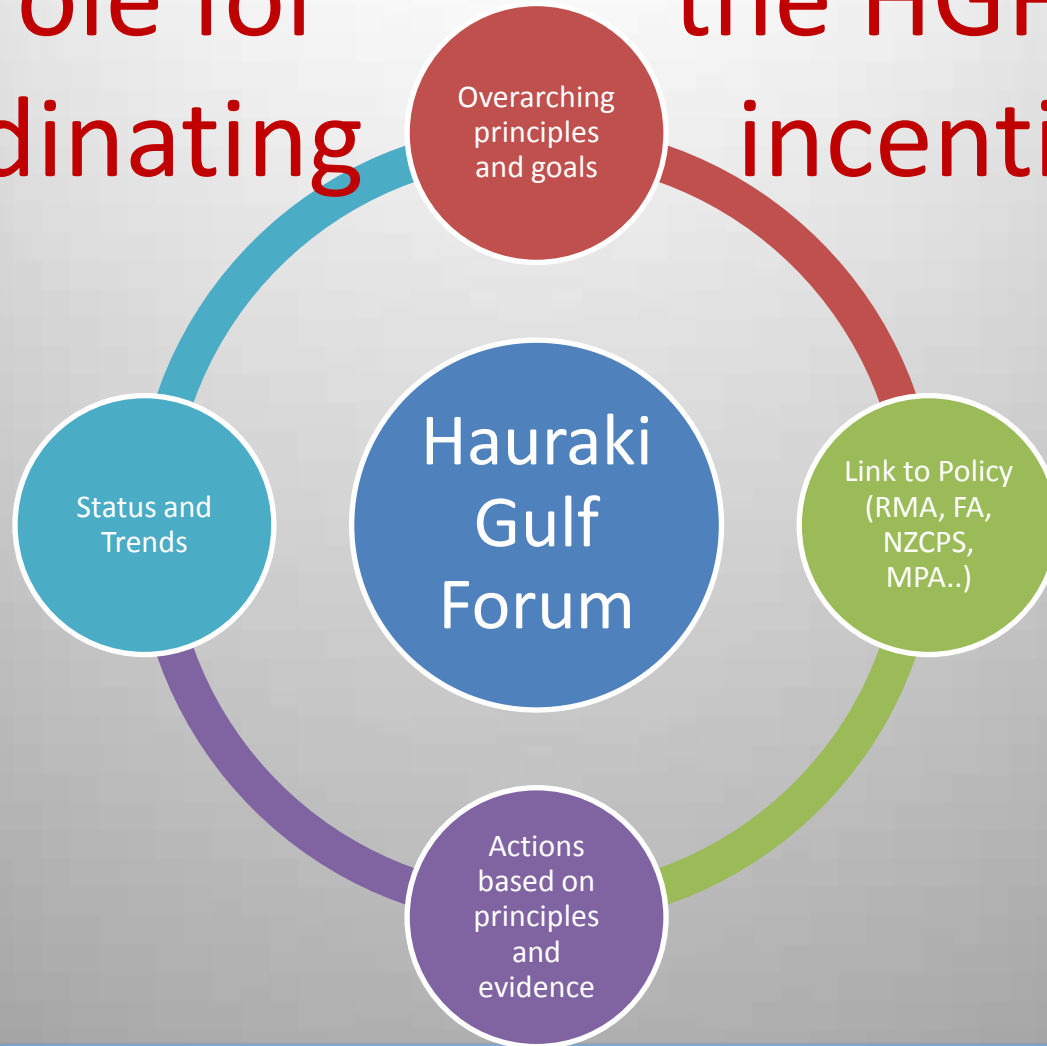


Ecosystem-based management and preserving ecosystem services

- Maintaining adaptive capacity
- Restoring biodiversity
- Enhancing multi-functionality
- Integrating management strategies



A role for co-ordinating the HGF in incentivising



In other words, Ecosystem-based management

Ecosystem-Based Management

- Long-term sustainability as a fundamental value
- Clear objectives
- Sound ecological models and understanding of complexity and interconnectedness
- Recognition of the dynamic character of ecosystems
- Attention to context and scale
- Acknowledgment of humans as ecosystem components
- A commitment to adaptability and accountability

Report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management



An opportunity

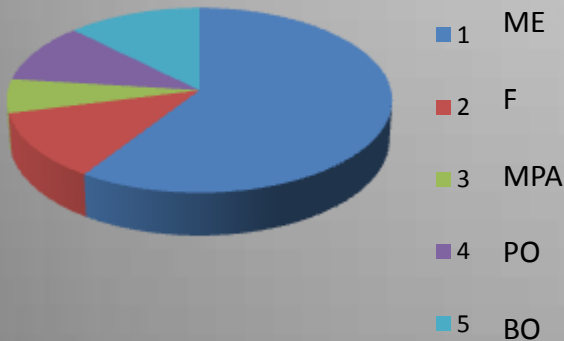
- To develop a 21st century capacity for resource management and conservation.
- To capture the intellectual capital of the Gulf's catchment and bring modern techniques of science, engineering, and organization to the management of its ecosystems.
- To create incentives for collaborative science with the leverage of one coherent body.
- To showcase ecosystem-based management (including spatial planning)
- To provide a model for NZ (and in fact, for the world) in Ocean's Policy.



The best studied marine ecosystem in NZ

- If we can not engage in a scientifically informed and transformative management process here then we are all wasting our time.
- A quick survey of NIWA's science in the Gulf:

Scientific publications: 157



Marine Ecology: Connectivity, Fishing impacts, Sedimentation, habitat change, cumulative effects, resilience, habitat mapping, monitoring, community dynamics, bio-physical processes, ecosystem services, contaminant effects, ecotoxicology, MPAs, indicators, historical ecology, biodiversity..

Fisheries: Stock assessment, fish biology, aquaculture, habitat use, MPAs

Ecosystem science

Physical Oceanography: Hydrodynamics, sea level rise, erosion, sediment transport, physical hazards, contaminant dispersal

Biological Oceanography: Productivity, remote sensing, classification, food webs, biogeochemistry, ocean-coast interactions

Core Knowledge Gaps

- Mapping and classifying the Hauraki Gulf's ecosystems and defining its status
- Defining the ecological infrastructure of the Hauraki Gulf – Ecosystem services
- Getting the best return on resource exploitation – Ecosystems context
- Defining the Inter-relationships between land and sea - multiple stressor and threshold effects
- Adapting to the future - What will the Gulf look like in 50 years?

But limitations in our current knowledge should not stall progress – examples from land-coast interactions....

There is a sea-change in freshwater management

- Report of the Land and Water Forum: A Fresh Start for Freshwater
- Newly gazetted National Policy Statement for Freshwater Management
- ECan's Natural Resources Regional Plan Water Quality Chapter 4



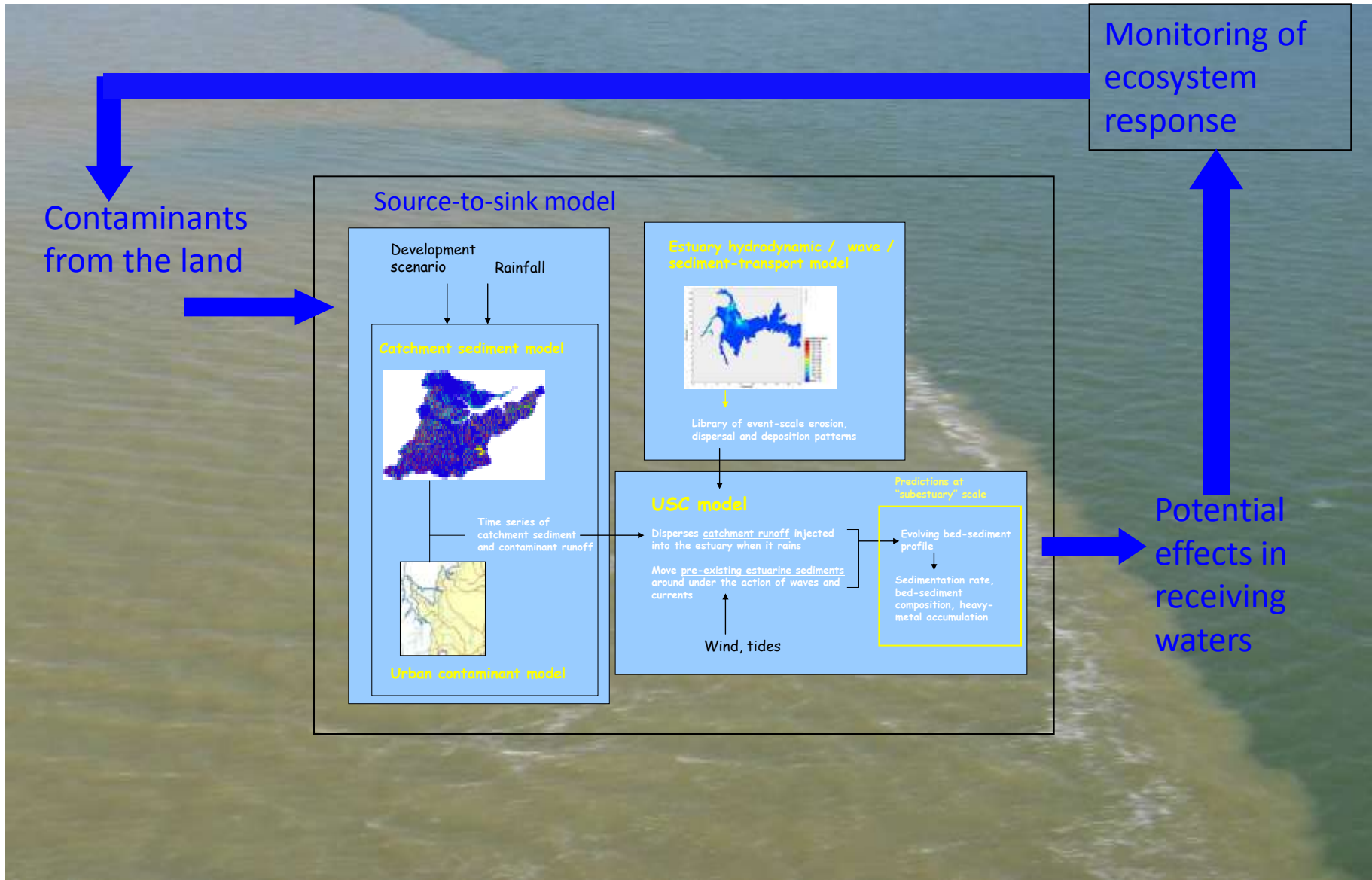
Shift from effects-based management ...

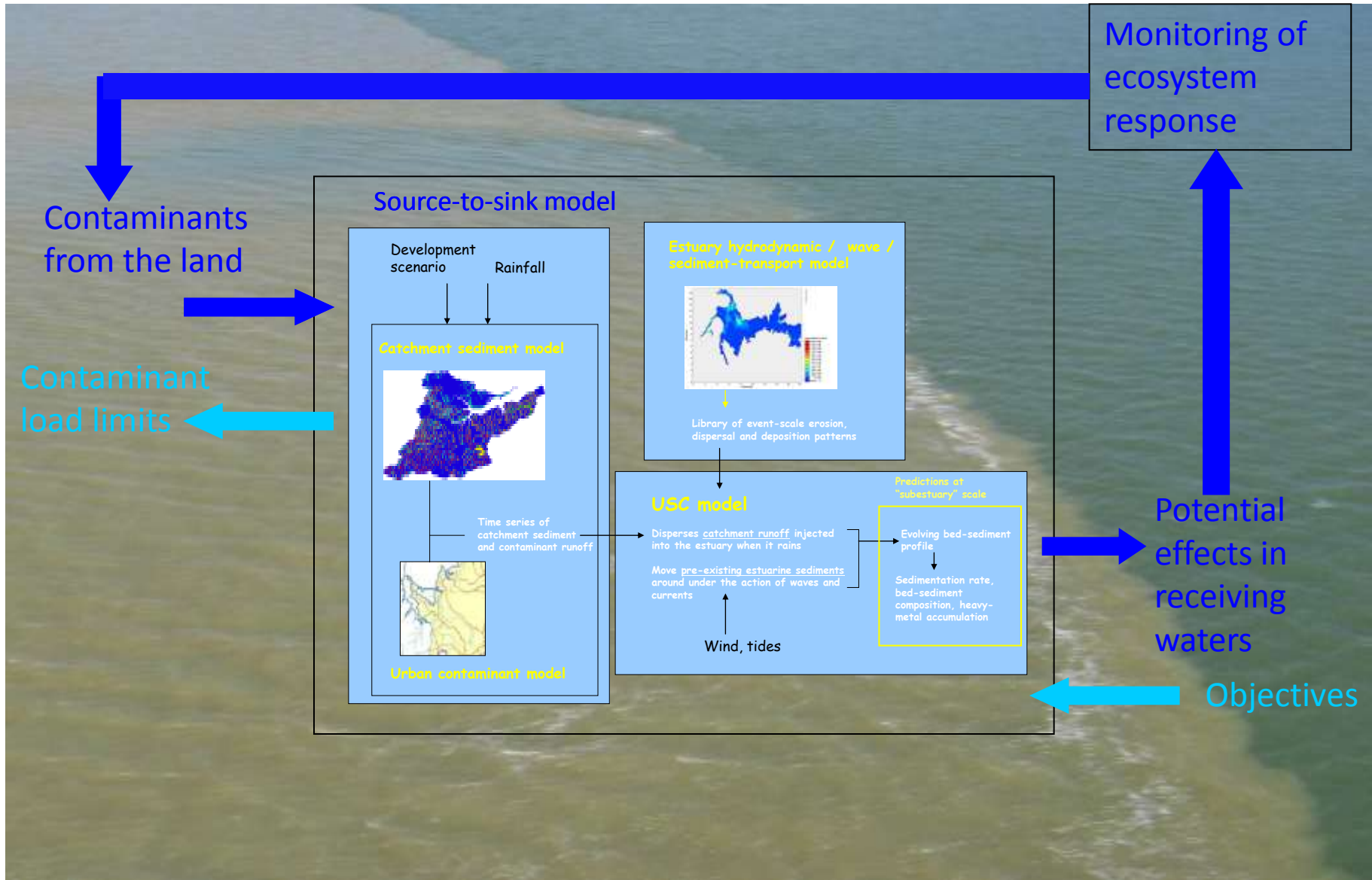
activities → potential effects



... to limits-based management

objectives → limits to resource use







Benefits

Objectives come first

Cumulative effects

Options

Mitigation targets

Monitoring

Clarity



HAURAKI GULF

Set objectives

Determine contaminant load limits

Development and mitigation to stay within limits