

Introduction to the Symposium



- Aims and scope
- Process
- Symposium Questions



Aims and scope

1. Review the science behind river flows-salmonids relationships in order to devise and disseminate evidence-based **best practice guidelines** for river flow management
 2. Knowledge gaps and priorities
 3. Explore consensus and views...Symposium
- Why salmonids? classic & current studies, socio-econ. value, ubiquity, sensitivity (sentinel spp?); context: ecosystems and modern legislation

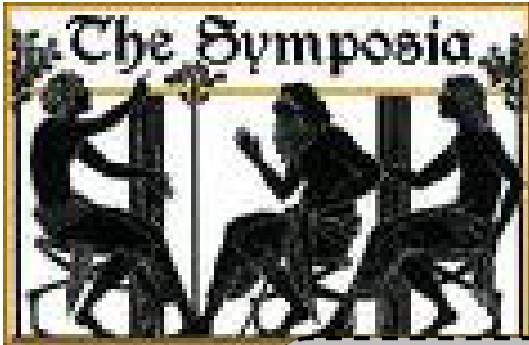
The process

SYMPOSIUM
(YORK)
Jan 26-28th

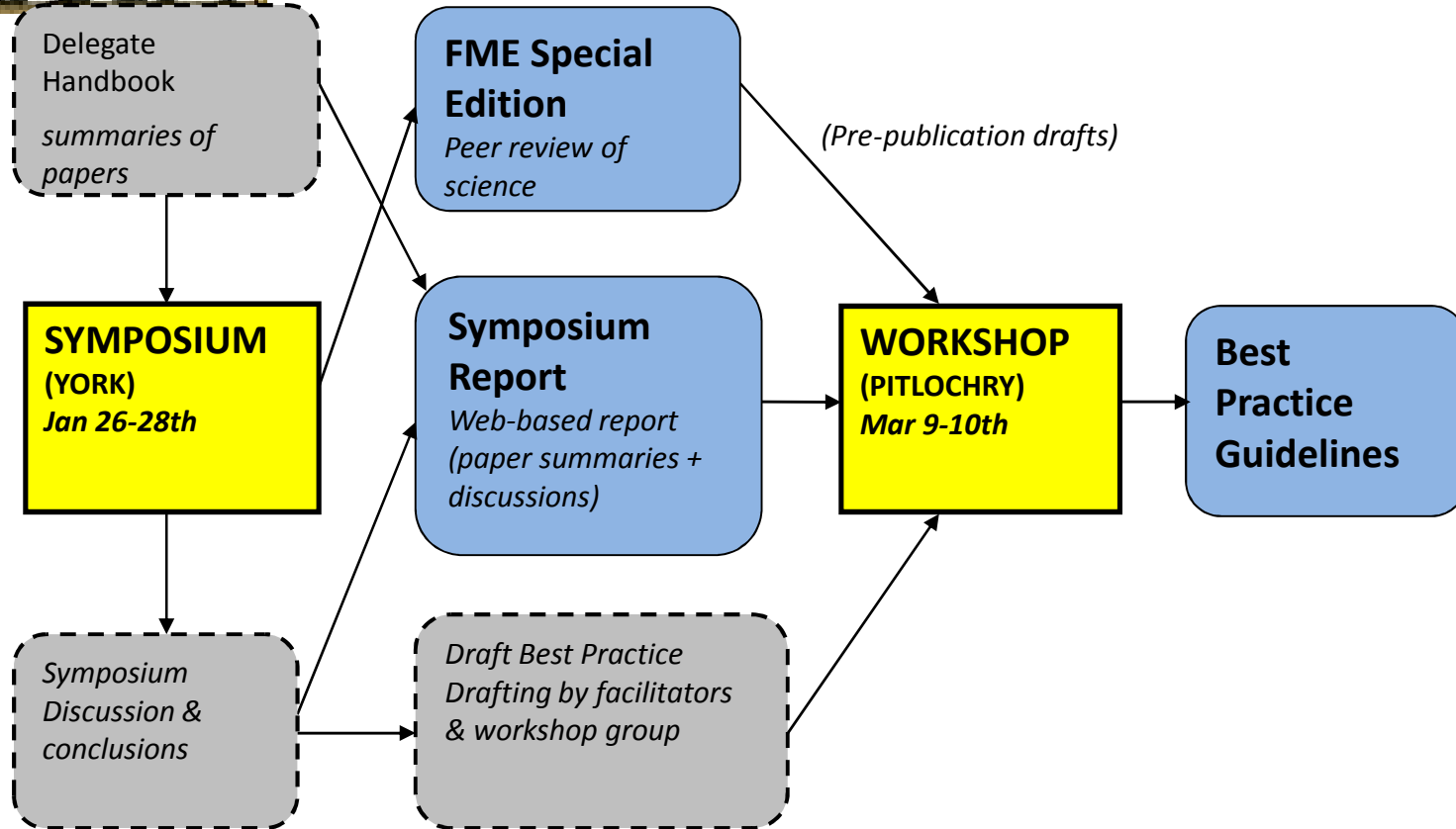
WORKSHOP
(PITLOCHRY)
Mar 9-10th

**Best
Practice
Guidelines**

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graph LR; A["SYMPOSIUM (YORK) Jan 26-28th"] --> B["WORKSHOP (PITLOCHRY) Mar 9-10th"]; B --> C["Best Practice Guidelines"]
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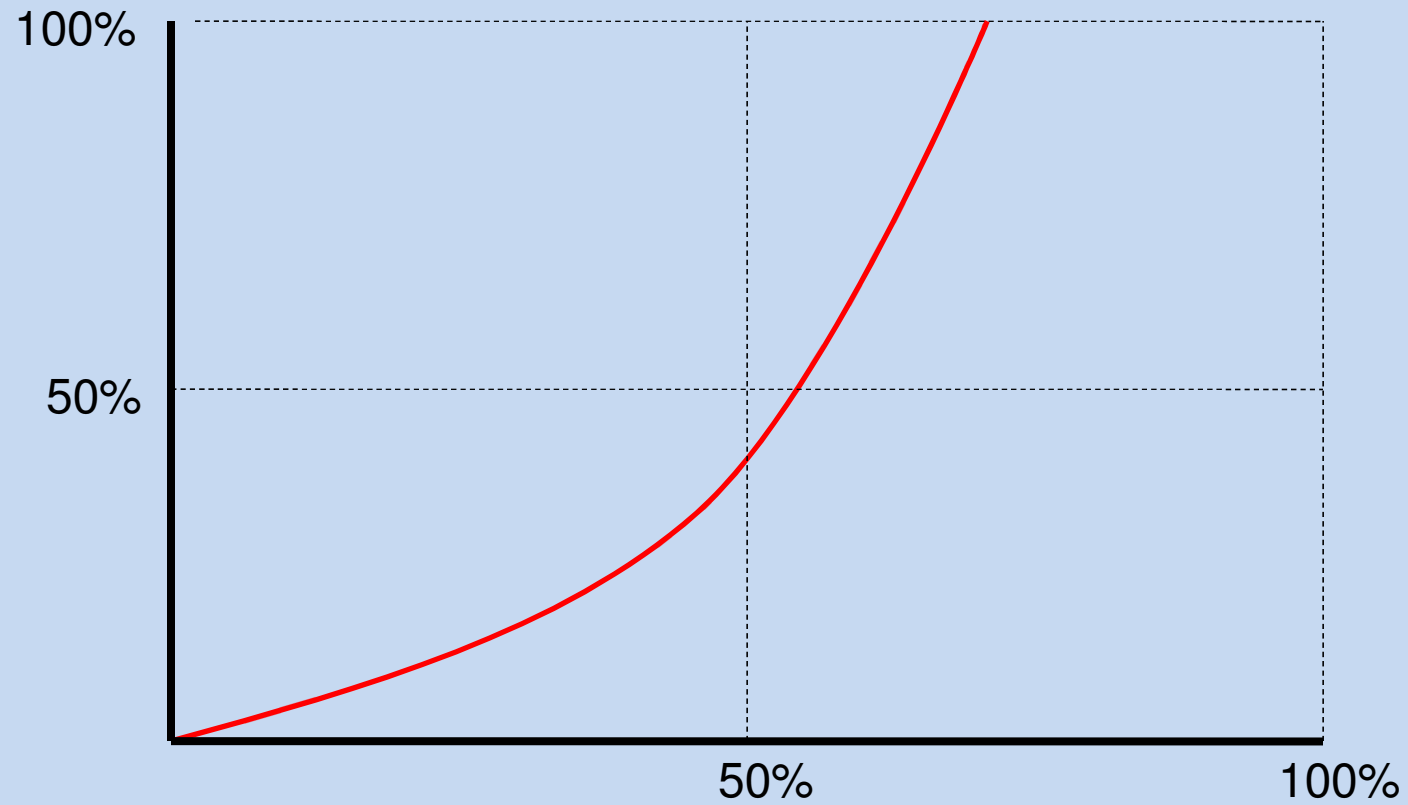


The process



Flow-fish model

Impact

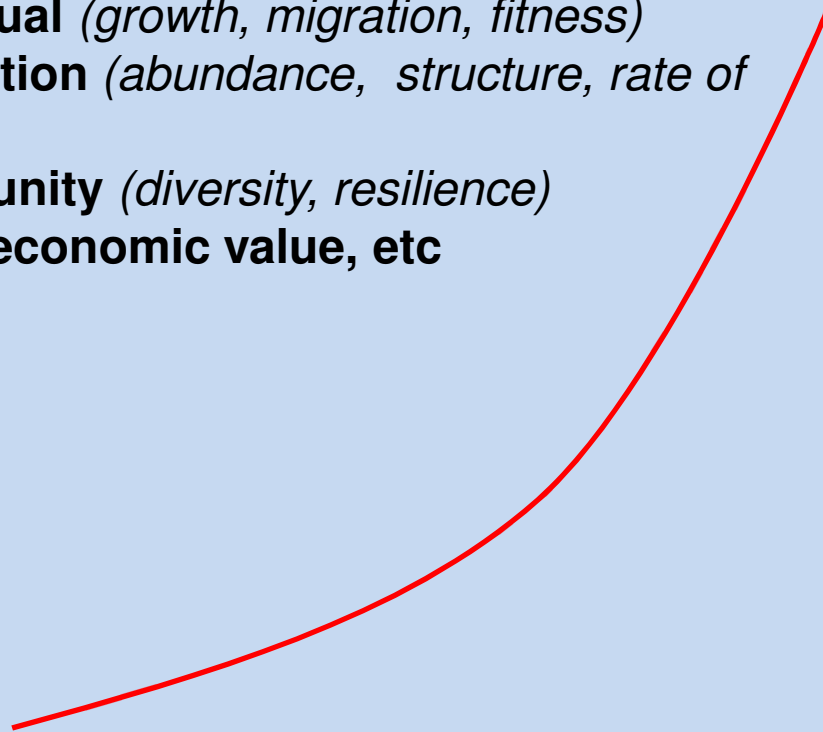


Deviation from "natural" flow

Flow-fish model

Impact?

- **Individual** (*growth, migration, fitness*)
- **Population** (*abundance, structure, rate of change*)
- **Community** (*diversity, resilience*)
- **Socio-economic value, etc**



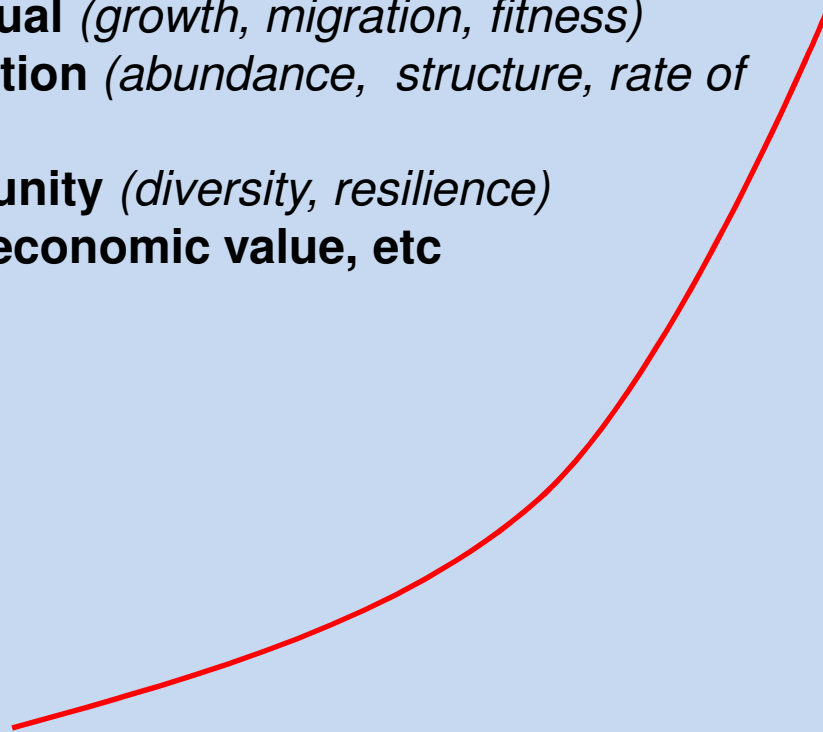
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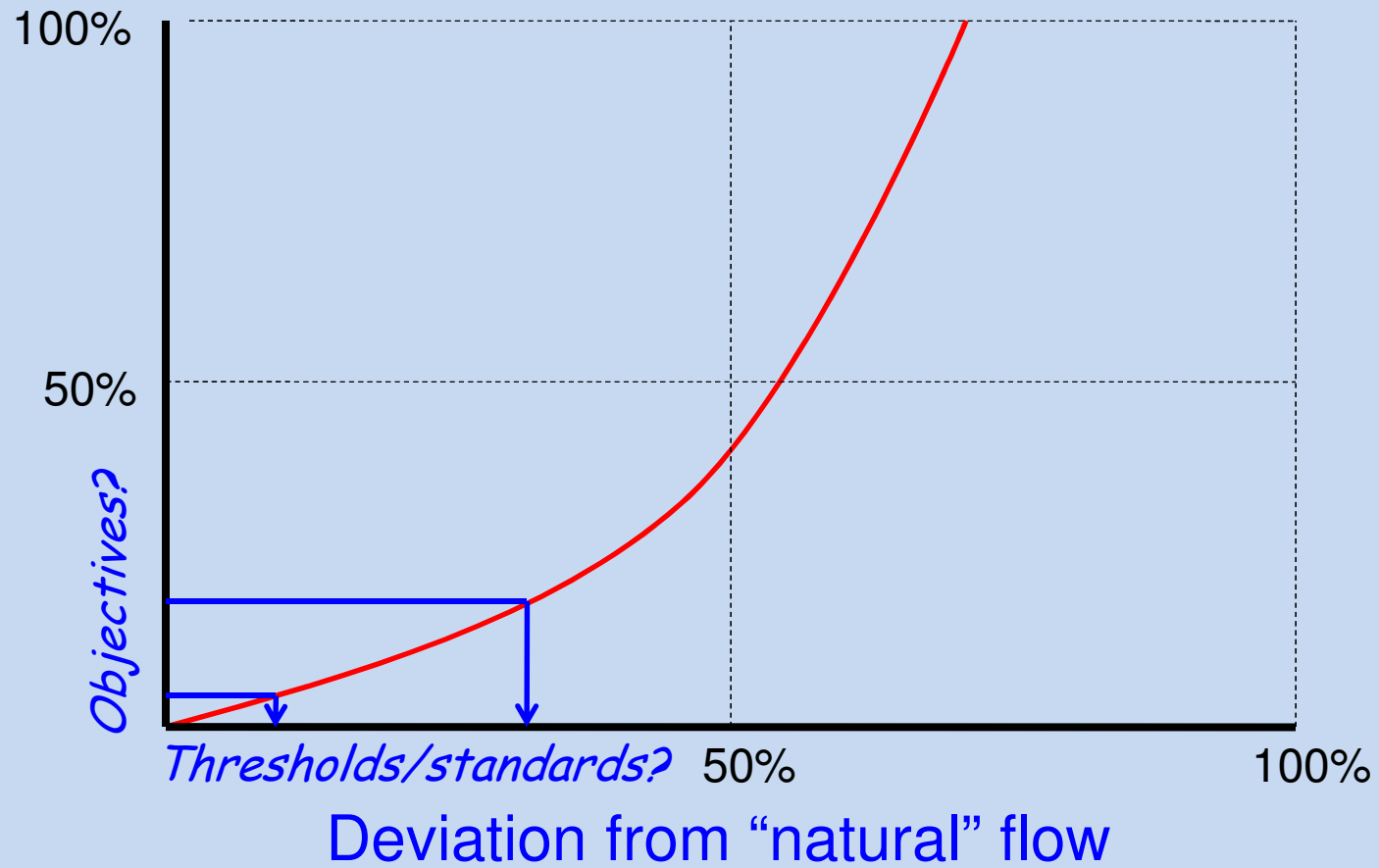
- **Mean** (*daily, monthly, annual*)
- **Range, peaks, lows**
- **Seasonal regime**
- **Duration**
- **Rate of change, etc**



Deviation from “natural” flow?

Flow-fish model

Impact



CATCHMENT ACTIVITY

Flood defence, land drainage, water supply, hydropower, intensive agriculture, forestry, amenity development, extractive industry

PHYSICAL HABITAT e.g.

Barriers to migration
Channelisation
Change in channel structure
Change in channel complexity
Change in bankside vegetation
Siltation of gravels
Connectivity of habitats

WATER QUALITY e.g.

Reduced oxygen
Eutrophication / nutrients
Acidification
Metals
Pesticide/Herbicides
Industrial pollutants
TEMPERATURE

WATER QUANTITY e.g.

Flow regime shifts
Loss of Q variation
Low flows
Excessive flows – washout, erosion, dispersal

ABIOTIC

FISH

Carrying capacity
Growth / production / survival
Spawning
Migration
Adaptation (phenotypic and genotypic)

ECOSYSTEM FUNCTION

Energy cycling and transport
Food webs
Biodiversity
Stability and resilience
Geomorphological channel-forming processes

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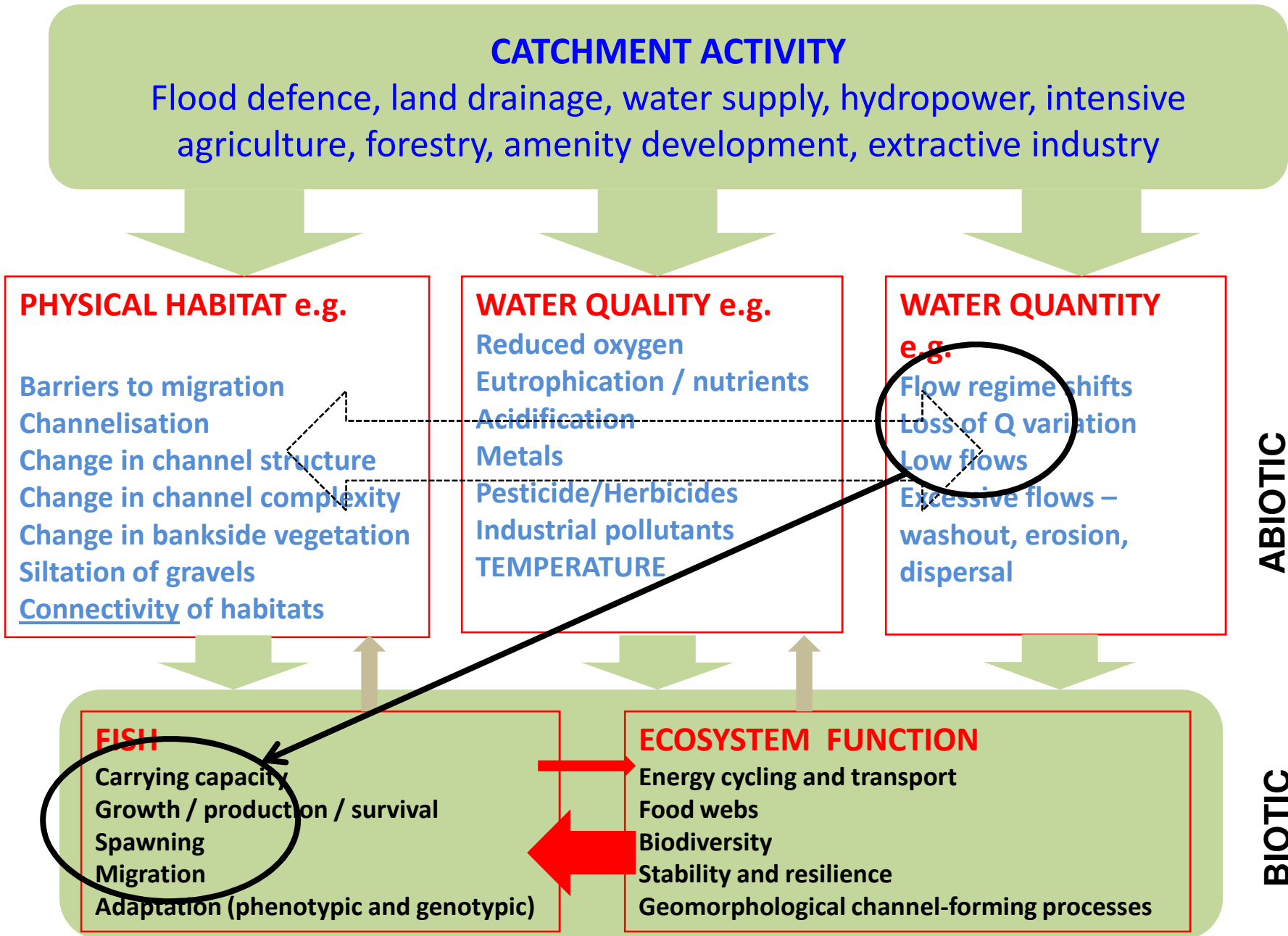
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Generic Questions

- **What should be the fisheries-based objectives of river flow management?**
- **What role should salmonid-based standards play in the context of environmental flows and the WFD?**
- **Can flows be managed in isolation from other environmental variables, and what are the risks of that?**
- **How might we improve flow management in the light of new knowledge?**
- **How should best practice be made available and updated?**
- **What issues should the workshop and guidelines cover?**
- **What further science or change in approach is needed?**