Monitoring and Status Assessments – experiences in Sweden

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SwAM - centre for Swedish water management

- Three of Sweden's sixteen environmental objectives: Zero Eutrophication; Flourishing Lakes and Streams; and A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos.
- Water Framework Directive
- Policies for fisheries (national and EU)
- The regional conventions OSPAR (Northeast Atlantic) and HELCOM (Baltic Sea)
Population, ca. 9 mill.

Counties, 21

Municipalities, 290

Major river basins, 119

River basin districts, 5
Groundwater
"Everywhere"
Water bodies: 3025

Rivers
> 500 000 km
Water bodies: 15 563

Coastal waters
Water bodies: 622

Status assessment
WFD
Delineated water bodies

Lakes
> 100 000 (> 0,01 km2, 2,5 acres)
Water bodies: 7232 (> 0,5 km2)
Status assessment WFD

26 440 WB:s in 119 main River Basins in 5 water districts

Performed by Regional county administrative boards (21)

Coordinated by water district authorities RBMP:s EQS (and PoM) decided by regional water boards

National authorities; guidelines and regulation
Status assessment
Ecological status

ECOLOGICAL STATUS

HIGH
GOOD
MODERATE
POOR
BAD
Impact assessment -
Impact assessment

Hydro power plants

Status Assessments - Experiences in Sweden

Physical alteration
Assessed mainly on disrupted longitudinal continuity
Monitoring stations ≈ 15 000

95 national monitoring programmes
717 regional monitoring programmes
24 combined national/regional
1235 polluter paid, completely or partly
93 municipal monitoring programmes
Assessment methods - experiences

Environmental quality criteria

- Weak harmonisation between biological, physico-chemical and hydro-morphological quality elements
- Limited usage due to lack of relevant monitoring data
- Difficulties to estimate uncertainty in assessments

Ecological status

Biological

Physico-chemical
N, P, O₂

Hydro-morphological

N, P, O₂
Assessment methods - revision

Environmental quality criteria

- Research project WATERS developing and harmonising methods for assessment, defining reference conditions and class boundaries (www.waters.gu.se/english)

- A better typology: revising methods of grouping water bodies for status assessment

- Legal review of ways of regulating operational monitoring, particularly methods and data availability

- Further intercalibration with neighbouring countries
Revision of monitoring programmes, step by step

- Increased representativity of water types
- More randomly distributed monitoring, better use of statistics and modelling
- More biological QE:s on present stations
- Monitoring of hymo QE:s
- More groundwater monitoring (quantity & quality)
- Better use of local monitoring data
New quality standard for hydromorphology in rivers, lakes and coastal wb

- Streams
  - Hydromorphological status
  - New river typology based on hydromorphology
    - 6 main types
    - 15 subtypes

- Continuity
  - Longitudinal continuity
  - Lateral continuity
  - Specific stream power

- Hydrology
  - Deviation in daily flows
  - Deviation in daily rate of change
  - Deviation in water level rate of change

- Morphology
  - Channel cross section
    - Stream planform
    - Bed substrate
    - Large woody debris
    - Stream structures
    - Bank morphology
    - Buffer zone quality
    - Flood plain quality

Havs och Vatten myndigheten
High quality monitoring is essential to achieve good ecological status