THE WATER FRAMEWORK DIRECTIVE IN SWEDEN
- DAM REMOVAL AS A MEASURE?

Dam Removal Europe
Hudiksvall, September 24, 2018

Joakim Kruse
Water Management Director
Bothnian Sea Water District Authority
**WFD IMPLEMENTATION IN SWEDEN**

- **Water Management according to WFD**
  - Assessment of *water status* in surface water bodies
    - Ecological status (5 classes, High → Bad)
  - Significant *pressures*
    - Hydromorphological changes (including dams and other barriers) are the most frequent types of pressure on Swedish water bodies
- **Measures identified** – *inter alia* dam removal, fish passes, etc.
- **Environmental objectives set** – in relation to present status, pressures and possible/reasonable mitigation measures (High → Good → Moderate → Poor → Bad Ecological Status)
WFD IMPLEMENTATION IN SWEDEN

• Implementation – levels of governance
  • Government
    • Legislation, funding, governing authorities
  • Regional Water District Authorities
    • Characterisation, assessment of pressure, risk and status, identify needs for improvement and physical measures
    • Set environmental objectives
    • Programs of measures (administrative)
  • State authorities (national and regional)
    • Carry out measures (administrative and physical)
    • Provide information and knowledge base, funding
  • Municipalities
    • Carry out measures (administrative and physical)
WFD IMPLEMENTATION IN SWEDEN

• Dam removal - governance and measures
  • Water District Authorities identify need for measures and decide on relevant administrative measures
    • Derived from Environmental objectives (Good ecological status/potential, or less stringent objectives)
  • State authorities (primarily County Administrative Boards) consider appropriate measures in individual cases
    • Initiate administrative procedures in relation to operators
    • Carry out measures on own behalf
  • Environmental courts decide on physical measures to be carried out
    • Main rule that all removal/mitigation measures require permit – on application from authorities or operators
DAMS AS PRESSURE

- For approximately 11,500 water bodies, dams and barriers (weirs, hydropower plants, storage dams etc.) were identified as significant pressures on water status – less than GES.

- Wide variety of size, use, scale of impact:
  - Large scale hydropower plants and storage dams
  - Small scale hydropower stations
  - Irrigation, drinking water and flood protection dams
  - Old barriers and dams relating to, for instance, mills, log driving, irrigation, ironworks
  - Embankments, road culverts etc.
MEASURES

• Dam removal suggested for only 125 dams (in present Programs of measures, 2016-2021)

• For the majority of dams, other measures are suggested – fish passes, reconstruction etc.
  • 12 300 other, different measures related to fauna passages are suggested, planned or ongoing

• For large scale hydropower plants and storage dams, removal is generally not an option
  • However, removal of smaller dams and barriers downstream large plants may be relevant
MEASURES

• Up to date, 1 650 measures related to upstream and downstream fauna passages have been carried out (as reported)

• However, large uncertainty in data – only one (!) dam removal measure has been reported so far
  • Delay in reporting completed measures
  • All measures are not reported (access, awareness, resources)
  • Mistakes/interpretations in reporting
HEAVILY MODIFIED WATERS

• 658 water bodies (lakes and streams) are presently appointed as Heavily modified water bodies (HMWBs)

• Due to pressure from large scale hydropower facilities
  • 247 hydropower plants and storage dams
  • Considered essential for Swedish energy supply (electricity production and frequency regulation)

• Specific, adapted environmental objectives – Good ecological potential (GEP)
  • Generally, minimum flows and fauna passes are required, but less stringent objectives are applied also.
PRESENT AND FUTURE...

• Main shortcomings so far:
  • Slow administrative procedures, lack of funding, legislative issues
  • Low impact for environmental objectives in legal proceedings
  • Lack of data and knowledge on specific measures required

• New legislation and other changes underway:
  • Mandatory reconsideration of permits for all hydropower related facilities
  • Stronger connection to environmental objectives in permit cases – must be observed and applied
  • Environmental objectives for HWMBs
  • Development of data and knowledge base in general
THANK YOU FOR LISTENING!