



The role of hymo and WFD deliverables – EU and Norway

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NEA/HydroCen seminar on measurement hymo assessment , Trondheim, 9. Jan 2018

Overview



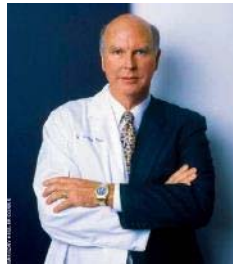
- Efficient water management
 - Potential with remote sensing++
 - HYMO alteration and objectives
 - Common implementation
 - European inter-comparison
 - Emerging good practise
- Towards updated European WFD guidance



«Tourist attraction flow» in Vøringsfossen
Foto: Svein-Magne Tunli

Norwegian Environment Agency (NEA)

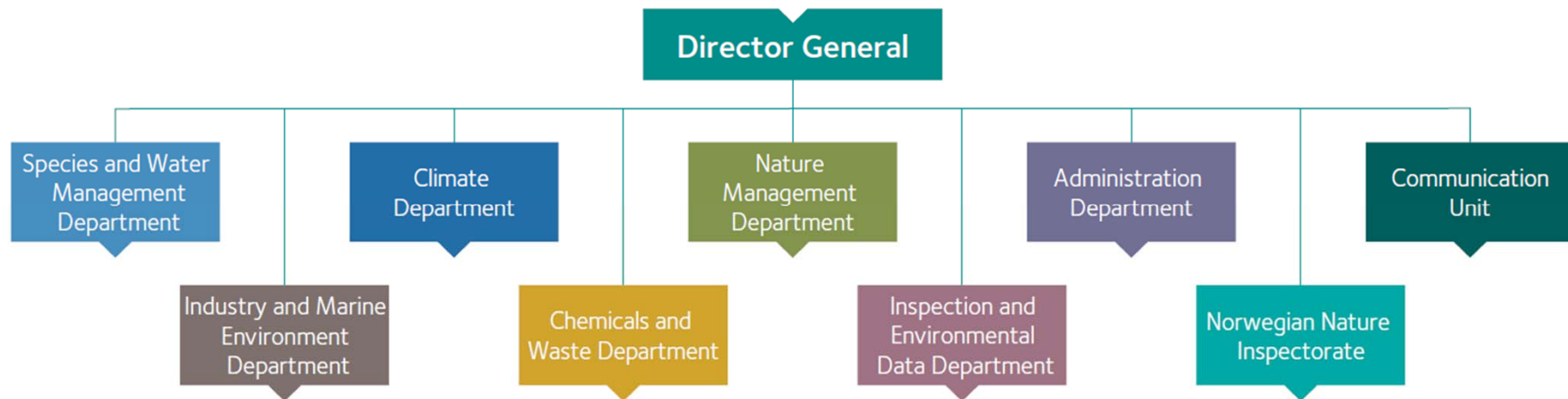
- The largest national agency under the Ministry of Climate and Environment
- Ca 700 employees
- **Implementing our environmental policy** determined by the Norwegian government,
 - e.g. coordinating WFD guidance/reporting etc.
 - www.vannportalen.no



Contribute to

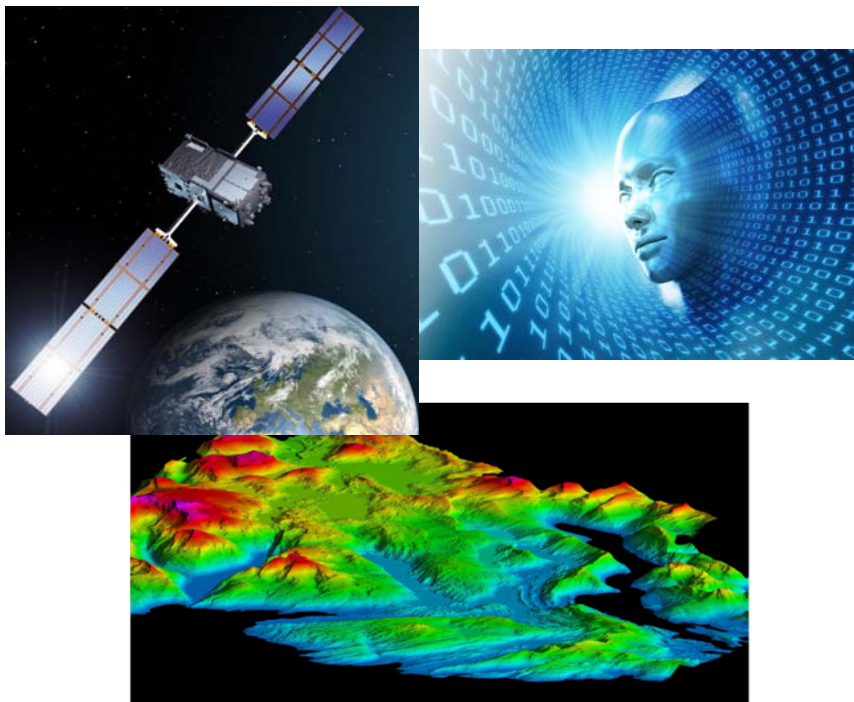
- a stable climate
 - biodiversity
 - rich and varied wetlands
 - an unpolluted environment
 - an active outdoor life
 - healthy rivers and lakes
- Sustainable use
- Life in nature - nature in life

Internal work group on remote sensing & laser data - NEA



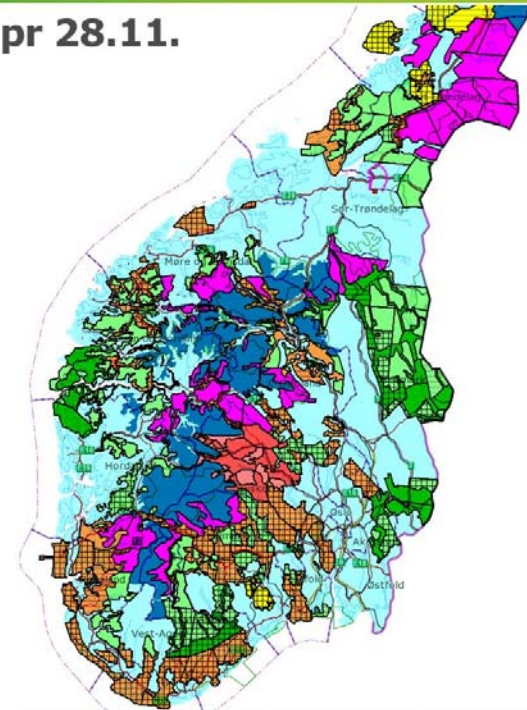
- Pilots/good practise for management application of LIDAR, Sentinel ++
- User forums/coordination across our agency
- Mapping of area use (e.g. hymo), biodiversity, alien species, climatic change...
- Replace/supplement data to traditional monitoring + modelling

Expectation on inovative use of remote sensing/efficient mapping



<https://hoydedata.no/LaserInnsyn/>

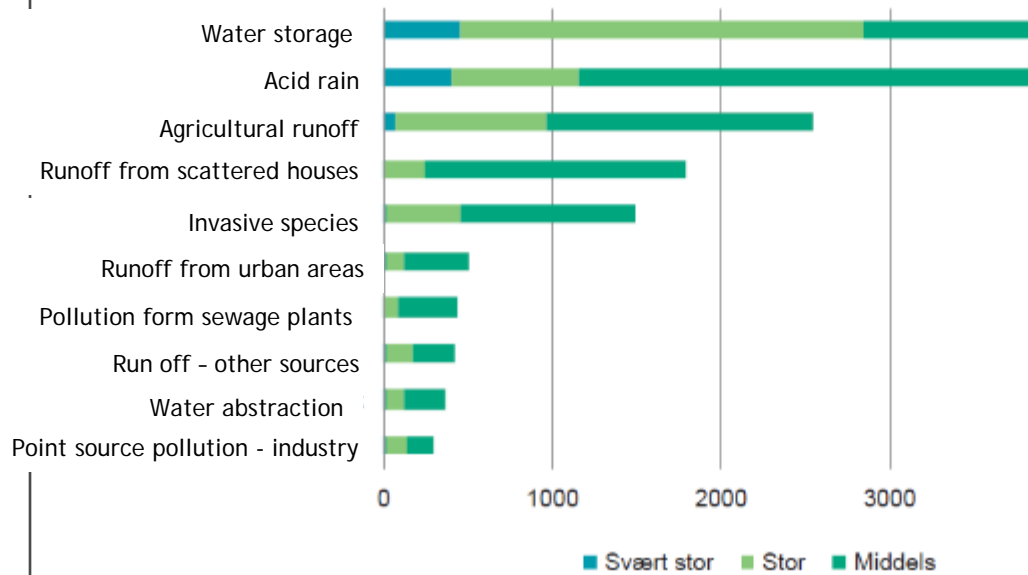
Status datafangst pr 28.11.



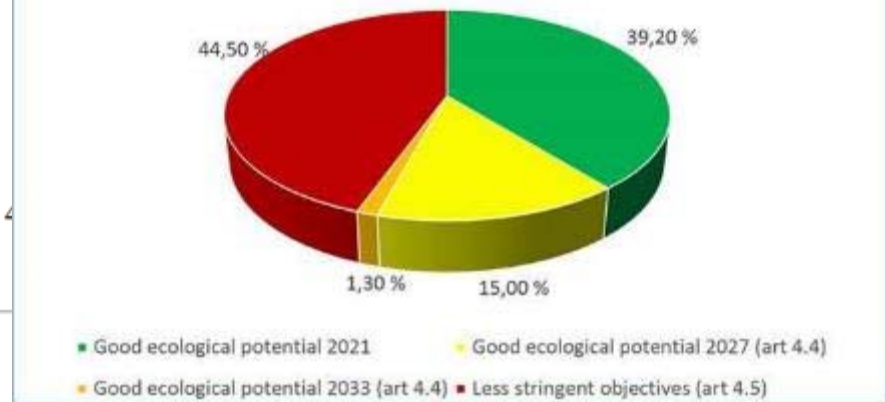
Main pressures – Norway (RBMPs)



Main pressures - no of surface water bodies

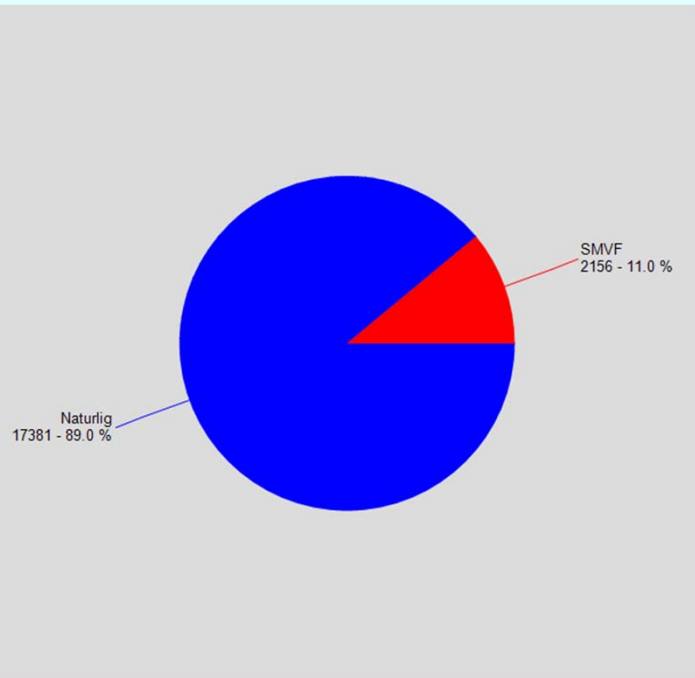


Objectives and exemptions HMWBs

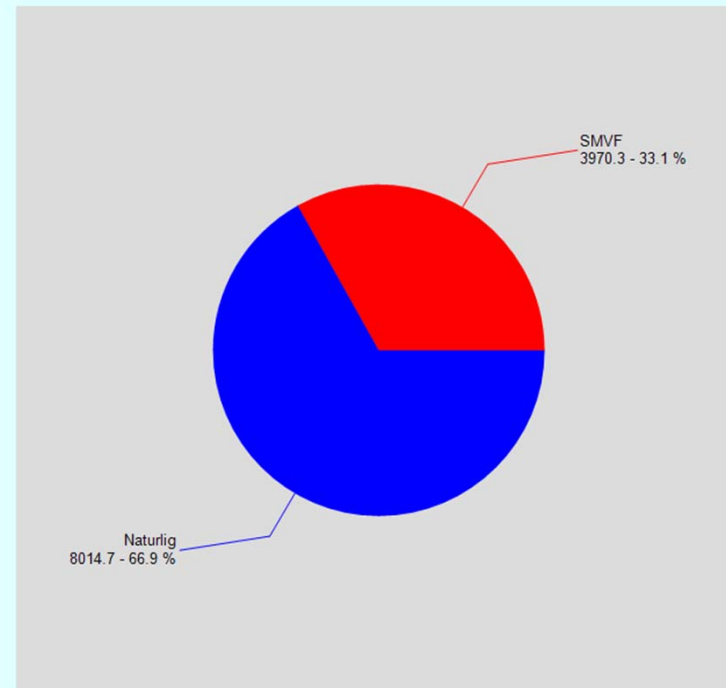


Share of heavily hymo altered rivers and km2 of lakes (designated as HMWBs)

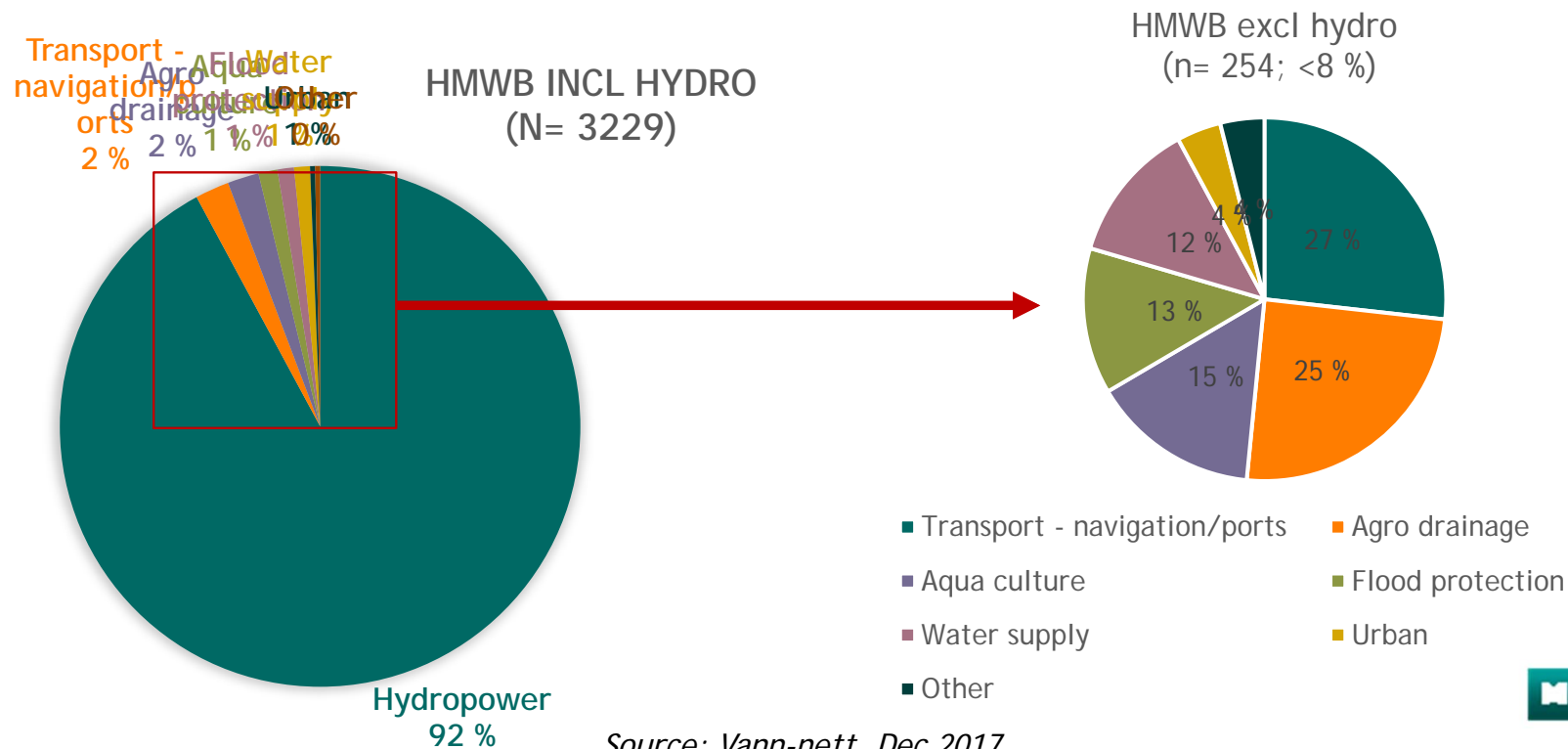
Elvevannforekomster - antall og prosent fordelt på naturlig og SMVF



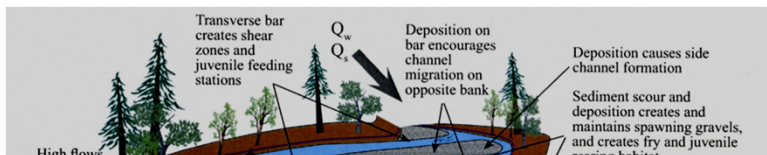
Innsjøvannforekomster - areal og prosent fordelt på naturlig og SMVF



Drivers (water use) HMWBs in Norway



Hydromorphology, HMWBs and WFD

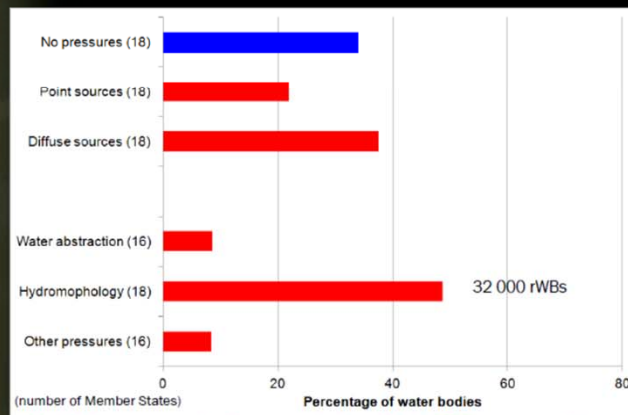


HYMO assessment relevant for different steps of WFD implementation



Significant pressures

% of river WBs (65 000) being affected by pressures



Preliminary results from analysis of 141 RBD reported by 23 EU Member States to the WISE-WFD database

Strategic planning - hymo and hydropower in Norway



Protection plan (1973→)

- No go areas for large hydropower

Master plan – water resources (Samla plan)

- Develop the least conflict areas first
- 1980s -2016 ...not replaced yet....

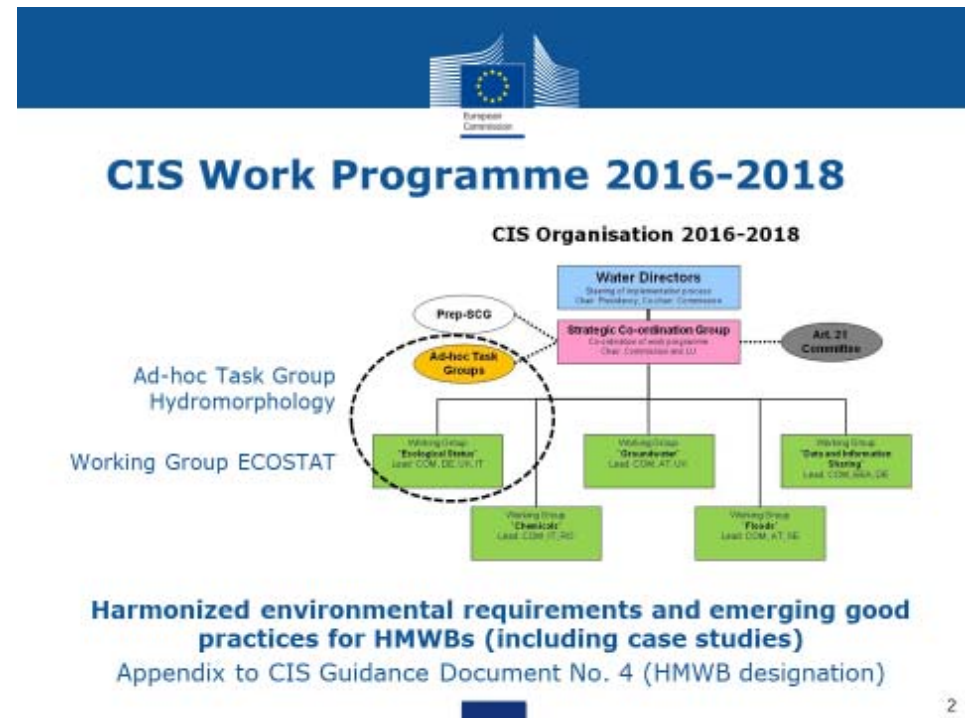
RBMPs (2016-→)

- Hymo alteration one of the dominating pressures



CIS hymo deliverables

- Guidance no 35 - Art 4.7
 - Approved by water directors in Decn 2017
- Supplementary HMWB guidance in 2018
 - Expected mitigation measures
 - Intercalibration of ecological potential (GEP)
- River Hymo - good practise
 - Classification of hymo
 - Efficient methods in use



Common understanding - mitigating impacts hymo alteration

JRC-reports on Good ecological potential and mitigation measures needed

- **Common terminology** and pictograms
- **Key impacts** to be mitigated
- Minimum ecological **requirements**
- Emerging **good practise**



25.07.2017

September 2017

WG ECOSTAT report on common understanding of using mitigation measures for reaching Good Ecological Potential for heavily modified water bodies

Part 2: Impacted by flood protection structures



2016-03-06

WG ECOSTAT report on common understanding of using mitigation measures for reaching Good Ecological Potential for heavily modified water bodies

Part 3: Impacted by drainage schemes



Drafted by ad hoc GEP/Drainage group
For CIS WG ECOSTAT
- DRAFT VERSION -

JRC TECHNICAL REPORTS

Working Group ECOSTAT report on common understanding of using mitigation measures for reaching Good Ecological Potential for heavily modified water bodies

Part 1: Impacted by water storage



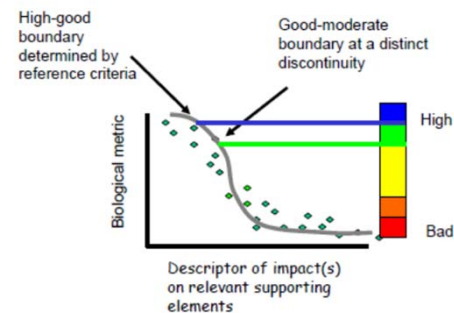
Drafted by ad hoc GEP/Water storage group
for CIS WG ECOSTAT



2016

Norwegian classification system

- Not good enough!...too non-calibrated...
- HyMo is the pressure type with the least satisfactory classification methods
- It is challenging to make good dose-respons analysis on biological effects of HyMo-changes



Some expectations for the coming days

- Availability of free physical online data have exploded
 - Good examples
- What do we see vs what could we expect
 - → Classification of alteration from reference state
- Efficient hymo processing → simplification/harmonisation of RBMP updates across regions/borders

