www.Havbase.no

A database for systematic monitoring of ship activity, risk, and discharge of pollution from shipping

Why Havbase.no was developed

- The database Havbase.no was developed in relation to the Norwegian system of establishing Integrated management plans for all Norwegian Sea areas (North Sea, Norwegian Sea and Barents Sea)
- The Government's goal is for Norway to be a pioneer in developing an integrated, ecosystembased marine management regime
- Impact assessments were carried out for fisheries, petroleum activities and maritime transport
- The management plans requires systematic monitoring of the marine environment. Updates on the development of the activity level, the risk level, and discharge of operational emissions (CO₂, NOx SO_x, Particles, Black Carbon, Sludge etc.) are performed every year
- The Management Plan monitoring system requires monitoring <u>change</u> in the activity level, the risk level and the operational pollution level from year to year
- If negative development are registered consideration of implementation of measures to ensure sustaining the environment must be considered
- Just imagine the cost and the manual labor involved in performing the Risk Assessment in Be-Aware. And then imagine the cost of monitoring change in the activity level, risk level and operational pollution level from year to year for three separate sea areas
- Havbase was developed to reduce manual labor and cost of monitoring of the three Norwegian sea areas
- The geographical scope of the management plans is limited to areas under Norwegian jurisdiction. However, the transboundary nature of some of the ecosystems concerned makes cooperation with other countries essential – the database has however coverage in the entire North Sea and in the Baltic Sea.

Risk assessment - the past and the future



- Today risk assessments in Norway are performed more or less manually exactly like performed in Be-Aware
- The structure in Havbase is however ready for phase 2 "development of a risk module"
- Phase one comprised of building a database which collects all necessary data, and also setting up a operational discharge module

Risk module development steps

- Making a detailed methodology report on how a <u>automatic</u> risk module can be built taking into consideration the structure of Havbase.no (methodology documentation and implementation specification in one document)
- 2. Data programming of the risk module in Havbase according to the plan (first bullet point)

Data Input:



Output web Ship type Ship size Sailed length Discharges to air

How the database is systemised

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MS Trollfjord og Nordlys





MSSI 258465000 Bruttotonnasje: 16140 **Total Kw.: 8280** MSSI 259139000 Bruttotonnasje: 11204 **Total Kw: 9000**

Possibility for automatic risk maps for every month and for every year









Information to be built into Havbase.no in the risk module

Some new aspects to be built into the automatic risk algorithm for each grid cell

Metrological data (each point)
Wind (easily accessible)
Waves (easily accessible)

• Level of cross traffic (each grid cell)

• How close are the nearest tugs with enough "pull" for the job (each point)



System for monitoring change

- Change in risk level from period to period (From one month to the next or between years))
- Alarm system for big changes(Geo RSS)
- Extract a list of ships that is new from the previous period you compared to. It is these new ships that caused the change in probability/risk?
- Do the new ships in the analyzed area require any special attention any new measures? Only when you know what caused a change you can considerer accurate measures
- <u>With a statistics that include a long time period it will</u> <u>be possible to recognize trends. With only one or two</u> <u>years you are not certain if change is random or if it is</u> <u>part of a long term trend</u>







AIS tracking by satellite



AIS from Satellite in the North?



Questions?