

Developing Arctic operating guidelines *for Dutch offshore contractors activities*

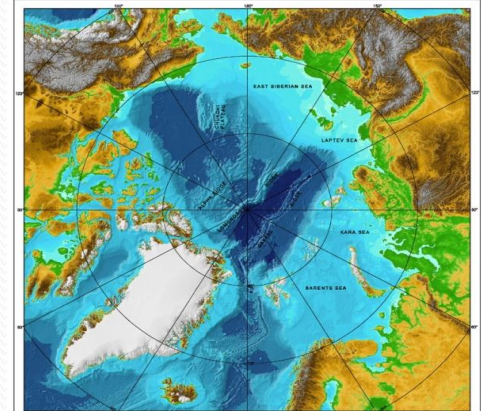
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Funded by Maritime Innovation Programme Netherlands



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 - Ice Stream Pilot Project
 - Ice Load Pilot Project
- IMARES Arctic R&D Programme (Bas Bolman)
 - Environmental Impact Pilot Project



Man-made island

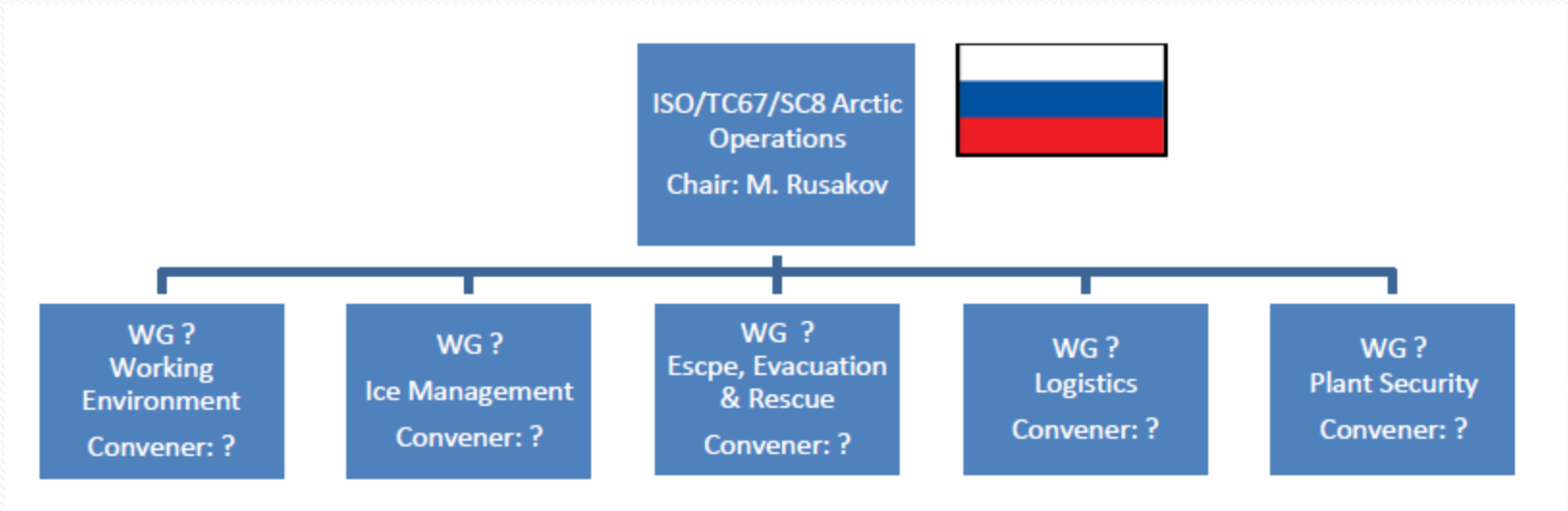
Objective



- *Develop guidelines for the Dutch offshore*
- *Contribute to internationally accepted standards and guidelines for Arctic operations.*
- *Understand operational restraints in the Arctic environment*
- *Define best practice limitations*

International Landscape

- Barents2020 gap analysis and recommendations
- JIPs initiated to resolve gaps in technologies
=> Basis for best practices, guidelines and enabling technologies
- ISO TC67 -Subcommittee 8:



TC67/SC8 work plan (draft)

Title	Timeline			
	2012	2013	2014	2015
PNGI – Arctic operations – Ice loads in structural design	■	■		
PNGI – Arctic operations – Topside Facilities, additional tech. requirements (supplements on the basis of ISO 13702, 15138, IEC 60079, 61892-7 etc)	■	■		
PNGI – Arctic operations – Working environment	■	■	■	
PNGI – Arctic operations – Escape, evacuation and rescue (based on ISO 19906 and ISO 15544)	■	■	■	
PNGI – Arctic operations – Maintenance of structures	■	■	■	
PNGI – Arctic operations – Offshore structures corrosion protection	■	■		
PNGI – Arctic operations – Ice management. Data collection		■	■	■
PNGI – Arctic operations – Ice management. Oceanological, hydrological and geological survey information supply		■	■	■
PNGI – Arctic operations – Ice conditions, monitoring and forecasting		■	■	■
PNGI – Arctic operations – Ice management. Quality standards of IM training companies		■	■	■
PNGI – Arctic operations – Ice management training. Specific requirements		■	■	■
PNGI – Arctic operations – Onshore logistics	■	■	■	
PNGI – Arctic operations – Offshore logistics	■	■	■	
PNGI – Arctic operations – Staff management	■	■	■	
PNGI – Arctic operations – Plant security	■	■	■	

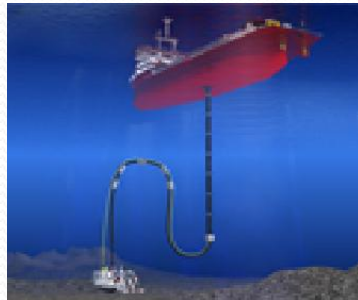
Gap Analysis

- Generic issues => see TC67/SC8 (HSE, EER, logistics)
 - Specific issues
 - Dredging operations
 - Pipe-lay operations
 - Fixed platforms
 - Floating platforms
- ➡ Soil intervention: trenching, landfill, dredging deposit
- ➡ Installation, station keeping, decommissioning/removal
- Dutch contractors have unique skills
 - Co-operation with Arctic engineering experts and experienced people to make these skills suitable for Arctic applications



Dutch contractor operations

- Dredging – Building with Nature
- Pipe laying and sub sea infrastructure
- Installation/removal of topsides & platforms
- Mooring and station-keeping



Technology Projects

- Participation in existing JIPs, e.g. IceStruct JIP
- Carry out pilot studies
 - Examples: Ice Stream, Ice Load, Environmental Impact
- Take initiative for new JIPs
 - International network
 - Academic research input
 - IMARES R&D program 'Arctic Environment'

Ice Stream JIP – pilot study

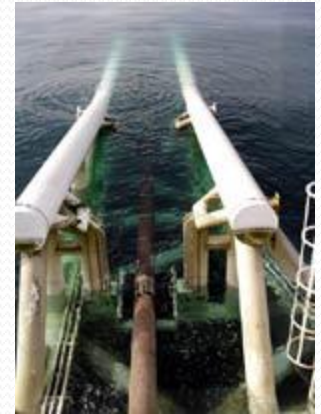
- Behaviour of broken (managed) ice
 - Interaction with hull, slots, moon pools, turrets, etc.
 - Interaction with overboard equipment, ladders, stingers, suction pipes
 - Develop validation experimental techniques



- Step-up to international JIP on numerical modelling and validation

Ice Load JIP Pilot Study

- Ice loading above the water line
 - Due to snow, frozen spray & fog, sleet, etc.
- Impact on operational equipment



- Step up to international Winterisation JIP to develop guidelines for protection, de-frosting and minimum safety requirements



Environmental Impact

By: Bas Bolman, IMARES

Objectives IMARES Arctic R&D Programme

- Facilitate sustainable Arctic Development
 - Environmental
 - Socio-economic
- Contribute to the development of standards and guidelines
- Build an Arctic knowledge base with existing and new partners



Environmental Impact Pilot

What

- Environmental impacts in the Arctic
- Pipe lay, trenching/covering, backfill material
- Identify guidelines that need to be developed

How

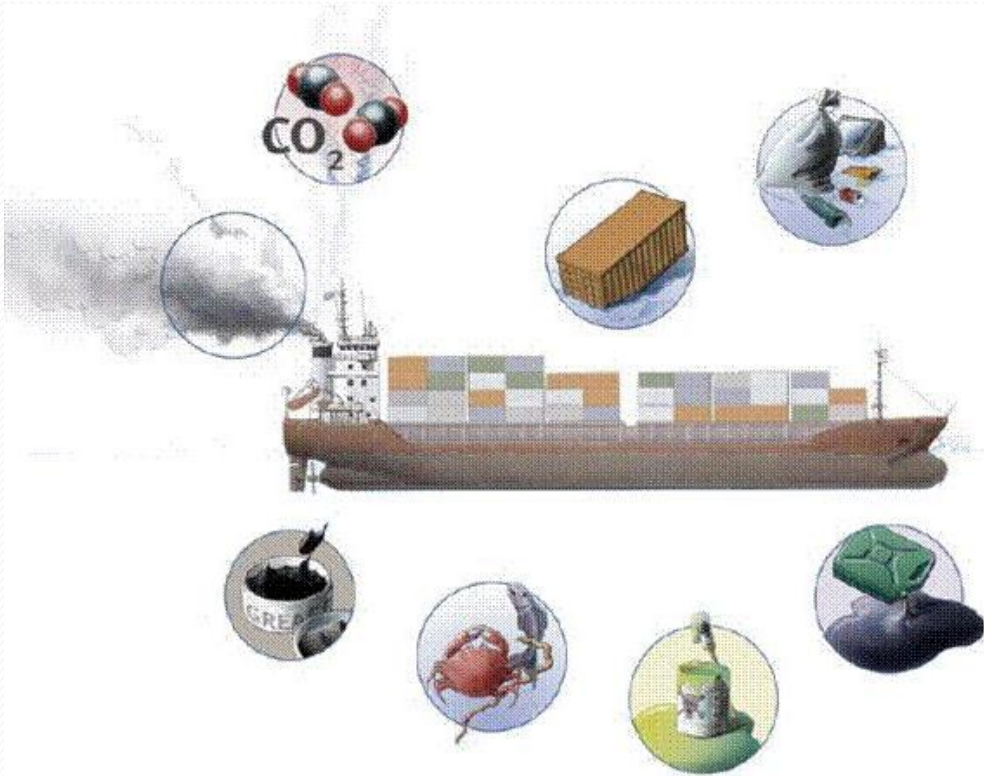
- Develop framework for environmental impact analysis

Deliverables

- Framework model
- Pipe lay & trenching impact guideline
- Backfill material impact guideline



Approach



Source: Maas/van Rootselaar & The North Sea Foundation

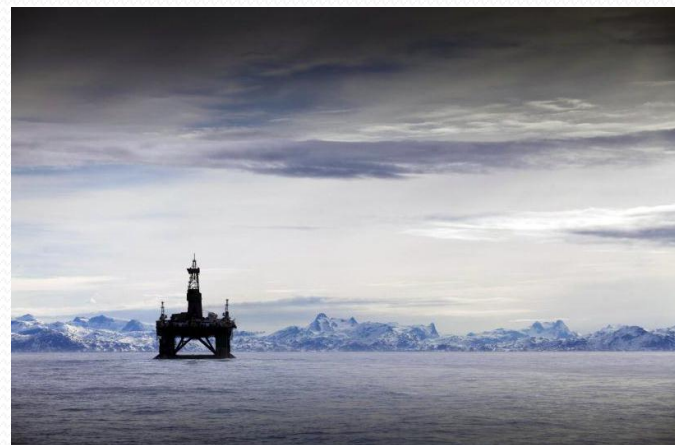
Step 1 – Identifying ecosystem components

- Define borders of ecosystem
- Select & research relevant species & habitat types
- Describe seasonality, vulnerability & sensitivity

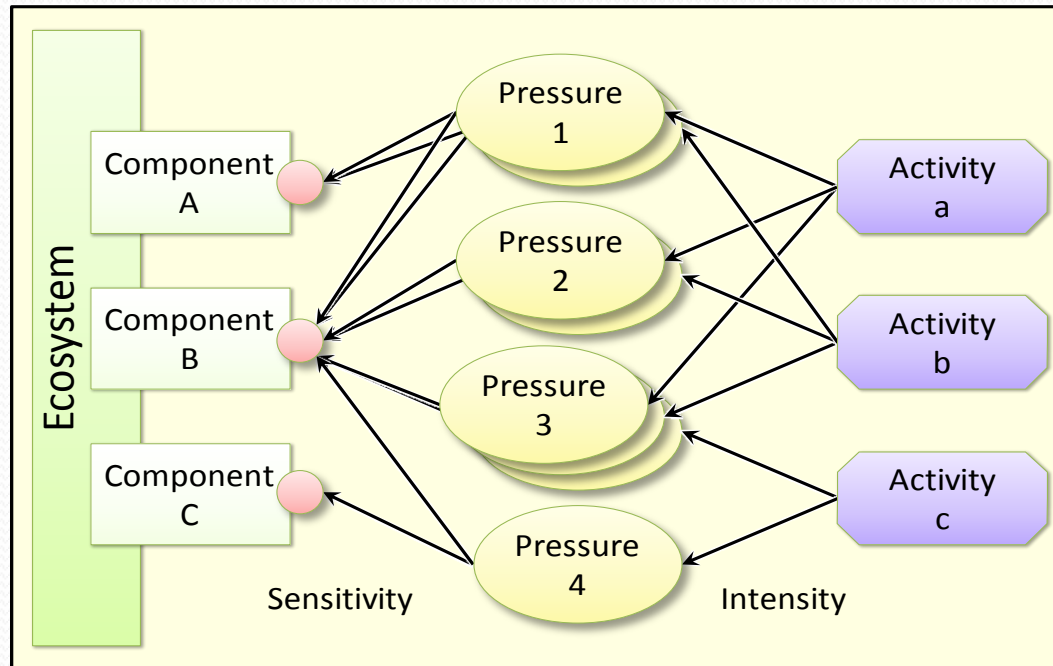


Step 2 – Characterisation of activities

- Which sub-activities are involved?
- How long do these activities last?
- Where do these activities occur?
- What are the involved emissions?

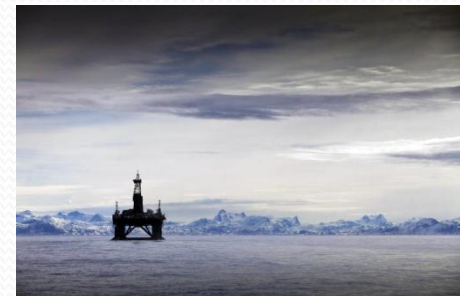
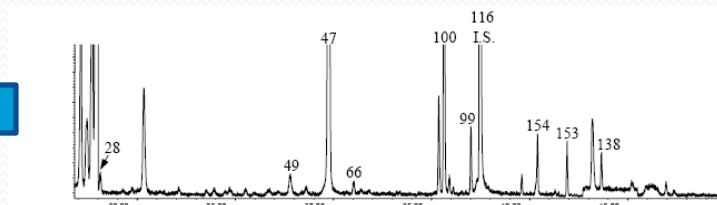


Step 3 - Integration

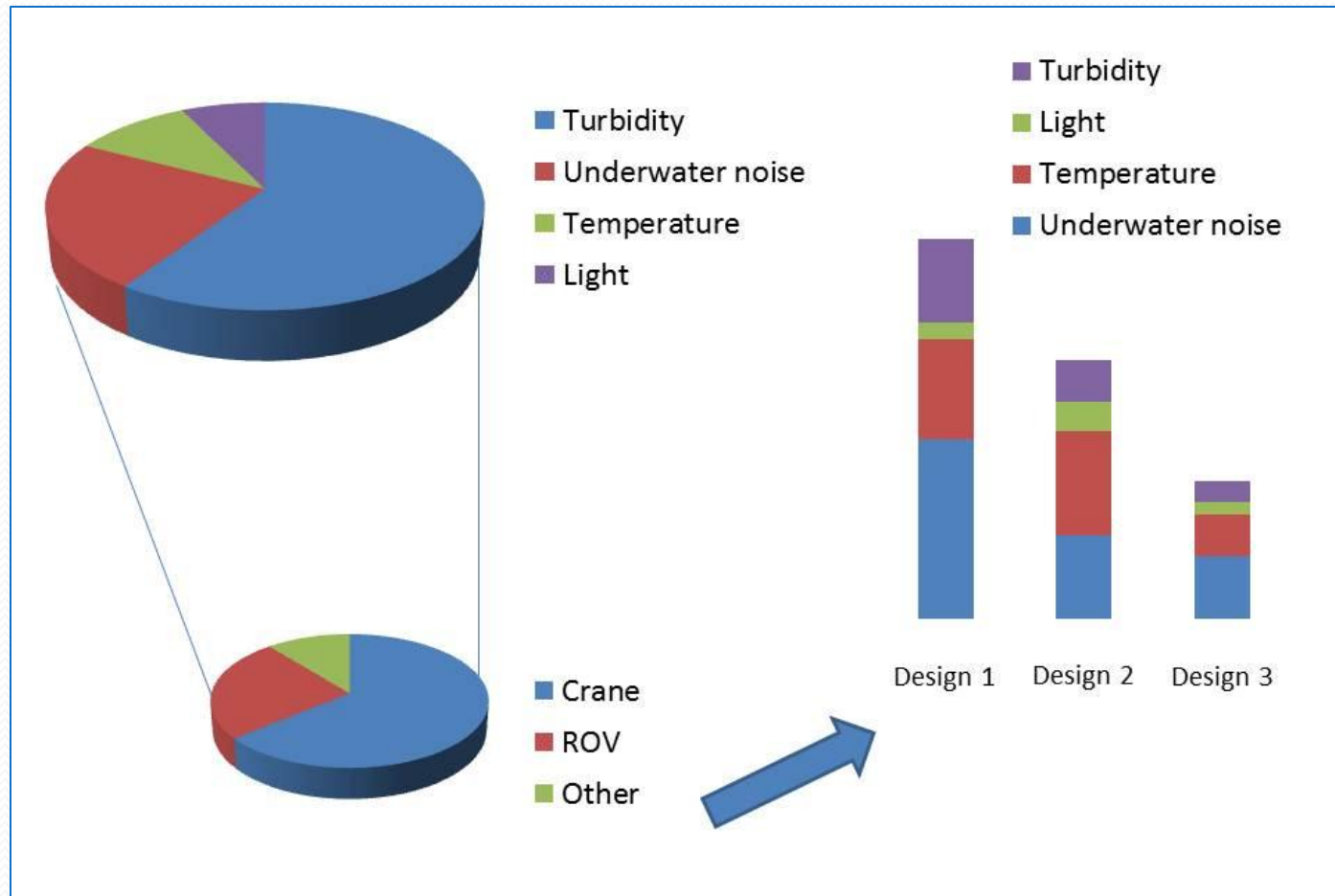


Step 1

Step 2

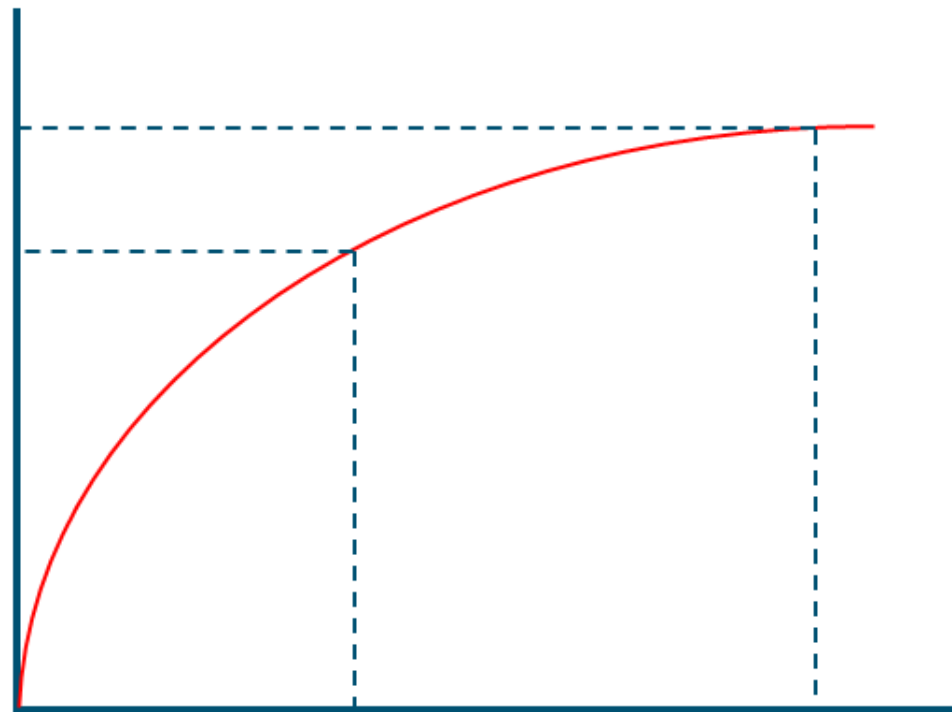


Example of results



Optimise investments in impact reduction

Impact reduction



€

Track record

Project	Financed by
Environmental Impacts of activities on European seas	EU DG Environment
Quality Status Report 2011	OSPAR
Impacts of oil and gas on Natura 2000 areas North Sea	NOGEPa
Green supply vessels in the Wadden Sea	MCN EFRO
Environmental impact of navy vessels in the Arctic	Canadian/Swedish Navy
The Arctic Handbook	MIP



Thank You

Questions?

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