Linkages between human activities, pressures and marine nature: support for planners

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Why the focus on multiple pressures?

EU MSFD, art 8: *”an analysis of the predominant pressures and impacts, including human activity…”*

”covers the qualitative and quantitative mix of the various pressures”

“covers the main cumulative and synergistic effects”

EU MSPD, Art 3: *“When establishing maritime spatial planning, Member States shall have due regard to the particularities of the marine regions, relevant existing and future activities and uses and their impacts on the environment”*

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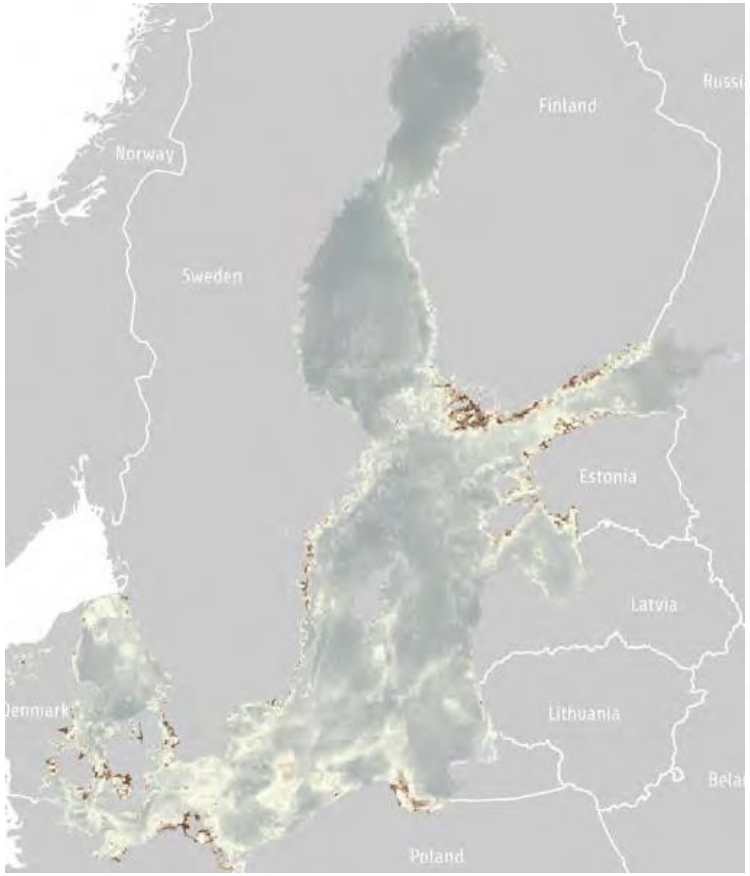
Cumulative effect assessment: to provide support for spatial management

Pressure layers covering marine areas

Human activities causing highest pressures

Specific results for selected marine areas

Most affected (potentially) habitats



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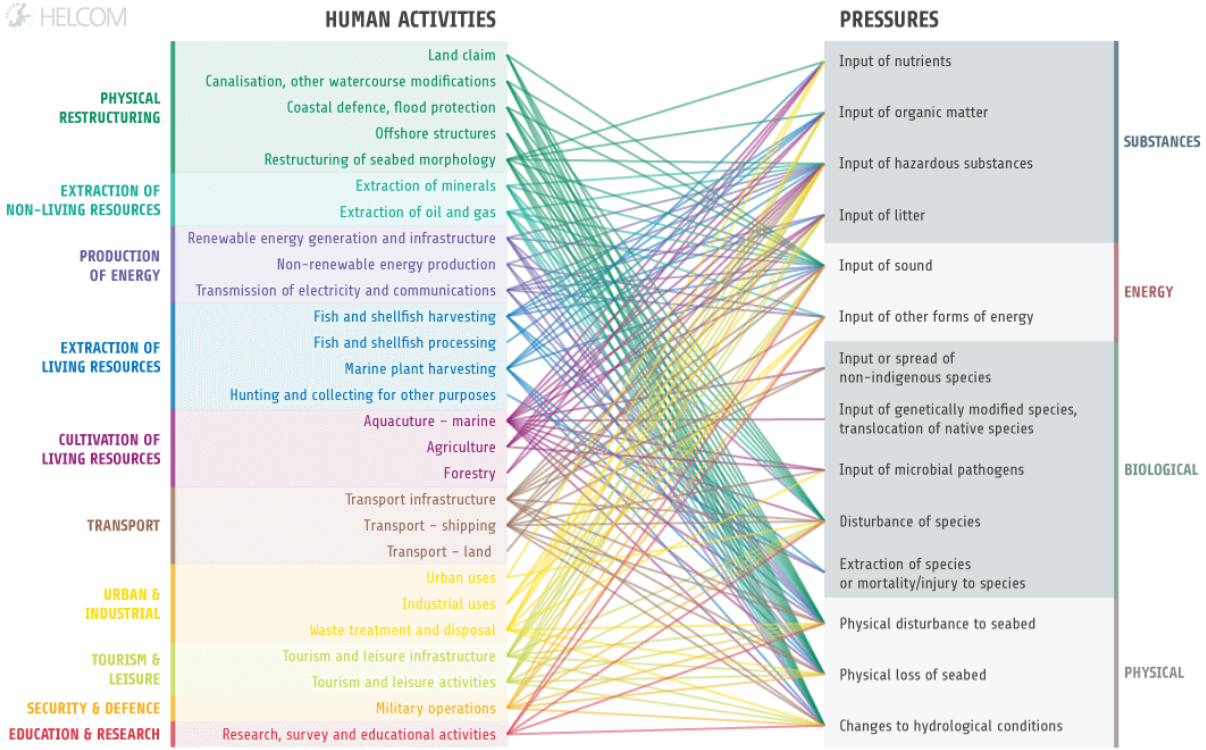
How to estimate human impacts: from activities to pressures

MSFD Annex III: standard activity and pressure categories



Pollution originates mainly from land, but also some maritime

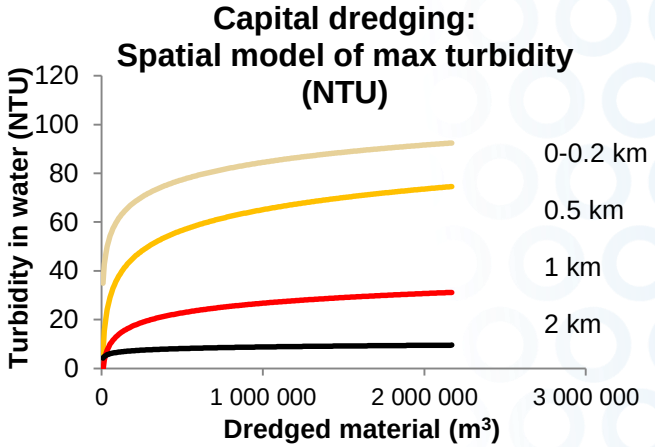
Fishing is one category, but several types of fishing affect stocks

Several activities causing pressures to seabed

Improving spatiality and reality of pressure assessment

Each pressure was given spatial impact radius

which decreased with distance.



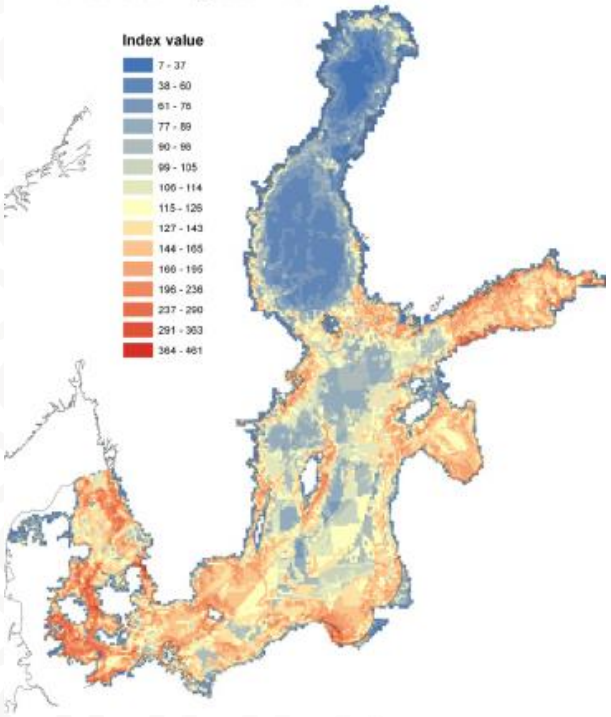
Human activities exert different amounts of the same pressure

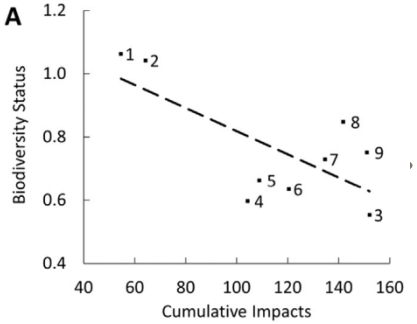
→ weighted importance

Values available in HELCOM report

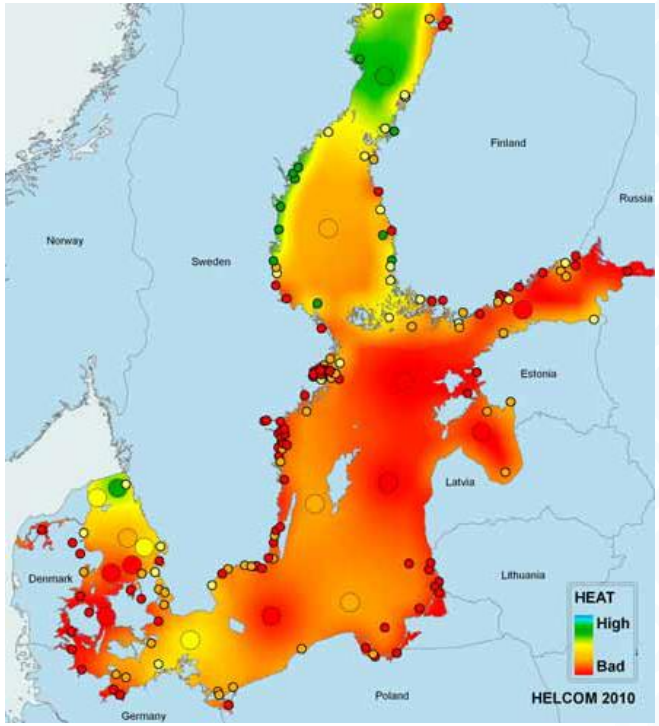
How to estimate human impacts: from pressures to impacts

Cumulative effect index
(Baltic Sea Impact Index)

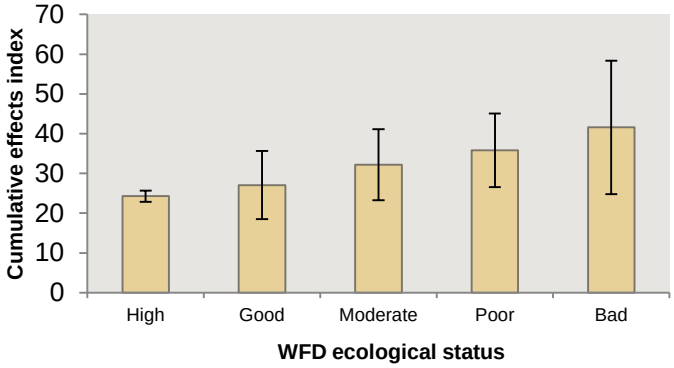


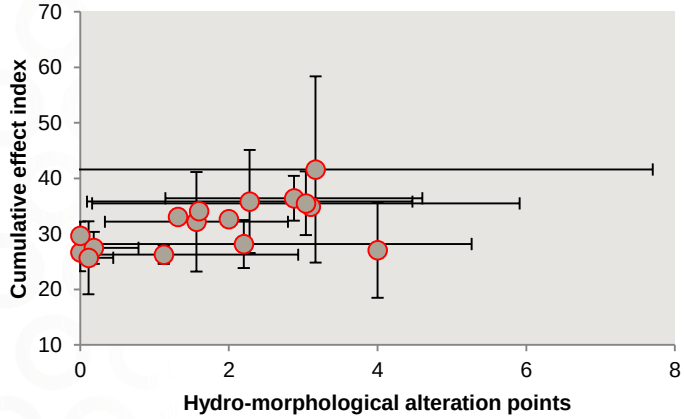


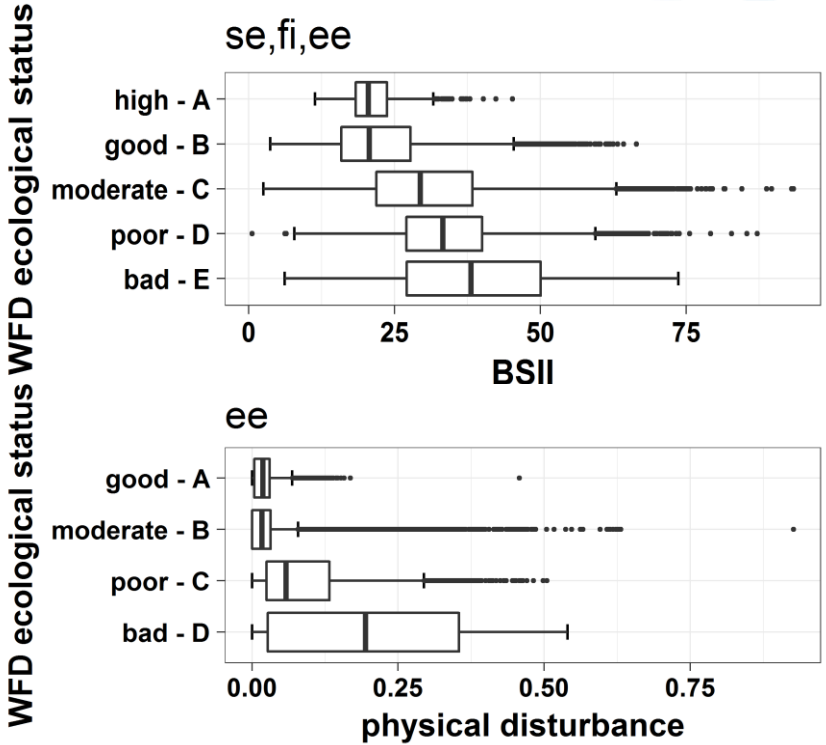
Integrated biodiversity
(HOLAS I BEAT tool)



How to estimate human impacts: from pressures to impacts







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SPICE-project deliverable 4.2.3

How to estimate human impacts: sensitivity of species and habitats

HELCOM HOLAS I survey

About 40 experts from 6 countries and 1 workshop

HELCOM HOLAS II survey 2016

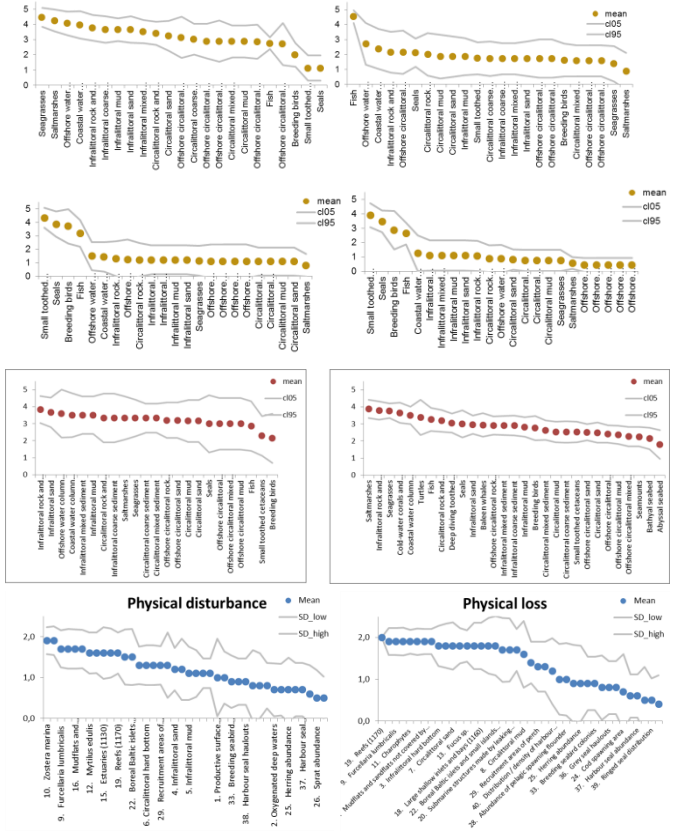
81 responses from 9 countries

ETC-ICM survey

54 responses from all the four marine regions

Other surveys

ODEMM, OSPAR, Teck et al. 2010



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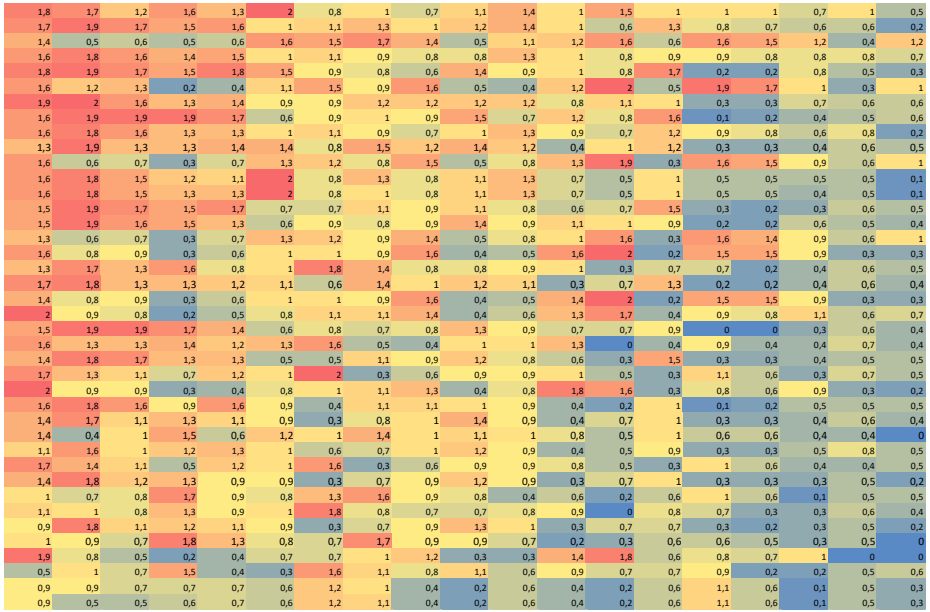
The most sensitive features in the Baltic Sea?

OIL SPILS
PHYSICAL LOSS
PHYSICAL DISTURBANCE
NUTRIENTS

STRUCTURES WITH LEAKING GASES
COASTAL LAGOONS
RINGED SEAL DISTRIBUTION
ESTUARIES
MUDFLATS AND SANDFLATS
HARBOUR PORPOISE
REEFS
EELGRASS



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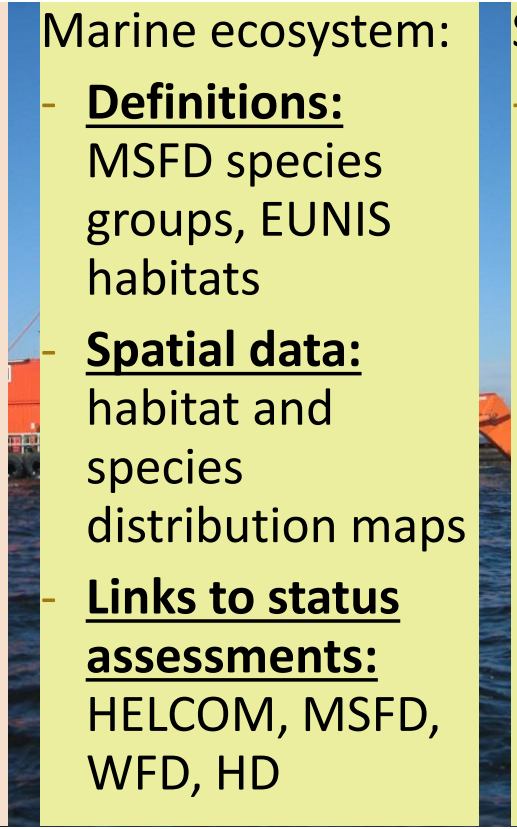
Resources for assessment are available

Human activities:

- **Definitions**: MSFD Annex III
- **Spatial data**: EMODnet, sectorial, regional and national portals (HELCOM)
- **Links to pressures:** (e.g. 'HELCOM TAPAS linkage framework')

Pressures:

- **Definitions**: MSFD Annex III
- **Spatial data**: modelled from activities or pressure data (HELCOM, EEA)
- **Links to impacts**: sensitivity scores, modelled responses, data evidence



Marine ecosystem:

- **Definitions:** MSFD species groups, EUNIS habitats
- **Spatial data:** habitat and species distribution maps
- **Links to status assessments:** HELCOM, MSFD, WFD, HD

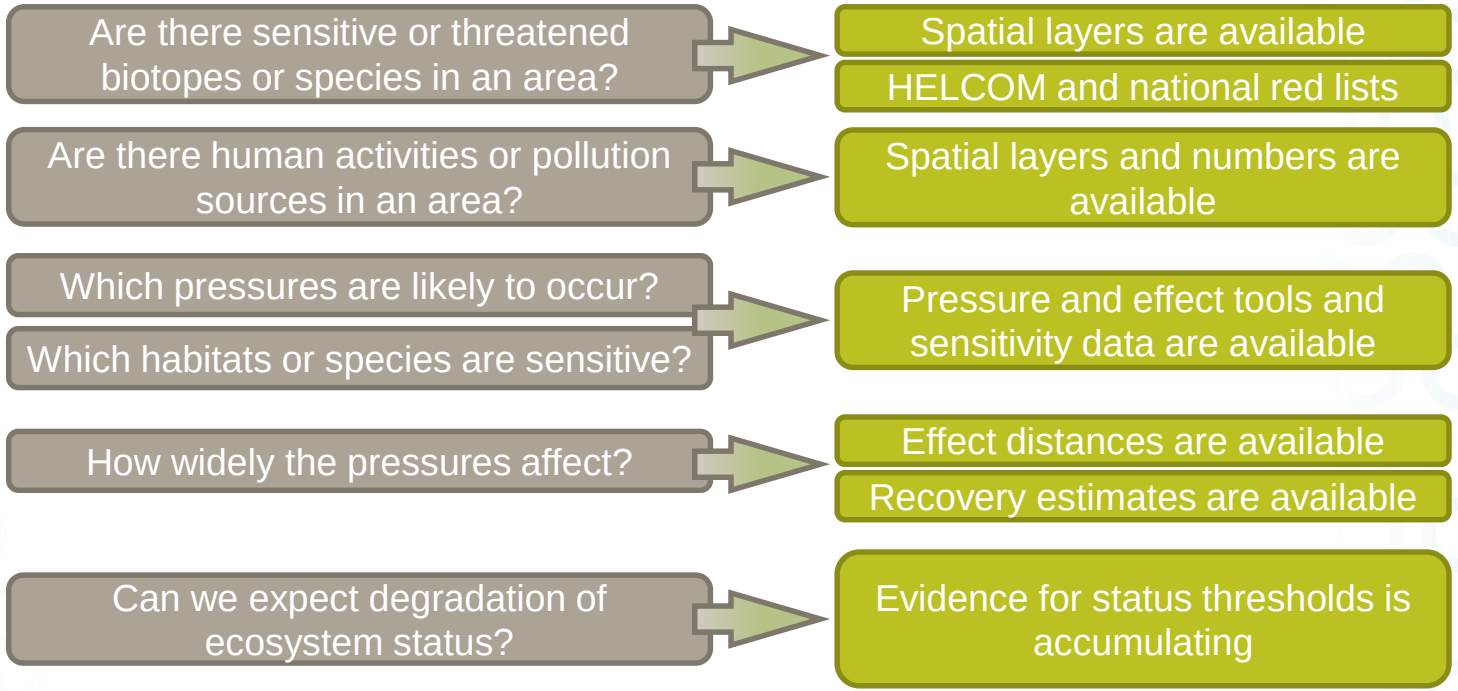
Sensitivity:

- **Survey results:** http://stateofthebalticsea.helcom.fi

HELCOM BSEP 125: http://www.helcom.fi/helcom-at-work/publications

EEA/ETC-ICM report 'Pressures and their effects in Europe's seas'

Avoiding adverse effects on the ecosystem: What tools do we have?



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"*We know that when we protect our oceans we're protecting our future*."

—Bill Clinton

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Photo: Markus Sirkka