

CIA context presentation

Agenda Item 3



Possible uses of a Cumulative Impact Assessment

Document 2-1

- CIA assists the effective management of concurring human activities in the sea.
- Main uses are in the context of:
 - marine spatial planning
 - strategic environmental assessment of programmes and plans and environmental impact assessments of projects
 - supporting economic and social analysis of the uses of the sea These uses relate to various policy contexts including actions under HELCOM BSAP, EU MSFD (namely programme of measures) and EU MSP. The indicated uses mainly take place at a national level / within national actions. However, in the future they could be used to help coordinate planning and management of human activities across national boundaries.



Possible uses of a Cumulative Impact Assessment

- CIA Survey

CP	Survey response
FI	<p>MSP: CIA can be done by sector to see which sector contribute most. ESA: each measure will be scrutinized regarding the impact it has on the status of the marine environment and the costs associated, and the aim is to find an optimized solution.</p>
DE	<p>CIA is being discussed in the context of</p> <ul style="list-style-type: none"> - Strategic Environmental Assessments (SEA) of programmes and plans - Environmental Impact Assessments (EIA) of projects <p>In the SEA context, cumulative impacts is considered as the overlap in space of environmental impacts that various planning decisions may have in relation to one particular protected asset (e.g. air quality, water quality, noise situation, etc). In this context, present and future human activities are considered. SEAs are among others applicable to maritime spatial plans so that the cumulative effects of planning options in space are taken into account.</p>
SE	<p>MSP: Where are the environmental impacts of the different human activities and how much do they contribute? There is a need for describing and communicating pressures from different activities in a certain area. In deciding on the optimal use of a certain area, there is a need to compare different scenarios, involving different locations and levels of potential activities. The comparison make sense as long as the scenarios are run within the same model. Thus it is not necessarily a question of comparing to a threshold value, the scale used for level of pressure can be gradual.</p> <p>ESA: From a socioeconomic perspective, and others, cumulative assessment results would (ideally, theoretically) be needed to assess potential Ecosystem services from the sea. But this is the long term (challenges at present are uncertainties in the comparison between pressures, which so far has made the results hard to use in this way. For example noise often was observed to come out disproportionately high, when attempts were made nationally). In practice, it seems it is useful for economists (though not only) to have the data layers of activities in their geographical distribution, especially for establishing BAU scenarios with future development of activities taken into account. This is used to be able to assess ecosystem services provided today and in the future, and could in theory be used as a basis for calculating benefits of (not) reaching GES, but also as a way of evaluating effects of measures over all (not per measure) by comparing scenarios to each other within the model. This is thus similar to the use in MSP when you need to justify management efforts or choose between planning alternatives. BSPI potentially provides basis for these uses on a Baltic scale. This could help calculating cost of sectors in terms of estimated pressure of the sea in relation to the profit from the activities. This, then, relates more to the data layers available in the tool, than the cumulative assessment itself. This could also help assessing the outcome in relation to the efforts required.</p> <p>BSAP: it is not necessarily a question of comparing to a threshold value, the scale used for level of pressure can be gradual. There is the BSAP dimension of „An 'ecosystem-based approach' or 'ecosystem-based management' which might require different decision support tools than the assessment according to MSFD criteria, but also different to the MSP framework. It is a spatial approach that builds around acknowledging connections, cumulative impacts and multiple objectives, across single concerns e.g. species, sectors or activities. So far, ecosystem-based management has not been used to its full potential (at least in Sweden) because there is still development needed as regards management methods, tools, using a more local scale etc. In this context we should not underestimate the need for maps and models that support cross-sectoral communication and collaboration. The needs must be further specified, and would therefore needed to be developed for use post-2024</p> <p>MSFD: to have the right basis for setting thresholds for pressures, i.e. the threshold might have to be stricter when cumulative effects are taken into account than if the effect of only one pressure on an ecosystem component was considered. Geographic specification relatively low today, but could increase in the future. Theoretically to be able to assess the need for measures correctly. In line with previous paragraph, the need might be larger if the cumulative effect is taken into account. For measures the geographic aspect is important; where do the pressures need reduction. Thus, we need knowledge of what are the main pressures on each ecosystem component, and where the pressure from these taken together is larger than the sum of the individual pressures on that component.</p>

Requirements from a Cumulative Impact Assessment, doc 2-1

2. CIA depicts how activities and pressures overlap in the marine space.

CIA should help prioritising actions in relation to sectors, pressures and areas, and help identify areas of high risk (i.e. with a large number of concurring activities and subsequent pressures) for the purpose of management and measures, e.g. guide where measures should be targeted, where transboundary management cooperation is warranted, or where there is a need for improved monitoring.

3. CIA depicts the combined impact of several pressures on the same ecological component (a species, a habitat).

This is about the relative importance of activities, pressures and impacts in relation to failing or the risk of failing good status of a specific ecosystem component at a given management scale. It is an analysis tool to assist management responses. CIA should answer the following main questions to aid opting for the most effective management decision:

- Where in the sea do environmental impacts occur in relation to ecosystem components? (status quo)
- How much do individual activities/pressures contribute to the impact? (status quo)
- In which areas do which pressures cause most harm? (status quo, foresight)
- How do pressures interact among themselves in a particular area? (And how do they interact with climate change?) (status quo, foresight)
- How do policy objectives (drivers) and decisions (measures, spatial planning) for the management and development of activities influence future combined impacts and, ultimately, ecosystem services? (scenarios, foresight)
- Which of the identified pressures are direct (stems from activities at or close to the area in question, can be managed at source with a direct effect in the area) and which are indirect (stems from activities elsewhere, requires management on a broader, possibly regional scale) to identify those activities most best suited for local vs regional management and measures.

4. CIA depicts the lowest level of resilience of ecosystem components in the sea.

In addition to assumption 3, the CIA should indicate the geographic areas in which individual habitat types and species populations have lowest resilience to specific human pressures and, possibly, are particularly vulnerable to climate change which may in turn reduce further resilience in relation to human pressures.

5. CIA depicts the total level of impact on an ecosystem component.

CIA itself is not an assessment to classify the status of the marine environment. It contributes to integrated status assessments by indicating the total level of impact causing the adverse effect on an ecosystem component. It provides a means to link pressures with status information and thereby provides interpretation of the status assessment results. This is particularly relevant where individual pressures meet their threshold values while an ecosystem component fails good status. The reasons for the failure can be various, including the combined effect of the pressures.

6. CIA deliverables should be closely coordinated with existing assessment tools and needs.

Main linkages to be made include:

- Tools: HELCOM indicators on pressures, impacts and state
- Needs: BAU scenarios in the context of analyses of costs of degradation or effectiveness of measures to achieve good status. Such scenarios require data on the actual and future spatial distribution of activities/pressures and their impacts.
- Status assessments, economic and social analysis (costs of degradation, BAU scenarios) and spatial planning should draw on the same harmonised data layers and ways of their interpretation and handling of uncertainties.



Requirements from a Cumulative Impact Assessment, CIA survey responses

CP	Survey responses
DE	<p>The Commission Decisions outlines the use of criteria according to which certain pressure criteria should be taken into account in the assessment of species and habitats:</p> <ul style="list-style-type: none"> - assessments of the adverse effects from pressures under criteria D1C1, D2C3, D3C1, D8C2, D8C4 and D10C4 as well as the assessments of pressures under criteria D9C1, D10C3, D11C1 and D11C2 shall be taken into account in the assessments of species under Descriptor 1 - for D6C5, assessments of the adverse effects from pressures, including under criteria D2C3, D3C1, D3C2, D3C3, D5C4, D5C5, D5C6, D5C7, d5C8, D6C3, D7C2, D8C2 and D8C4 shall be taken into account <p>Nevertheless, these criteria are not directly included in the integration steps for an individual species or habitat. But aspects could be included in the assessment of criterion D1C1 anthropogenic mortality or D6C5. Another possibility for Member States could be the inclusion of an analysis in their MSFD report which pressures effect the different ecosystem components.</p>
SE	<p>For MSP: In the long term, harmonised data layers are needed, so that all can be compared. Agree how to address uncertainty, while not being completely moored by the discussion. Thus, we need knowledge of what are the main pressures on each ecosystem component, and where the pressure from these taken together is larger than the sum of the individual pressures on that component.</p> <p>For MSFD: It is not an impact of all activities/pressures on all components that we need at the moment; the assessment is made for specific pressure-effect links. For example in assessment of cumulative impact on seafloor, a set of pressures are regarded relevant per ecosystem component. At present it is not possible to make such an assessment for the whole ecosystem. Approved links are missing between pressures and effects, and effects to state.</p>

Added value of Cumulative Impact Assessment

CP	Survey responses
DK	A more comprehensive picture of the impacts of pressures in the Baltic Sea. Also, a larger focus on cumulative effects of pressures.
FI	It should cover/identify the area(s) of poor status monitoring, improve the reliability of the assessment compared to the previous status assessment.
DE	<ul style="list-style-type: none"> - Visualise the risk of human activities and their associated pressures for individual ecosystem components. - Identify driving pressure components which may be a focused on to reduce cumulative impacts in future management. - Assist the management of human activities (including spatial management) in a forward looking and regionally coherent manner. E.g. data products that help visualise the development (spatial distribution and intensity) of human activities and their pressures/impacts. Such products could provide a linking data basis for environmental, social and economic as well as spatial planning assessment purposes. - Data products that can be used nationally to underpin marine spatial planning and to identify needs and options for transboundary spatial management cooperation.
LV	Will depend on progress achieved
SE	<p>The holistic picture, indications of where the impacts are highest, and which pressures contribute to this impact (and what is being impacted most).</p> <p>The added value is that this type of assessment allows trying to paint a holistic picture because using consistent/compatible scales and metrics for pressure and status components. Attempting a cumulative assessment with this approach encourages the use of compatible/comparable information; that is beneficial in itself.</p> <p>Continuing the development of tools for this the purpose of developing comparable/compatible metrics would allow us to use information in a specific context for any given species or habitat in future. Arguably, this could be achieved through simpler means than an attempted cumulative assessment but it remains a tangible benefit of the process.”</p> <p>It is doubtful whether the exercise is valuable from an assessment perspective but it has value as a communication device, and allows a subsequent closer, local look at areas where potential impact seems high or low. There is value in showing how impacted the Baltic potentially is using a single map – it’s a useful way to communicate that more work is needed. In theory, it should facilitate spatial planning to prevent deterioration, as a minimum. The value would be to be able to compare different years and thus look at trends and development for measures and more general development of nature values and human activity pressures.</p>



Aims:

- developing a common understanding of what the uses of a Cumulative Impact Assessment are, both short and long term;
- developing a common understanding of what is required from a Cumulative Impact Assessment, both short and long term;
- what is the added value of Cumulative Impact Assessment, compared to other existing assessment products,



CIA context presentation

Agenda Item 4



What results and information should a Cumulative Impact Assessment deliver and how should they be presented to be of most use?

- Long term

CP	Survey response
DK	What is the total impact of pressures in a certain area, including cumulative and additive effects? What pressures are important, and how do they interact?
FI	It should indicated of the level of cumulative impact causing "adverse effect" i.e. the level of disturbed status of the environment - also on the long run (long time frame).
DE	<p>There is no nationally agreed expectation. The questions to be answered could be:</p> <ul style="list-style-type: none"> - What is the best management option to reduce the overall pressures on specific marine ecosystem components while enabling sustainable use of marine goods and services and maintaining ecosystem integrity, structure and functioning? - What is the collective impact of present and future human activities on specific marine ecosystem components? - What is the contribution (possibly ranking) of the pressures concerned? - How do pressures interact among themselves and with climate change? - What can be expected if single or multiple pressures are reduced? - Are there pressure which change (intensify) the impact of other pressures? And which effects are expected by or on measures/actions for marine protection?
LV	It is very important to identify critical pressures that shall be mitigated or if possible stopped altogether if we are to reach good ecological status. Therefore, we expect that cumulative impact assessment on some future date will display complex pattern on how and how much each of pressures contribute to deterioration of ecosystem.
SE	<p>There is the need for detailed assessments for BSAP and MSFD as described above. But overall, for BSAP and marine management, we would like to know what geographic areas/habitat types/populations have the lowest resilience, (also to climate change?) thus where do we need to take extra care in planning mitigation and actions. This is important for resource allocation and in prioritizing. And similarly, which pressures cause the most harm, and where? This is important messages for policymakers.</p> <p>For MSP: In the long term, harmonised data layers are needed, so that all can be compared. Agree how to address uncertainty, while not being completely moored by the discussion.</p> <p>We also have the aspect of interaction between ecosystem components in the nutrient web, which is presently not very well understood, that makes the methodology for describing cumulative impacts complicated. This aspect is missing in Symphony and BSII. Developing this requires long term work and research. A Swedish project will explore this during 2020-2023 (no website yet).</p>

What results and information should a Cumulative Impact Assessment deliver and how should they be presented to be of most use?

- Short term

CP	Survey response
DK	Ideally, the same as above. However, it is probably more realistic to be able to carry out the assessment for a limited number of habitats and for a limited number of pressures.
FI	Indication of the disturbed status. This requires some analysis to show the relationship between pressure and state.
DE	How do the individual pressures we are assessing (see question 3) link with the status of a specific marine ecosystem component? What is the overall impact of those pressures on (selected) species and habitats? What are the interlinkages between the pressures?
LV	Presently the "impact assessment" in reality is "pressure" listing. It would be really nice to have a concept on how to link combined pressures with observed state of marine ecosystem. For example, it is considered that "pressure" cod fishing damages benthic habitats. Is it all what it does? What about impact on food chain interactions and not just in areas where fishing takes place? Are those impacts negligible or are they still worth considering?
SE	For reporting, what is required at present is a qualitative identification of the three main pressures (per ecosystem component?). For 2024, in national report, we would preliminarily like to highlight a few themes for which we have a reasonably good basis for making a proper „cumulative assessment“. For example, there should be research available for cod, impact on seafloor and a few more. It would be especially important to make this type of case study for especially vulnerable species or where measures acceptance is low, to explain (to public, decision makers) why action is still needed, in several sectors, despite slow response. For MSP in 2024: we need to know where the environmental impact is highest, and what human activities needs to be managed in order to reduce the impact. In the short term, we need to agree on what type of data and what temporal and spatial resolution we should use, in order to share the data between countries; underwater noise should not be measured as number of times per year exceeding a threshold value in one country and duration of exceeding the threshold in another.

Tentative questions on CIA deliverables:

- At which spatial scale(s) should CIA take place?
- What spatial resolution is needed?
- What level(s) of aggregation, if any, are needed for activities/pressures (e.g. individual or by sector) and ecosystem components (e.g. individual species/habitats, groups, foodweb or ecosystem in total)?
- How can HELCOM indicators be used in a CIA?
- In what format and with what supplementary information should the results be presented in order to ensure they are fit for purpose (e.g. for use in or informing management, for use at the national level/regional level)?
- If forecasting is incorporated in the CIA, what could it be used for and in what way would it be most useful to present it?
- How can forecasting work be linked with ESA-work on driver indicators and BAU-scenarios?



Priorities for HOLAS III

- identifying the (three) top pressures to be tackled in the Baltic Sea
- identifying „risk areas“, areas with a high pressure load, as well as the proportion a given pressure is contributing.
- identifying direct and indirect pressures.
- development of methodologies to link pressures with state information, i.e. to get to grips with „impacts“.
- trialing the possibility of including forecasting in the CIA.



Questions:

- what results and information should a Cumulative Impact Assessment deliver?
- how should they be presented to be of most use?
- how should results be interpreted?
- how uncertainties are handled and presented?
- the need and possibility for validation of the results?



Thank you!

