

Indicators and targets for monitoring and evaluation of implementation of the Baltic Sea Action Plan

In order for the ecological objectives to be operational, initial indicators with set initial targets have been agreed upon. The set targets, when reached, reflect the good ecological status.

Eutrophication

It has been decided that the ecological objectives for eutrophication will be measured by the following indicators:

- Winter surface concentrations of nutrients reflecting the ecological objective “Concentrations of nutrients close to natural levels”
- Summer Secchi depth reflecting the ecological objective “Clear water”
- Chlorophyll *a* concentrations reflecting the ecological objective “Natural level of algal blooms”
- Depth range of submerged vegetation reflecting the ecological objective “Natural distribution and occurrence of plants and animals”
- Area and length of seasonal oxygen depletion reflecting the ecological objective “Natural oxygen levels”.

The transparency of seawater integrates many of the concrete effects of eutrophication and has been chosen as the primary ecological objective with summertime (June-September) Secchi depth as an indicator. The other indicators can be regarded as supportive indicators to give additional information on whether good environmental status has been achieved and are dealt with elsewhere.

Target levels for water transparency are defined by acceptable deviation from reference levels reflecting historical, non-impacted status. As a pragmatic approach, the maximum deviation from reference level should not exceed 25%.

Table 1. The initial target and present levels for summertime water transparency in the different sub-regions

Sub-basin (# of EUTRO assessment table)*	Transparency (summer-August) [m]		
	Reference (EUTRO)	Target (25% deviation from reference)	Present situation (EUTRO)
Bothnian Bay (EUTRO 40)	7.5	Present situation	5.8

Bothnian Sea (EUTRO 38)	9	Present situation	7
Gulf of Finland (EUTRO 31)	8	6	4.1
Gulf of Riga (EUTRO 25)	6	4.5	3.4
Kattegat (EUTRO 1)	10.5	Present situation	8.5
Baltic Proper (mean calculated from EUTRO 30, 28 & 17)	9.3	7	6.3

*Development of tools for assessment of eutrophication in the Baltic Sea (BSEP No. 104)

Hazardous substances

Substances or substance groups of specific concern to the Baltic Sea

1. Dioxins (PCDD), furans (PCDF) & dioxin-like polychlorinated biphenyls
- 2a. Tributyltin compounds (TBT)
- 2b. Triphenyltin compounds (TPhT)
- 3a. Pentabromodiphenyl ether (pentaBDE)
- 3b. Octabromodiphenyl ether (octaBDE)
- 3c. Decabromodiphenyl ether (decaBDE)
- 4a. Perfluorooctane sulfonate (PFOS)
- 4b. Perfluorooctanoic acid (PFOA)
5. Hexabromocyclododecane (HBCDD)
- 6a. Nonylphenols (NP)
- 6b. Nonylphenol ethoxylates (NPE)
- 7a. Octylphenols (OP)
- 7b. Octylphenol ethoxylates (OPE)
- 8a. Short-chain chlorinated paraffins (SCCP or chloroalkanes, C₁₀₋₁₃)
- 8b. Medium-chain chlorinated paraffins (MCCP or chloroalkanes, C₁₄₋₁₇)

9. Endosulfan

10. Mercury

11. Cadmium

Substance relevant sectors of the 11 hazardous substances / substance groups of specific concern to the Baltic Sea

Substance	Main uses potentially relevant for the HELCOM area (Current regulatory actions for these substances in different Contracting Parties have not been presented in the table)
Organic substances	
1. Dioxins (PCDD), Furans (PCDF) and Dioxin-like Polychlorinated Biphenyls Chosen as indicator for objective 1 and objective 2	Main sources to air: (http://ec.europa.eu/environment/dioxin/sources.htm): - Residential combustion - Open burning of waste (backyard burning) - Iron and steel industry - Power production, non-ferrous metals, chemical industry
2a. Tributyltin compounds (TBT) Chosen as indicator for objective 1	- Use as anti-fouling agent (main use) - Use as biocide - Use as pesticide - Use as marking agent in manufacture of aircraft - Use as fungicide in “regular” (non-anti-fouling) paints - Mono- and dibutyltin, which are used as stabilisers in e.g. PVC, polyurethane, polyester, can include TBT as impurity
2b. Triphenyltin compounds (TPhT)	- Use as anti-fouling agent (main use) - Use as biocide - Use as pesticide (fungicide)

<p>3a. Pentabromodiphenyl ether (pentaBDE)</p>	<ul style="list-style-type: none"> - Use as flame retardant in plastic used in electrical equipment such as computers (e.g. in electronic circuits) - Use as flame retardant in different textiles used in special work wear (designed e.g. to protect humans) and special carpets - Use as flame retardant in different products made of flexible polyurethane foam such as in furniture, mattresses, parts of cars and packing material (main use) - Use in resin used as raw material for above-mentioned plastic polymers
<p>3b. Octabromodiphenyl ether (octaBDE)</p>	<ul style="list-style-type: none"> - Use as flame retardant in insulated wires and cables used in different electronic equipment such as computers - Use as flame retardant in different plastic products made of polymers such as ABS and HIPS (main use) - Use as flame retardant in different textiles made of polymers PBT, polyamide (e.g. nylon), PE-LD and polycarbonate polymers - Use in resin used as raw material for above-mentioned plastic polymers
<p>3c. Decabromodiphenyl ether (decaBDE)</p>	<ul style="list-style-type: none"> - Use as flame retardant in different plastic products made of HIPS used e.g. in shell structures of TVs and monitors and in wires and cables of electrical equipment - Use in textiles such as in curtains, upholstery fabrics and carpets containing polypropylene - Use in resins as raw material for above-mentioned plastic polymers
<p>4a. Perfluorooctane sulfonate (PFOS)</p> <p>Chosen as indicator for objective 1</p>	<p>Main uses:</p> <ul style="list-style-type: none"> - Use as surface-active agent in waxes and floor polishes - Use as dirt rejecter, friction control agent, surfactant and antistatic agent in photographic industry in manufacturing of photo film, paper and plates and developing photos (main use and high emission factor to wastewater) - Use in semiconductor industry in photo-acid generators, antireflective coatings, etch mixtures and photo-resists (high emission factor to wastewater) - Use as surface-active agent in metal surface treatment in chromium bath used in e.g. chromium plating (main use and high emission factor to wastewater). Important applications / final products are e.g. aircraft and

	<p>vehicles</p> <ul style="list-style-type: none"> - Use in fire-fighting foams (high emission factor to wastewater) - Use as surfactant in industrial and household cleaning products - Use as flame retardant, corrosion inhibitor and surface-active agent in hydraulic fluids of both civil and military airplanes - Use as water and oil repellent in surface treatment (impregnation) of textiles and leather - Use as water and grease repellent in surface treatment (impregnation) of paper and cardboard (high emission factor to wastewater)
<p>4b. Perfluorooctanoic acid (PFOA)</p>	<ul style="list-style-type: none"> - Use as fluxing agent in plumbing with leaded soldering tin - As impurity in polytetrafluoroethylene (PTFE) fluoroplastic coatings (in primer and topcoat) applied in many sorts of products. PFOA is used as processing aid in manufacture of fluoropolymers such as PTFE - Normally, PFOA is not intentionally part of the final products (unlike PFOS), but there are residual contents in e. g. fluoropolymer. PFOA can be formed through the transformation or metabolism of PFOA related substances such as telomere alcohols.
<p>5. Hexabromocyclododecane (HBCDD)</p>	<ul style="list-style-type: none"> - Use as flame retardant in four principal product types: <ol style="list-style-type: none"> 1. Expandable Polystyrene (EPS, main use), which (as foam containing HBCDD) is further used in the building and construction industry in end products such as insulation panels / boards in the construction sector, automobile cushions for children, rigid packaging material for fragile equipment, packaging material such as "chips" and shaped EPS-boards 2. Extruded Polystyrene (XPS, main use), which is further used e.g. in rigid insulation panels/boards in the construction sector, insulation material protecting against frost damage on road and railway embankments and sandwich construction in e.g. caravans and lorry platforms 3. High Impact Polystyrene (HIPS), which is further used in electrical and electronic appliances such as audio-visual equipment cabinets (video and stereo equipment), distribution boxes for electrical lines in the construction sector and refrigerator lining 4. Polymer dispersion for textile finishing (coating, significant source); textiles can be used for e.g. flat and pile upholstered furniture (residential and commercial furniture), upholstery seats in transportation, draperies, and wall coverings, bed mattress ticking, interior textiles e.g. roller blinds,

	<p>automobile interior textiles and car cushions</p>
6a. Nonylphenols (NP)	<ul style="list-style-type: none"> - Use as raw material for production of NPE - Use as stabiliser and emulsifying agent in paints, varnishes and coatings - Use as adhesive or binding agent, process regulator, stabiliser and hardener for epoxy resin in manufacture of plastic products such as in construction materials and as soldering agent in insulated wires and cables
6b. Nonylphenol ethoxylates (NPE)	<ul style="list-style-type: none"> - Use as stabiliser and emulsifying agent in paints, varnishes and coatings (main use and risk use)
NPE degrades to NP	<ul style="list-style-type: none"> - Use as solvent for pesticides applied in agriculture and horticulture (high emission factor to wastewater) - Use as aid agent in pre-treatment of wooden fibre mass and removal of lignin in manufacture of pulp (high emission factor to wastewater) - Use as stabiliser and developer agent in developing photos (high emission factor to wastewater) - Use in metal-working fluids in treatment and coating of metal (high emission factor to wastewater) - Use as surface-active agent in manufacture of pharmaceuticals - Use as cleaning agent in cleaning preparations applied by industry and households (main use and high emission factor to wastewater) - Use as soldering agent in manufacture of electronic valves and tubes and other electronic components - Use as laboratory chemical - Use as anti-icing agent in aircraft (high emission factor to wastewater) - Use in liquids designed for technical testing on damage / cracks in different objects - Use in cosmetics - Use as surface-active agent in veterinary medicines - Use in treatment of textiles (e.g. washing of wool, pre-treatment of fibres and smoothing of ink / colour) (main use and high emission factor to wastewater) - Use as degreasing agent in treatment of animal hides (main use and high

	<p>emission factor to wastewater)</p> <ul style="list-style-type: none"> - Use in concrete in order to increase its porosity (high emission factor to wastewater)
7a. Octylphenols (OP)	<ul style="list-style-type: none"> - Use as adhesive during vulcanisation in manufacture of car tyres - Use in paper coating - Use in insulation of electronic coils in manufacture of electric motors, generators and transformers - As impurity in nonylphenol at concentrations of 1-10%
7b. Octylphenol ethoxylates (OPE) OPE degrades to OP	<ul style="list-style-type: none"> - Use as stabiliser and developer in developing photos - Use as surface-active agent in cleaning preparations used e.g. in service of motor vehicles, compressors and other industrial cleaning - Use as adhesive and glue in manufacture of plastic products - Use in water-based metal-working fluids in treatment and coating of metal - Use as emulsifier and dispersant for pesticides applied in agriculture and horticulture - Use in treatment of textiles and leather finishing - Use as emulsifier in manufacture of styrene-butadiene polymers - Use as emulsifier and dispersant in water-based paints, printing inks and paints intended for surfaces exposed to sea water - Use in pharmaceuticals
8a. Short-chain chlorinated paraffins (SCCP or chloroalkanes, C ₁₀₋₁₃)	<ul style="list-style-type: none"> - Use in manufacture of textiles and wearing apparels in order to achieve clothes (designed e.g. for sailing and industrial work) of high flame-resistant, water-proof and anti-fungal properties - Use as greasing agent in leather finishing, further use in manufacture of leather products - Use in metal-working fluids (both water- and oil-based) in treatment and coating of metal - Use as lubricants in compressed air tools in garages and in different industrial sectors

	<ul style="list-style-type: none"> - Use as plasticiser and flame retardant in paints (used e.g. in road marking and as primer for surfaces exposed to sea water), varnishes and coatings - Use as plasticiser and flame retardant in rubber products such as gaskets, sealants and in glues which have been used e.g. in construction sector and car industry - MCCP can contain up to 1% SCCP
8b. Medium-chain chlorinated paraffins (MCCP or chloroalkanes, C ₁₄₋₁₇)	<ul style="list-style-type: none"> - Use as substitute for SCCP - Use as greasing agent in leather finishing - Use in metal-working fluids (both water- and oil-based) in treatment and coating of metals - Use as plasticiser and flame retardant in paints (used e.g. in road marking and as primer for surfaces exposed to sea water), varnishes and coatings - Use as plasticiser and flame retardant in rubber products such as gaskets and in glues which have been used e.g. in construction sector and car industry - Use in some carbon copy paper types - Use as plasticiser and flame retardant in PVC plastic and further use in manufacture of plastic products
9. Endosulfan	<ul style="list-style-type: none"> - Agricultural pesticide (main use) - Possible use as a wood impregnation agent
Heavy metals	
10. Mercury Chosen as indicator for objective 1 and objective 2	<ul style="list-style-type: none"> Dentistry (dental amalgams) Batteries Measuring and control instruments (e.g. thermometers) Lamps Electronics Laboratory chemical and pharmaceuticals

	<p>Gold and silver recovery</p> <p>Chlor-alkali industry</p> <p>Coating on paper or film in photographic applications</p> <p>Fossil fuel combustion in power plants</p> <p>Crematoria</p> <p>Production of zinc and copper (Hg in raw material)</p> <p>Non-antifouling paints (use possible)</p> <p>Cosmetics</p> <p>Pesticide</p> <p>Marine antifouling paints</p> <p>Wood preservation</p> <p>Textile treatment</p>
<p>11. Cadmium</p> <p>Chosen as indicator for objective 1 and objective 2</p>	<p>Stabiliser for PVC</p> <p>Pigment in plastics, glasses, ceramics, paints, papers and inks</p> <p>Electrode material in nickel-cadmium batteries</p> <p>Synthesis of other inorganic cadmium compounds</p> <p>Metal industry and metal ore roasting or sintering installations</p> <p>Production of ferrous and non-ferrous metals (zinc mining, lead and zinc refining, cadmium)</p> <p>Plating of metals i.e. protection of iron against corrosion</p> <p>Component for various alloys</p> <p>Solar cells</p> <p>Fossil fuel combustion in power plants</p> <p>Fertiliser</p>

Ecological objectives for hazardous substances will be measured where applicable by the following initial indicators and targets:

Table 1. Indicators for ecological objectives “Concentrations of hazardous substances close to natural levels” & “All fish safe to eat”

Indicator substance and matrix	Target
Ecological objective “Concentrations of hazardous substances close to natural levels” (i.e., environmental monitoring)	
<p>Cadmium</p> <p>* in fish (herring or flounder or perch) liver as indicator for different sub-regions of Baltic Sea and</p> <p>* in bivalve (blue mussel or Baltic clam) soft tissue as indicator for different sub-regions of Baltic Sea</p>	<p>Primary target of decreasing concentration trend</p> <p>Ultimate target level to reach near background concentrations</p>
<p>Mercury</p> <p>* in fish (herring or flounder or perch) muscle as indicators for different sub-regions of Baltic Sea and</p> <p>* in bivalve (blue mussel or Baltic clam) soft tissue as indicators for different sub-regions of Baltic Sea</p>	<p>Primary target of decreasing concentration trend</p> <p>Intermediate target level for fish in Table 2</p> <p>Ultimate target level to reach near background concentrations</p>
<p>Dioxins, furans, dioxin-like PCBs</p> <p>* in fish (herring or salmon or perch) muscle for different sub-regions of Baltic Sea</p>	<p>Primary target of decreasing concentration trend</p> <p>Intermediate target level for fish in Table 2</p> <p>Ultimate target level to reach close to zero concentrations</p>
<p>TBT</p> <p>* in sediment or biota (fish or mussel) or imposex (i.e., biological effects monitoring) for different sub-regions of Baltic Sea</p>	<p>Primary target decreasing concentration trend and/or decreasing effects.</p> <p>Ultimate target level to reach close to zero concentration and/or no effect level.</p>
<p>PFOS</p> <p>* in sediment or fish (species optional) liver for different sub-regions of Baltic Sea</p>	<p>Primary target of decreasing concentration trend</p> <p>Ultimate target level to reach close to zero</p>

	concentrations
Ecological objective “All fish safe to eat” (i.e., human health monitoring)	
Cadmium * in fish (herring or flounder or perch) muscle / edible part as indicators for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Intermediate target level for fish in Table 2 Ultimate target level to reach near background concentrations
Mercury * in fish (herring or flounder or perch) muscle / edible part as indicators for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Intermediate target level for fish in Table 2 Ultimate target level to reach near background concentrations
Dioxins, furans, dioxin-like PCBs * in fish (herring or salmon or perch) muscle / edible part for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Intermediate target level for fish in Table 2 Ultimate target level to reach close to zero concentrations

Table 2. Intermediate target levels / maximum allowable concentrations of mercury (Hg), cadmium (Cd), dioxins and sum of dioxins & dioxin-like PCBs in fish muscle meant for foodstuff as regulated by EC 1881/2006

Substance	Maximum levels in fish muscle (µg/kg WW fish). Note: that exceptions in parentheses include only eel and pike, other species named in the regulation but less common in the Baltic are excluded.
Hg	500 (1,000 in pike <i>Esox lucius</i> , eel <i>Anguilla anguilla</i>)
Cd	50 (100 in eel <i>Anguilla anguilla</i>)
Dioxins (WHO-PCDD/F-TEQ)	4×10^{-3}

Dioxins + dioxin-like PCBs (WHO-PCDD/F-PCB-TEQ)	8×10^{-3} (12×10^{-3} in eel <i>Anguilla anguilla</i>)
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Table 3. Indicators for ecological objective “Healthy wildlife”

Indicator	Target
<p>Predatory bird health:</p> <p>White tailed sea eagle (and/or osprey) for different sub-regions of Baltic Sea</p> <p>* Proportion of successfully reproducing pairs</p> <p>* Mean brood size</p>	targets need to be defined
<p>Fish health:</p> <p>* Fish Disease Index</p>	target needs to be defined
<p>Seal health:</p> <p>Grey seal for entire Baltic and ringed seal for northern Baltic, also harbour porpoise proposed for the consideration of Seal Group</p> <p>- rate of pregnancy (CA)</p> <p>- rate of fecundity (CL)</p> <p>- occurrence of uterine pathology (occlusion, stenosis, “myoma”)</p> <p>- occurrence of intestinal ulcers in 1-3 year-old seals</p>	<p>- normal pregnancy rate (to be defined)</p> <p>- normal fecundity rate (to be defined)</p> <p>- normal level of uterine pathology (to be defined)</p> <p>- normal occurrence of intestinal ulcers in 1-3 year-old seals</p>

Table 4. Indicators for ecological objective “Radioactivity at pre-Chernobyl levels”

Target levels have been calculated on basis of average concentrations during years 1984-85 which refer to pre-Chernobyl time period.

Indicator substance and matrix	Target
<p>Cs-137</p> <p>* in herring muscle as indicator for whole Baltic Sea</p> <p>* in plaice and flounder muscle for Southern Baltic Sea (southwards from Gotland)</p>	<p>- Primary target of decreasing concentration trend</p> <p>- Ultimate target level to reach pre-Chernobyl level which is 2.5 Bq/kg wet weight for herring muscle and 2.9 Bq/kg wet weight for plaice and flounder muscle</p>
<p>Cs-137</p> <p>* in sea water for whole Baltic Sea</p>	<p>- Primary target of decreasing concentration trend</p> <p>- Ultimate target level to reach pre-Chernobyl level of 14.6 Bq/m³</p>
<p>Cs-137</p> <p>* in sediment for whole Baltic Sea</p>	<p>- Primary target of decreasing concentration trend</p> <p>- Ultimate target level to reach pre-Chernobyl level 1 640 Bq/m²</p>

Nature conservation and biodiversity

Ecological objectives for nature conservation and biodiversity will be measured by the following initial indicators and targets:

Natural marine and coastal landscapes

Targets:

- By 2010 to have an ecologically coherent and well-managed network of Baltic Sea Protected Areas (BSPAs), Natura 2000 areas and Emerald sites in the Baltic Sea,
- By 2012 to have common broad-scale spatial planning principles for protecting the marine environment and reconciling various interests concerning sustainable use of coastal and offshore areas, including the Coastal Strip as defined in HELCOM Rec. 15/1,
- By 2021 to ensure that “natural” and near-natural marine landscapes are adequately protected and the degraded areas will be restored.

Preliminary indicators:

- Designated BSPAs, Natura 2000 and Emerald site area as percentage of total sub-region area,
- Percentage of important migration and wintering areas for birds within the Baltic Sea area which are covered by the BSPAs, Natura 2000 and Emerald sites,

- Percentage of marine and coastal landscapes in good ecological and favourable status,
- Percentage of endangered and threatened habitats/biotopes' surface covered by the BSPAs in comparison to their distribution in the Baltic Sea,
- Trends in spatial distributions of habitats within the Baltic Sea regions.

Thriving and balanced communities of plants and animals

Targets:

- By 2021, that the spatial distribution, abundance and quality of the characteristic habitat-forming species, specific for each Baltic Sea sub-region, extends close to its natural range,
- By 2010 to halt the degradation of threatened and/or declining marine biotopes/habitats in the Baltic Sea, and by 2021 to ensure that threatened and/or declining marine biotopes/habitats in the Baltic Sea have largely recovered,
- To prevent adverse alterations of the ecosystem by minimising, to the extent possible, new introductions of non-indigenous species.

Preliminary indicators:

- Percentage of all potentially suitable substrates covered by characteristic and healthy habitat-forming species such as bladderwrack, eelgrass, blue mussel and stoneworts,
- Trends in abundance and distribution of rare, threatened and/or declining marine and coastal biotopes/habitats included in the HELCOM lists of threatened and/or declining species and habitats of the Baltic Sea area,
- Trends in trophic structure and diversity of species (e.g. caught in scientific surveys),
- Trends in the numbers of detections of non-indigenous aquatic organisms introduced into the Baltic Sea.

Viable populations of species

Targets:

- By 2021 all elements of the marine food webs, to the extent that they are known, occur at natural and robust abundance and diversity,
- By 2015, improved conservation status of species included in the HELCOM lists of threatened and/or declining species and habitats of the Baltic Sea area, with the final target to reach and ensure favourable conservation status of all species,
- By 2012 spatial/temporal and permanent closures of fisheries of sufficient size/duration are established thorough the Baltic Sea area,
- By 2009, appropriate breeding and restocking activities for salmon and sea trout are developed and applied and therefore genetic variability of these species is ensured,

- By 2009 illegal, unregulated and unreported fisheries are close to zero,
- By 2008 successful eel migration from the Baltic Sea catchment area to the spawning grounds is ensured and national programmes for conservation of eel stocks are implemented,
- By 2015, as the short-term goal, to reach production of wild salmon at least 80%, or 50% for some very weak salmon river populations, of the best estimate of potential production, and within safe genetic limits, based on an inventory and classification of Baltic salmon rivers,
- By 2015, to achieve viable Baltic cod populations in their natural distribution area in Baltic proper,
- By 2015, to have the re-introduction programme for Baltic sturgeon in place, and - as a long term goal, after their successful re-introduction has been attained - to have best natural reproduction, and populations within safe genetic limits in each potential river,
- By 2015 by-catch of harbour porpoise, seals, water birds and non-target fish species has been significantly reduced with the aim to reach by-catch rates close to zero,
- By 2015 discards of fish are close to zero (<1%).

Preliminary indicators:

- Trends in the number of threatened and/or declining species,
- Abundance, trends and distribution of Baltic seal species compared to the safe biological limit (limit reference level) as defined by HELCOM HABITAT,
- Abundance, trends, and distribution of Baltic harbour porpoise,
- Number of rivers with viable populations of Baltic sturgeon,
- Spawning stock biomass of western Baltic cod and eastern Baltic cod compared to precautionary level (Bpa) as advised by ICES and/or defined by EC management plans,
- Fishing mortality level of western Baltic cod and eastern Baltic cod, compared to precautionary level (Fpa) as advised by ICES and/or defined by EC management plans,
- Trends in numbers of discards and by-catch of fish, marine mammals and water birds,
- Number of entangled and drowned marine mammals and water birds,
- Number of salmon rivers with viable stocks,
- Trends of salmon smolt production in wild salmon rivers.

Maritime Activities

Management objectives for maritime activities will be measured by the following initial indicators and targets:

Enforcement of international regulations - No illegal pollution

- Number of surveyed/inspected ships found to use organotin compounds actively in their antifouling systems in relation to the total number of surveyed ships calling at Baltic Sea ports,
- Pollution per Flight Hour (PF) Index (ratio of total no. of detected oil spills to total no. of flight hours) per year,
- Number of detected/confirmed illegal oil discharges per year,
- Number of regular flight hours, including Co-ordinated Extended Pollution Control Operation (CEPCO) flights, per year,
- Number of satellite imageries per year per sub-region,
- Number of ships caught red-handed per year,
- Amount of ship-generated waste delivered to port reception facilities in the Baltic ports in relation to the total number of calls at ports,
- Number of notifications on inadequacy of port reception facilities received by the Contracting States.

Safe maritime traffic without accidental pollution*

- Number of shipping accidents, including in ice conditions, per year in relation to yearly traffic (number of ships crossing pre-defined AIS lines),
- Number of accidents with pollution in relation to the total number of accidents per year,
- Number of collisions/groundings in relation to the total number of accidents per year.

Efficient emergency and response capability

General evaluation of implementation by HELCOM RESPONSE

- Rate of oil recovery and the amount of oily wastes at sea and on the shoreline during response operations to oil accidents,
- Number of accidents where dispersants were used.

Minimum sewage pollution from ships

- Number of ferry and passenger terminals equipped with adequate sewage reception facilities per number of all ferry and passenger terminals in a country per year,
- Number of ferries and passenger ships delivering sewage to port reception facilities.

No introductions of alien species from ships

General evaluation of implementation by HELCOM MARITIME in co-operation with HELCOM MONAS and HELCOM HABITAT

- Number of new introductions observed per year,
- Number of established alien species per year,
- Amount of sediments delivered to port reception facilities.

Minimum air pollution from ships

- NOx emissions from shipping in the Baltic per year,
- Number of ships that use NOx abatement technology and specified by technology, such as SCR (selective catalytic reduction), HAM (Humid Air Motor Technique), water injection, etc.,
- Number of non-compliant ships in relation to the total number of ships inspected in the Baltic Sea ports to control compliance with fuel oil requirements of Annex VI to MARPOL 73/78,
- Average content of sulphur in fuel delivered to ships from fuel oil suppliers in the Baltic Sea per year.

Zero discharges from offshore platforms

General evaluation by HELCOM MARITIME.

Minimum threats from offshore installations

General evaluation by HELCOM MARITIME.

** applicable for tankers over 150 GT and other ships over 400 GT according to the agreed HELCOM reporting form*