Technical and administrative support for the joint implementation of the Marine Strategy Framework Directive (MSFD) in Bulgaria and Romania

Under Framework contract for services related to coordination between the different marine regions in implementing the ecosystem approach.

CBE March:

COMMON GES/ TARGETS

26-27-28/03/2014, Brussels

GeoEcoMar

COWI

CMRC

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Imagine the result

Comparative analysis GES / targets / indicators

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Results Article 12 Technical assessment

		Level of coherence according to Art. 12 Regional report (Milieu, 2014)			Art. 12 assessment National reports (Milieu, 2014)		Possibility of common indicators (Arcadis)
		GES	Initial ass.	Targets	BG	RO	
Biodiversity	D1 - pressures D1 - features	-	0	-/+	+ 0 ++	- - + - - +	+/++
	D4	0	0	0	0 0 0	0 - 0	Gap
	D6	0	0	0	- 0 +	0 - 0	Gap
NIS	D2	-	0	0	+ 0 -	- + 0	+ ?
Commercial Fish & shellfish	D3	-	0	-/+	+ 0 +	- + -	+
Eutrophication	D5	+	0	+	+ 0 ++	- + -	++
Hydrographical conditions	D7	0	0	0	+ 0 -	0 - 0	Gap
Contaminants	D8	-	0	-	- 0 -	- + +	-
Contaminants in Fish and Seafood	D9	0	0	0	0 0 -	0 0 0	Gap
Marine Litter	D10	0	0	0	0 0 0	0 0 0	Gap (1st cycle)
Introduction of Energy	D11	0	0	0	0 0 0	0 0 0	Gap (1st cycle)

			moderate to high level of coherrence
			possibilities for common monitoring (first cycle MSFD)
Legend	**Level of coherence**	++	high level of coherence
		+	moderate level of coherence
		-	low level of coherence
		0	not assessed because of absence of GES definition/ initial assessment / targets
	National reports	*Definition of GES - Initial assessment - Targets*	
		+++	good practice
		++	adequate
		+	partially adequate
		-	inadequate
		0	not reported/ not assessed

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Identification of common indicators: based on reported targets and indicators

Approach

Analysis based on Article 12 Technical Assessment reports (Milieu) 7 February 2014

4 sets of GES definitions, targets and indicators have been identified:

1. <u>Common</u> GES definitions, targets and indicators (++)

2. GES definitions, targets and indicators that are similar and <u>have a potential to become common</u> through further bilateral work in the period up to 2018 (+): opportunities in the **short-term** (October 2014; deadline RP monitoring programme) and in the **mid-term** (up to 2018)

3. <u>GAPS</u>: elements that still need to be defined or developed due to gaps in, for example, data, methodologies or monitoring infrastructure: can be addressed in the **short- or mid-term** (Gap 1st cycle) or in the **long-term** (Gap)

4. GES definitions, targets and indicators that <u>do not have an immediate potential to become common</u> and where substantial work will be needed on, for example, method or scientific understanding (-): opportunities in the **long-term** (beyond 2018)

21 January 2014

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Identification of common indicators: based on reported targets and indicators

D	Criterion	Indicator	Reported/defined BG	Reported/defined RO	Common indicator	Reported indicator/target Bulgaria (BG)	Reported indicator/target Romania (RO)	Proposed title of common indicator	Example of clear target
D1	1.1	1.1.1	Y	Y	++	Area of distribution of the association of Cystoseira species	Distribution area for *Cystoseira barbata*	**Distribution area of *Cystoseira barbata*** (proposed by ARCADIS)	RO: Maintaining a stable distribution area for *Cystoseira barbata* community.
			Y	Y	+	Species distribution of marine mammals	Distribution of dolphins (Delfinus, Tursiops and Phocoena)	**Distribution of marine mammals** (proposed by ARCADIS)	BG: Preservation in range of distribution of species (marine mammals)
			Y	Y	+	Species distribution of fish	Status of *Alosa Immaculata, Alosa tanaica* and sturgeon	**Distribution of *Alosa Immaculata*, *Alosa tanaica* and sturgeon** (proposed by ARCADIS)	
		1.1.2	Y	N	-				
		1.1.3	Y	Y	+	The size and range of distribution of the banks covered by *Mytilus gallorpovinvialis* mussels	Status of habitat 1170-9 Infralittoral rock with *Mytilus galloprovincialis*	**Distribution area of *Mytilus galloprovincialis*** (proposed by ARCADIS)	BG: *Mytilus gallorpovinvialis* on sediments: the size and range of distribution of the banks covered by Mytilus gallorpovinvialis mussels are stable or increasing and not less than 90% of the reference state from 1950 to 1960's.
	1.2	1.2.1	Y	Y	++	Size and status of populations of *Cystoseira barbata* (coverage, biomass, wet biomass)	Population size of *Cystoseira barbata*	**Population size of *Cystoseira barbata*** (proposed by ARCADIS)	RO: *Cystoseira barbata* population will attain densities larger than the present registered ones.
			Y	Y	+	Number and biomass of populations of marine mammals	Population size of dolphins (Delfinus, Tursiops and Phocoena)	**Population size of marine mammals** (proposed by ARCADIS)	BG: Positive tendency in number of populations (of marine mammals)
			Y	Y	+	Number and biomass of populations of fish	Status of *Alosa Immaculata, Alosa tanaica* and sturgeon	**Population size of *Alosa Immaculata*, *Alosa tanaica* and sturgeon** (proposed by ARCADIS)	
	1.3	1.3.1	Y	N	-				
		1.3.2	Y	N	-				
	1.4	1.4.1	Y	Y	++	Spread, distribution and area of the habitat of *Donacilla cornea*; Distribution, spread and coverage of *Donax trunculus*; Distribution and covered area of the population of *Pholas dactylus*	Distributional range of habitat "1140-3 Mediolittoral sands with *Donacilla cornea*", habitat "1110-3b Shallow sands with *Donax trunculus*" and habitat "1170-10 Infralittoral soft rock with Pholadidae"	**Distributional range of the habitats of *Donacilla cornea*, *Donax trunculus* and *Pholas dactylus*** (proposed by ARCADIS)	RO: GES is defined by the habitat "1140-3 Mediolittoral sands with *Donacilla cornea*" regaining its historical distribution area
		1.4.2	N	N	-				
	1.5	1.5.1	Y	Y	++	Spread, distribution and area of the habitat of *Donacilla cornea*; Distribution, spread and coverage of *Donax trunculus*; Distribution and covered area of the population of *Pholas dactylus*	Habitat extent of habitat "1140-3 Mediolittoral sands with *Donacilla cornea*", habitat "1110-3b Shallow sands with *Donax trunculus*" and habitat "1170-10 Infralittoral soft rock with Pholadidae"	**Habitat extend of the habitats of *Donacilla cornea*, *Donax trunculus* and *Pholas dactylus*** (proposed by ARCADIS)	RO: GES is defined as the habitat "1140-3 Mediolittoral sands with *Donacilla cornea*" maintaining its present extent
		1.5.2	N	N	-				
	1.6	1.6.1	Y	Y	++	Habitat condition of *Donax trunculus* sands; Habitat condition of *Mytilus galloprovincialis*.	Habitat condition of habitat "1140-3 Mediolittoral sands with *Donacilla cornea*", habitat "1110-3b Shallow sands with *Donax trunculus*" and habitat "1170-10 Infralittoral soft rock with Pholadidae"	**Habitat condition of the habitats of *Donacilla cornea*, *Donax trunculus* and *Pholas dactylus*** (proposed by ARCADIS)	RO: GES is defined by the population of the characteristic species – the bivalve *Donacilla cornea* – attaining densities equal or larger than the threshold
		1.6.2	Y	N	-				
		1.6.3	Y	N	-				
	1.7	1.7.1	N	N	-				

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Identification of common indicators: based on reported targets and indicators

D	Criterion	Indicator	Reported/defined BG	Reported/defined RO	Common indicator	Reported indicator/target Bulgaria (BG)	Reported indicator/target Romania (RO)	Proposed title of common indicator	Example of clear target
D2	2.1	2.1.1	Y	Y	-				
	2.2	2.2.1	Y	N		Ratio between native and invasive NIS		**Ratio between native and invasive NIS** (proposed by ARCADIS)	
		2.2.2	N	Y	+ (?) *		Environmental impact of invasive NIS does not lead to an undesirable disturbance to the balance of native species on the local ecosystem **	**Environmental impact of invasive NIS does not lead to an undesirable disturbance to the balance of native species on the local ecosystem** (proposed by ARCADIS)	
D3	3.1	3.1.1	Y	Y	+	Fishing mortality (sprat, turbot, anchovy)	Reduction of the fishing effort (sprat, turbot, anchovy, whiting and dogfish)	**Fishing mortality of sprat, turbot, anchovy** (proposed by ARCADIS)	(BG) Sprat: Steady trend of decreasing fishing mortality at regional level below the limit reference value of fishing mortality FMSY = F ≤ 0.64 and level of exploitation, E ≤ 0.4
		3.1.2	Y	N	**Gap** (1st cycle)				
	3.2	3.2.1	Y	N					
		3.2.2	Y	N					
	3.3	3.3.1	Y	N					
		3.3.2	Y	N					
		3.3.3	Y	N					
		3.3.4	Y	N					
D4	4.1	4.1.1	N	N	Gap				
	4.2	4.2.1	N	N					
	4.3	4.3.1	N	N					
D5	5.1	5.1.1	Y	Y	++	Spring concentrations of N-NO3	Dissolved inorganic nitrogen (DIN) in the off shore areas and nearby land based sources	**Nutrient (nitrogen) concentrations (in the coastal area)** (proposed by ARCADIS)	RO: DIN-GES is determined by decreasing levels in the off shore areas and decreasing levels nearby land based sources, especially WWTPs of major cities and fluvial input up
		5.1.2	N	Y	-				
	5.2	5.2.1	Y	Y	++	Chlorofyll-a concentrations (in spring and summer), phytoplankton blooms	Chlorophyl a concentrations, particularly in summer, nearby land based sources	**Chlorofyll-a concentration** (proposed by ARCADIS, same indicator title as in OSPAR)	BG: In a 6 year cycle 95% from the monthly chlorophyll-a values are below the limit reference points in more than 10% in spring and 5% in summer or trend to point reduction
		5.2.2	N	Y	-				
		5.2.3	N	N	-				
		5.2.4	Y	Y	++	Relation between biomass of Bacillariophyceae and Dinophyceae (Bac:Din) in the spring	Ratio between diatoms and dinoflagellates nearby land based sources	**Diatom dinoflaggelate ratio** (proposed by ARCADIS)	RO: The trend of relation between biomass of Bacillariophyceae and Dinophyceae (Bac:Din) in the spring to point decreasing
	5.3	5.3.1	N	Y	-				
		5.3.2	Y	Y	++	Oxygen saturation at upper homogeneous layer (spring and summer), and at bottom layer (summer)	Dissolved oxygen in the water column	**Oxygen saturation of the upper water layer** (proposed by ARCADIS)	RO: GES could be achieved by keeping 75% of measured values of dissolved oxygen in the specific interval attribute to water column, 275-365µM.

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Identification of common indicators: based on reported targets and indicators

D	Criterion	Indicator	Reported/defined		Common indicator	Reported indicator/target		Proposed title of common indicator	Example of clear target
			BG	RO		Bulgaria (BG)	Romania (RO)		
D6	6.1	6.1.1	N	N	Gap				
		6.1.2	Y	N					
	6.2	6.2.1	Y	N					
		6.2.2	Y	N					
		6.2.3	N	N					
		6.2.4	N	N					
D7	7.1	7.1.1	Y?	N	Gap				
	7.2	7.2.1	Y?	N					
		7.2.2	Y?	N					
D8	8.1	8.1.1	Y	Y	-	Pressure targets, aiming to reduce input from sources of contamination, in particular atmospheric	State targets, which require concentration levels of certain contaminants to be below regulatory levels		
	8.2	8.2.1	N	N	-				
		8.2.2	Y	N	-				
D9	9.1	9.1.1	Y	N	Gap				
		9.1.2	Y	N					
D10	10.1	10.1.1 + 10.1.2 + 10.1.3	N	N	**Gap (1st cycle)**				
	10.2	10.2.1	N	N	**Gap (1st cycle)**				
D11	11.1	11.1.1	N	N	**Gap (1st cycle)**			**Impulsive noise** (proposed by ARCADIS, same indicator title as in OSPAR)	
	11.2	11.2.1	N	N	**Gap (1st cycle)**			**Ambient noise** (proposed by ARCADIS, same indicator title as in OSPAR)	

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1. Common indicators (++)

D1 (5 common reported indicators):

- Distribution area + population size of *Cystoseira barbata* (genus of brown algae)
- Distributional range + habitat extend + habitat condition of the habitats of *Donacilla cornea*, *Donax trunculus* and *Pholas dactylus* (3 types of bivalves)

→ Other indicators of D1: potential common indicators (+) or no similarities (-)

D5 (4 common reported indicators → already being revised)

- Nutrient concentrations (in the coastal area) (P, N)
- Chlorofyll-a concentrations
- Diatom dinoflaggelate ratio
- Oxygen saturation

→ Other indicators of D5: no similarities (-)

D2, D3, D4, D6, D7, D8, D9, D10, D11: no common indicators identified

- D2, D3, D8: reported GES/targets/indicators are potentially common (+) or have no similarities (-)
- D4, D6, D7, D9, D10, D11: no GES/ targets/ indicators reported (Gap)

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1. Common indicators (++) *(continued)*

Short-/mid-term actions (1st cycle)

D1 + D5

- Finetuning GES, targets and indicators at the regional level
- Optimizing integrated monitoring strategies + Actual execution of monitoring activities
- Drafting POM

- In progress:
    - D5: drafting monitoring sheets (through regional consultation)
    - D5: revision of GES, targets and indicators (through regional consultation)

21 January 2014

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1. Common indicators: D5
Draft revised indicators

D	Criterion	Indicator	Reported/defi BG	RO	Common indicator (assessment Arcadis)	Reported indicator/target Bulgaria (BG)	Romania (RO)	Revised indicator 2014 Bulgaria (BG)	Romania (RO)	Common indicator (after revision)	Proposed title of common indicator (after revision) (proposed by Arcadis)	Example of clear target (monitoring sheets resulting from CBA event on D5 & D10)
D5	5.1	5.1.1	Y	Y	++	Spring concentrations of N-NO3	Dissolved inorganic nitrogen (DIN) in the off shore areas and nearby land based sources	seasonal concentrations of nutrients (P-PO4, N-NO3)	DIP and DIN	++	nutrient concentrations (P, N)	RO: DIP and DIN from anthropic input should be constant or decreased, based on monitoring routine
		5.1.2	N	Y	-					-		
	5.2	5.2.1	Y	Y	++	Chlorofyll-a concentrations (in spring and summer), phytoplankton blooms	Chlorophyll a concentrations, particularly in summer, nearby land based sources	summer chlorophyll-a concentrations	summer chlorophyll a concentrations	++	**summer chlorophyll a concentrations**	RO: 90th percentile of summer chlorophyll a concentrations decreasing trend based on routine monitoring
		5.2.2	N	Y	-			water transparency	water transparency	++	**water transparency**	/
		5.2.3	N	N	-			EI index (adapted for the Black Sea Ecological Evaluation Index, EEI), reflecting the abundance of the opportunistic macroalgae	algal biomass of opportunistic species that generate important macroalgae deposits (e.g. *Cladophora* sp.)	++	abundance of the opportunistic macroalgae	BG: The 75th percentile of the values of the EI index (adapted for the Black Sea Ecological Evaluation Index, EEI), reflecting the abundance of the opportunistic macroalgae, are within the
		5.2.4	Y	Y	++	Relation between biomass of Bacillariophyceae and Dinophyceae (Bac:Din) in the spring	Ratio between diatoms and dinoflagellates nearby land based sources	MEC% (Microflagellates, Euglenophyceae, Cyanophyceae) ratio and the Bac:Din (Bacillariophyceae : Dynophyceae)	spring diatoms: dinoflagellates biomass ratio	++	Diatom dinoflaggelate ratio	RO: 90th percentile of spring diatoms: dinoflagellates biomass ratio is close to the 10:1 based on monitoring routine
	5.3	5.3.1	N	Y	-			abundance of perennial seaweed and seagrasses, measured by the EI index (adapted for the Black sea Ecological Evaluation Index, EEI)	spatial distribution of key perennial species (Cystoseira, Zostera)	+	abundance and spatial distribution of perennial seaweed and seagrasses	RO: Maintaining the spatial distribution of key perennial species (Cystoseira, Zostera) in stable limits without fields fragmentation, due to anthropogenic activities.
		5.3.2	Y	Y	++	Oxygen saturation at upper homogeneous layer (spring and summer), and at bottom layer (summer)	Dissolved oxygen in the water column	bottom oxygen saturation values	kills in benthic animal species as a result of oxygen deficiency	?	?	BG: The 5th percentile of bottom oxygen saturation values are not less than threshold values determined for the summer and autumn season, according to the

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2. Indicators with a potential to become common (+) → Quick wins

D1 (5 potential common indicators):

- Distribution + population size of marine mammals
- Distribution + population size of *Alosa Immaculata, Alosa tanaica* and sturgeon (fish)
- Distribution area of *Mytilus galloprovincialis* mussels

D3 (1 potential common indicator):

- Fishing mortality of sprat, turbot, anchovy

D2, D4, D5, D6, D7, D8, D9, D10, D11: no potential common indicators identified yet

- D2, D8: reported GES/targets/indicators have no similarities (-)
- D4, D6, D7, D9, D10, D11: no GES/ targets/ indicators reported (Gap)

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2. Indicators with a potential to become common (+) → Quick wins *(continued)*

Short/mid-term actions (1ˢᵗ cycle)

D1 + D3

- Defining common GES, targets and indicators at the regional level
    - → Starting from identified potential common indicators (+)
- Setting up coordinated monitoring strategies
- Proposal of measures for later inclusion in POM

Also possible for other Descriptors / GES / targets / indicators (e.g. D2 ?)

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3. Gaps (1ˢᵗ cycle)

D3

Recommendations of ICES (2014, Report of the Workshop to draft recommendations for the assessment of Descriptor D3):

- Demersal and pelagic research surveys should be carried out and information from them should be processed and stored in standardised formats to allow the swift and reliable estimation of the indicators under D3.1.2, D3.2.2 and D3.3.
- The majority of the important stocks need to be covered by coordinated and standardised national and international data collection programmes monitoring both catches and fish stocks in the sea.

D10 (no GES/ targets/ indicators reported)

Already being handled (see further)

D11 (no GES/ targets/ indicators reported)

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3. Gaps (1ˢᵗ cycle) *(continued)*

Short/mid-term actions (1ˢᵗ cycle)

D3 + D10 + D11

- Defining indicators
- Setting up coordinated monitoring strategies + Actual execution of monitoring activities
  - ➢ Goal: to gather information to be able to define GES and targets in 2ⁿᵈ cycle (long-term action)

- In progress:
  - D10: drafting monitoring sheets (through regional consultation)
  - D10: defining regional GES criteria and indicators (through regional consultation)

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3. Gaps (1st cycle): D10
Draft regional indicators

| D | Criterion | Indicator | Reported/defined | | Common indicator | Revised | |
			BG	RO		Proposed title of common indicator (after revision) (proposed by Arcadis)	Target
D10	10.1	10.1.1 + 10.1.2 + 10.1.3	N	N	**Gap** (1st cycle)	Number of litter items per meter recreational beach (monitoring sheet resulting from CBA event on D5 & D10)	To do (2nd cycle)
	10.2	10.2.1	N	N	**Gap** (1st cycle)	Litter ingested by marine animals: incidence (percentage of investigated stomachs containing litter) (monitoring sheet resulting from CBA event on D5 & D10)	To do (2nd cycle)
						Litter ingested by marine animals: abundance by number (average number of items per individual) (monitoring sheet resulting from CBA event on D5 & D10)	To do (2nd cycle)
						Litter ingested by marine animals: abundance by mass (weight in grams, accurate to 4 the decimal) (monitoring sheet resulting from CBA event on D5 & D10)	To do (2nd cycle)

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4. Gaps (2nd cycle) + GES / targets / indicators that do not have an immediate potential to become common (-)

Long-term actions (beyond 2018)

Gaps (2nd cycle): D4 + D6 + D7 + D9

GES / targets / indicators that do not have an immediate potential to become common (-): D8 + indicators of D1, D2, D5 that have no similarities at the moment

- Defining common GES, targets and indicators at the regional level
- Setting up coordinated monitoring strategies + Actual monitoring
- Drafting POM

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Terminology

- GES

  - Descriptor level (D3: Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock)

  - Criteria level (3.1. Level of pressure of the fishing activity)

- Target (Steady trend of decreasing fishing mortality at regional level below the limit reference value of fishing mortality FMSY = F ≤ 0.64 and level of exploitation, E ≤ 0.4)

  - Indicator (3.1.1 Fishing mortality (F) + of Sprat)

  - Parameter (Sprat)

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Terminology for common indicators

- Agreed indicator (3.1.1 Fishing mortality (F) of Sprat)

  - (on definition level)

  - Agreement on indicator (3.1.1)

  - Agreement on parameter (Sprat)

- Harmonized indicator (3.1.1 Fishing mortality (F) of Sprat)

  - (on definition level + methodology)

  - Agreement on indicator (3.1.1)

  - Agreement on parameter (Sprat)

  - Agreement on methodological approach (monitoring + assessment)

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Imagine the result

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