Factsheet for new measures under Article 13 of Marine Strategy Framework Directive 2008/56/EO

This measure fact sheet is the result of coordination between the UBA project Implementation of the Marine Strategy Framework Directive (MSFD) in Bulgaria – Development of Programmes of Measures under Article 13', carried out by Fresh Thoughts/Intersus, and the EC project (DG Environment) 'Technical and administrative support for the joint implementation of the Marine Strategy Framework Directive (MSFD) in Bulgaria and Romania – Phase 2", carried out by ARCADIS-Belgium.

Measure characteristics	**Management area:** - ***Black Sea***	**Code:** ***BLKBG …..*** **No. of measure: 1**
Measure title	Management and reduction of the pollution from diffuse sources including atmospheric deposition.	
Short, precise description of the measure	This measure is developed as common (coordinated) measure with Romania in the scope of EC project (DG Environment) "Technical and administrative support for the joint implementation of the Marine Strategy Framework Directive (MSFD) in Bulgaria and Romania – Phase 2". The measure is related to eutrophication and contaminants. The measure includes two phases: the first one, developed during the MSFD Cycle 1, will be focused on the research activities related to better knowledge on the impact of diffuse sources of pollution (with special emphasis on atmospheric deposition) on the marine environment. **Phase 1 (MSFD cycle 1)** will consist of the following actions: 1.1. Use of common methodology for assessment pressure and impact from diffuse sources of pollution by the BS countries (models, tool, SWAT) 1.1.a. Introducing / development of models, assessment approach, etc. 1.1.b. Discussion and agreement on the proposed methodology between Bulgaria and Romania. 1.1.c. Presentation the proposed methodology at the Black sea commission (BSC). 1.2. Research activities related to better knowledge about the impact of atmospheric deposition on marine environment. **Phase 2 (MSFD Cycle 2):** Reduction measures The second phase will consist of developing the reduction measures, based on the data and knowledge gathered in the first phase, and will be conducted during the MSFD Cycle 2 (PoMs). This measure is necessary to provide a comparable assessment of pollution form diffuse source of marine waters and thus more efficient planning of mitigation measures. It will complete the assessments on Descriptors 5 –	

	Eutrophication and Descriptor 8 – Contaminants in marine environment.
EU measure category	*Categorisation of the measure in accordance with the "PoM Recommendations":* ***2a***
Key Types of Measures	*KTMs as defined in the „PoM Recommendations". Measures can be categorised in one or multiple KTMs.* **KTM 31 Measures to reduce contamination by hazardous substances (synthetic substances, non-synthetic substances, radio-nuclides) and the systematic and/or intentional release of substances in the marine environment from sea-based or air-based sources** **KTM 33 Measures to reduce nutrient and organic matter inputs to the marine environment from sea-based or air-based sources** **Other relevant KTM under Directive WFD 2000/60/EC:** KTM 2 Reduce nutrient pollution from agriculture KTM 3 Reduce pesticides pollution from agriculture KTM 14 Research, improvement of knowledge base reducing uncertainty KTM 15 Measures for the phasing-out of emissions, discharges and losses of priority hazardous substances or for the reduction of emissions, discharges and losses of priority substances KTM 21 Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure
Environmental targets	*Categorisation of the measures in accordance with the nationally defined operational environmental objectives.* **Descriptor 5 - Eutrophication** **Pressure targets:** **Targets on the land-based sources of pollution***:* The ecological objectives related to ground-based sources of pollution are determined by the plan for water management in the Black Sea Basin, developed under the WFD. State targets: **Target (indicator 5.1.1)** Coastal, shelf and open sea assessment areas – Coastal, shelf and open sea assessment area: the levels of nutrients are below the GES threshold values determined in the Bulgarian MSFD Art. 10 report (Table V.1.3, p. 106) by 2020. **Target (indicator 5.1.2)** Targets on this indicator will be developed during the second cycle of the implementation of the MSFD after gathering sufficient data. **Target (indicator 5.2.1.)** Coastal, shelf and open sea assessment areas – within 6 years' period, the 95% percentile the monthly values of the concentrations of chlorophyll-a does not exceed the threshold in more than

	10% in the spring season, and the summer season in no more than 5% or there is a decreasing trend of change (Bulgarian MSFD Art. 10 report, Table V.2.1.2, p. 109), by 2020. **Target (indicator 5.2.2.)** Coastal, shelf and open sea assessment areas – within 6 years, the 95% percentile of monthly values of transparency does not exceed the threshold in more than 10% during the spring and in more than 5% during the summer, or trend of change to is maintained positive (Bulgarian MSFD Art. 10 report, Table V.2.2.1, p. 113) Impact targets: **Target (indicator 5.2.3.)** Coastal waters – the abundance of the opportunistic macroalgae in the coastal waters, expressed by the Ecological Index and/or Index to assess the ecological status - continuous formula (EEI-c) is within the threshold values for GES, set out in Regulation N-4 /14.09.2012 on the characterisation of surface waters, by 2020. **Target (indicator 5.2.4.)** The Bac:Din (Bacillariophyceae:Dinophyceae) ratio is within the GES threshold values set out in the Bulgarian MSFD Art. 10 report (Table V.2.4.2, p. 118), by 2020. **Target (indicator 5.2.4.)** Coastal, shelf and open sea assessment areas – During the summer season, the Microflagellates, Euglenophyceae and Cyanophyceae (MEC%) ratio is within the GES threshold values set out in the Bulgarian MSFD Art. 10 report (Table V.2.4.1, p. 115), by 2020. **Target (indicator 5.2.4.)** Maintaining the current trend of reduction of the intensity and the surface area of the spring and summer algal blooms below 5%; the GES threshold values in table V.2.4.3 of the Bulgarian MSFD Art. 10 report (Art. 10, MSFD). Impact targets: **Target (indicator 5.3.1.)** The abundance of perennial seaweeds and seagrasses, adversely impacted by decreased water transparency, is increasing. **Target (indicator 5.3.2.)** Coastal waters (summer, autumn) - The 95% percentile of the oxygen saturation remains within the threshold values, defined in the Bulgarian report on Art. 10 of the MSFD (Table V.3.3.2, p. 127) by 2020. **Descriptor 8 Contaminants in marine environment** Revised environmental targets in comparison with the reported ones under the national report of Bulgaria under Article 10 MFSD in 2018. These are described in the monitoring program under Descriptor 8 (Article 11 of the Directive) reported to the EC and EEA in January 2015. **Pressure targets on Criterion 8.1.:** - Limiting the pressure from point and diffuse sources of pollution, including from the atmosphere; - Tendency to reduce illegal discharges from ships of various pollutants such as oil and noxious liquid substances and harmful substances and other "marine pollutants" specified in the relevant Annexes I, II and III of the

	International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 and the Protocol of 1997 (MARPOL 73/78) and the International Code of hazardous sea freight to Annex III (IMDG Code) and accordingly included in the monitoring program for Descriptor 8. **Targets on state / impact:** **Target for matrix "water" (indicator 8.1.1):** Concentrations observed pollutants (priority substances and specific pollutants) in water are in accordance with their maximum and average annual values according to environmental quality standards for the marine environment, implemented under the Water Framework Directive 2000/60 / EC and Directive 2008/105/EC, as amended by Directive 2013/39/EU, transposed into national legislation by Ordinance EQS for priority substances and certain other pollutants, adopted by Decree 256/2010. **Target on matrix "sediments" (indicator 8.1.1**): the trends in concentrations of contaminants in sediments decrease in the long term, according to the WFD 2000/60/EC and Directive 2008/105/EC, transposed into national legislation by Ordinance EQS for priority substances and certain other pollutants, adopted by Decree 256/2010. **Target on matrix "biota" (indicator 8.1.1**): The concentrations of the observed contaminants (priority substances and specific pollutants) in biota are equal to or below the specified environmental quality standards for the marine environment, applied in accordance with Directive 2008/105 / EC, as amended by Directive 2013/39/EU. **Target on matrix "biota" (indicator 8.2.1):** establishment and evaluation of the links between the maximum levels of contaminants in the marine environment and possible biological effects on marine organisms. **Target on significant pollution events (indicator 8.2.2):** the occurrence and extent of significant acute pollution incidents (e.g. oil spills, hazardous and noxious substances) from land-based and sea-based sources and their impact on flora and fauna is prevented and minimized by appropriate risk-based - approaches and measures.
Descriptors	*Categorisation of the measures to the descriptors in lined with Annex 1 MSFD. The descriptors are identified by their short form:* **D5 – Eutrophication** **D8 – Pollutants**
Main pressures	*Using the analysis carried out in 2012 as a basis, categorisation of the measures in accordance with the pressures defined in Annex 3 MSFD, Table 2:* **Nutrient and organic matter enrichment** - inputs of fertilizers and other nitrogen and phosphorus-rich substances (e.g. from diffuse sources, including agriculture, aquaculture, atmospheric deposition), - inputs of organic matter (e.g. mariculture, riverine inputs).

	Contamination by hazardous substances - introduction of synthetic compounds (e.g. priority substances under Directive 2000/60/EC which are relevant for the marine environment such as pesticides, antifoulants, pharmaceuticals, resulting, for example, from losses from diffuse sources, pollution by ships, atmospheric deposition and biologically active substances), - introduction of non-synthetic substances and compounds (e.g. heavy metals, hydrocarbons, resulting, for example, from pollution by ships and oil, gas and mineral exploration and exploitation, atmospheric deposition, riverine inputs), - introduction of radionuclides
Main drivers	*The sectors/activities targeted by the measure* Shipping; Energy production; Land-based activities (transport, urban, industry, agriculture)
Characteristics	*Using the analysis carried out in 2012 as a basis, categorisation of the measures in accordance with the characteristics defined in the "PoM Recommendations":* - Pelagic habitats - Benthic habitats - Fish - Marine mammals - Marine and coastal birds
Link to other directive/legislation/policy	*Aligning objectives with other legal commitments* Convention for the Protection of the Black sea against pollution andrelevant protocols to it Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea (2009) Water Framework Directive (directive 2000/60/EC) Nitrate Directive 91/676/EEC National Emission Ceilings Directive (2001/81/EC)
Necessity for transnational regulation	*Information as regarding the necessity for regulations at EU, regional and international level to achieve MSFD environmental objectives.* Yes - to be most effective this measure, it is necessary to provide general or comparable assessment methodology, respectively an assessment of the pressures and impacts of diffuse sources of pollution not only for the two Black Sea EU members, but for all the Black Sea countries.

Mode of implementation	*Stating the implementation process in line with the „PoM Recommendations"; multiple options possible:* • Technical • Policy driven
Implementation zones	*i.e. the spatial impact of the measure: MS land/FW, WFD TW, WFD CW, Territorial waters, EEZ, CS (beyond EEZ), Beyond MS waters* MS land/FW, Coastal (WFD CW),Territorial waters and EEZ of Republic of Bulgaria
Contribution of the measure to achieving the target	*– using technical information* The measure will have a **moderate contribution** to achieving the targets. In the first phase of the measure implementation, it will contribute indirectly to achieve environmental targets under Descriptors 5 and 8, with a consequent impact on biodiversity (Descriptor 1) and food webs (Descriptor 4). At this stage there are not environmental targets defined related to atmospheric deposition of pollutants in marine environment due to not enough data and tools for assessment. Information collected and improved knowledge for the level and pressure of atmospheric deposition of pollutants in marine environment will contribute to improvement of understanding of Good Environmental status (GES), further development of definitions, targets and relevant indicators. Development and implementation of specific measures will direct contribute to achieve of environmental targets under Descriptors 5 and 8 with relevant effects on the defined targets under the rest of Descriptors. However, at this stage it is difficult to assess the contribution due to partial or lack of knowledge.
Transboundary impact	*Information on the impact of the measures on transboundary neighbours* The implementation of the measure is not expected to have negative effects on the marine environment of neighbouring countries.
Costs	**First rough assessment: high (> 1,000,000 euro)** **Phase 1** The measure will need the following costs: 1. Operational costs for bilateral meetings about discussions and coordination on common methodology for assessment. 2. Research project costs (review of existing practices for impact assessment the diffuse sources of pollution, data management, development / adaptation and implementation of models etc.). 3. Monitoring costs **Phase 2** Reduction measures: to be determined in second MSFD PoMs cycle.

Effectiveness	*Effectiveness of the measure in reaching targets (either qualitative description, or according to indicators: indicators for environmental targets and for GES, proposal for statistical indicators in support of Art. 18 interim reports* Diffuse sources of pollution and especially pollution from agricultural practices has proved a main source of nutrients, and possibly other pollutants in the marine environment. Therefore, the improved understanding and quality assessment of the sources, extent and effects of pollution from diffuse sources is very important for planning effective mitigation measures. The overall effectiveness of the measure in terms of deposition of pollutants from the atmosphere depends on several factors: - major sources of pollutants deposited in the atmosphere. - level of pressure, respectively the impact of pollutants in the marine environment, originating from through atmospheric deposition. This determines how the implementation of measures to reduce atmospheric deposition of pollutants will contribute to achieving the environmental targets compared to other, perhaps more significant sources of pollution, such as discharges of wastewaters, pollution from agriculture, etc. If the atmospheric deposition of pollutants is significantly less than pollution originating from other sources, also in a case of transboundary transport of unknown nature, etc., so the **expected effectiveness of the measure will be low**. At this stage a quantified assessment of the measure cannot be made due to the lack of or insufficient knowledge. Generally the **benefit of this measure** for achieving of the environmental targets is expecting **to be medium to high**.
Indicator(s) to measure effectiveness	*Should be based on existing indicators.* 1. Number of meetings held at national (interministerial) level and bilateral level (between Bulgaria and Romania) a regional level (in the scope of the Black sea Commission). 2. Number of started projects / researches. 3. Agreed approach for assessment of pollution from diffuse sources. 4. Developed and / or introduced model for assessment of pollution from diffuse sources. 5. Developed proposals for specific measures for reduction of pollution from diffuse sources, which to be implemented in 2nd MSFD cycle. 6. Estimated quantitative contribution of the measures applied to reducing the impact of pollution from diffuse sources. Confirmation (validation) of data from the monitoring carried out.
Socio-economic assessment	***Cost Effectiveness Assessment*: low to medium** ***Cost Benefit Assessment*: medium to high** There are few direct benefits to the environment in the first phase; eventually when the knowledge of the sources is obtained it allows defining

	of target measure to diminish the negative effect. **The measure** is expected **to have medium to high effectiveness** for achieving of environmental targets under Descriptors 5 and 8 (Eutrophication and Contaminants) (in first MSFD implementation cycle). **Cost effectiveness of the measure**, comparing costs with benefits to overall objectives of MSFD could be defined as **medium to high** in mid – and long – term period. A quantitative assessment of cost effectiveness as information on the contribution to achieve the targets does not exist.
Coordination level	*Selection of the governance level that will coordinate the implementation of the measures, i.e. Local, Sub-national, National, Bilateral, Sub-regional, Regional, EU level, International* local level at national level bilateral level regional
Technical feasibility	*Options* • *Applied; limited experience / uncertainties* • *New development*
Body responsible for the measure implementation	Ministry of Environment and Waters (MoEW), Regional Inspectorates of Environment and Water - Varna and Burgas (RIEW - Varna and RIEW Burgas), Executive Environmental Agency, National Institute of Meteorology and Hydrology (NIMH), Black sea Basin Directorate
Financing opportunities	*Including EU-cofinancing* Public funds; EU projects (i.e Horizon 2020 Program)
Planning of implementation	**Starting: 2018**
Difficulties in implementation	*Provide information on the potential challenges that could likely faced in implementation.* Yes – lack of knowledge related to the pressure and impact of atmospheric deposition on the marine environment