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….*** **№ of measure: 12**
Measure title	Define and re-evaluate spatio-temporal bans and closures for fish species - fish stocks	
Short, precise description of the measure	This measure is developed as common (joint) 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". This measure is referring to the changing environmental conditions and to change (in terms of prolonging and changing) existing spatio-temporal bans for fishery. The measure includes the following actions: ➢ Establishment of national interministerial working group dealing with spatio-temporal bans and closures for fish species (representatives from the National agency for Fisheries and Aquaculture, other relevant state administration, research institutes, NGOs and fishery sector as Fisheries Local Action Groups, FLAGs). ➢ Review of existing spatio-temporal bans and closures in national marine waters ➢ Research to specify spatio-temporal stock assessments/needs; ➢ Designation of spatio-temporal zones; ➢ Bilateral meetings between Bulgaria and Romania for coordination of designated zones in national waters of both countries. ➢ Conducting control for compliance with these prohibitions and restrictions in designated areas.	
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 35 Measures to reduce biological disturbances in the marine environment from the extraction of species, including incidental non-target catches KTM 36 Measures to reduce other types of biological disturbance, including death, injury, disturbance, translocation of native marine species, the introduction of microbial pathogens and the introduction of genetically - modified individuals of marine species (e.g. from aquaculture) KTM 37 Measures to restore and conserve marine ecosystems, including habitats and species **Other relevant KTM under Directive WFD 2000/60/EC:** KTM 14 - Research, improvement of knowledge base reducing uncertainty KTM 20 - Measures to prevent or control the adverse impacts of fishing and other exploitation/removal of animal and plants
Environmental targets	*Categorisation of the measures in accordance with the nationally defined operational environmental objectives.* ***D 1, 4, 6 – Seabed habitats*** 1.2.1 Maintain the abundance and biomass of the typical zoobenthos and phytobenthos species by preventing the deterioration of marine environment resulting from sealing, nutrient enrichment, smothering, abrasion and **extraction of living** or non-living **resources** according to the threshold values specified in the Bulgarian Art. 10 MSFD Report. 1.4.1 The decline of the range of the MSFD predominant habitat types, relevant habitats under Habitats directive and associated national biotopes listed in the Bulgarian MSFD Art. 10 report should approximate zero by 2020 by implementation of appropriate management measures on sealing by man-made structures, nutrients input, associated eutrophication and bottom hypoxia, smothering by dumping, **and seabed abrasion by dredging and extraction of marine living** and (if applicable) non-living **resources**. 1.5.1 The area of the MSFD predominant habitat types is stable or increasing and not smaller than the baseline values (Favourable Reference Area for Habitats Directive habitats), listed in the Bulgarian MSFD Article 10 Report. Indicators. 1.6.1. Maintain the condition of the typical communities of Mytilus galloprovincialis and Mytilaster lineatus within the threshold values at an unaffected region (Aladja banka): Mytilus galloprovincialis (average wet weight ≥ 20000 g/sq. m; average body length ≥ 26.5 mm); Mytilaster lineatus (average wet weight ≥ 3000 g/sq. m; average body length ≥ 9.0 mm). 1.6.1. Maintain the condition of the typical communities of Phyllophora crispa in line with the conditions in relatively unaffected reference area - the Kiten reef. Threshold values: horizontal area cover ≥ 3800 sq. cm/sq. m; average dry biomass ≥ 70 g/sq. m; average wet biomass ≥ 180 g/sq. m

	(Source: Table I.2.12 of the Bulgarian MSFD Art. 10 report). 1.6.3 Maintain the physico-chemical conditions of the MSFD predominant habitat types, relevant habitats under Habitats directive and associated national biotopes listed in the Bulgarian MSFD Art. 10 report in the coastal waters within the threshold values in Ordinance No. N-4 of 14/09/2012 on the characterization of surface waters Annex № 6 from Article12 (4) (according to the requirements of the Water Framework Directive). **6.1.1 Targets**: The area of the mediolittoral rocks and sediments, affected by human-induced change in hydrographical conditions, sealing, smothering and abrasion stays below the following threshold values (Table I.2.3 in Bulgarian MSFD Article 9 Report): Sivriburun-Kaliakra Assessment Area < 10%; Kaliakra-Galata Assessment Area - maintain the present state; Galata-Emine Assessment Area < 10 %; Emine-Sozopol Assessment Area - maintain the present state; Sozopol-Rezovo Assessment Area - maintain the present state. **6.1.1 Target**: In the MSFD predominant habitat types, relevant habitats under Habitats directive and associated national biotopes listed in the Bulgarian MSFD Art. 10 report, the pressure from abrasion from active fishing gear should decrease by 2020 below the following threshold values: Within Natura 2000 protected areas: 0% of the habitat area affected; Outside Natura 2000 protected areas: <= 20% of the habitat area. *(details on defined targets can find here:* http://cdr.eionet.europa.eu/bg/eu/msfd_mp/msfd4text/envvibp8w/BLKBG_D0146_SeabedHabitats.pdf*).* **D3 – State of commercial fish and shellfish stocks** **Pressure targets** **3.1.1 Fishing Mortality (F) by reduced fishing effort are listed below referring to the concerned species:** • Reducing fishing effort to F<= FMSY =0.4 (whiting) • Reducing in fishing effort to F <= FMSY = 0.15 (turbot) • Reducing fishing effort in the wintering areas (horse mackerel) • Reducing fishing effort to F<= FMSY =0.54 (anchovy) • Reducing fishing effort to F<= FMSY =0.18 (dogfish) • Reducing fishing effort to F<= FMSY =0.46 (red mullet) **3.1.2. Catch/biomass ratio index – maintain the threshold value of catch/biomass ratio less than:** • Catch-biomass ratio <= 0.082 (sprat) • Catch-biomass ratio <= 0.033 (turbot) **State targets** **3.2.1. Spawning stock biomass of sprat** - STECF EWG 13-12 (Sampson et al.,

	2013) does not offer reference points as regards SSB for the sprat stock but according to the results from the regional assessment SSB varied between 200 000 and 500 000 tons. The proposed trend for this indicator is increasing of the SSB at regional level; The indicator needs additional development and will be operational at regional level toward 2018 (Population size (spawning stock biomass - SSB) of sprat (thousand tons)). **3.2.1. Spawning stock biomass (SSB**) - increasing the SSB at regional level at the level of Black Sea region for whiting (Merlangius merlangus euxinus), turbot (Psetta maxima), horse mackerel (Trachurus mediterraneus ponticus), anchovy (Engraulis encrasicolus), dogfish (Squalus acanthias), red mullet (Mullus barbatus ponticus) (thousand tons). **3.2.2. Biomass indexes** - maintain increasing trend of the biomass values above the reference level of 55 thousand tons (sprat) in front of Bulgarian Black Sea coast. Basic reference state was for 2007-2011.The indicator needs additional development and will be operational at national level toward 2014 (Species abundance (biomass) of sprat (Sprattus sprattus) (CPUE, kg/h)). **3.2.2. Biomass indexes** - increasing trend of the values of the biomass indices at national level. Levels of the index should not be lower than reference level of 1700 tons (turbot) (Species abundance (biomass) of turbot (Psetta maxima) (CPUE, kg/h)). **3.2.2 Biomass indices are listed below referring to the concerned species (Species abundance (biomass) of Sprat (Sprattus sprattus) and turbot (CPUE, kg/h))**: Maintaining the sprat stock at values of approximately 60000 tonnes at the Bulgarian littoral; Recovery of the turbot stock to value of 1500-2000 tonnes at the Bulgarian littoral. **3.3.1.Proportion of fish (sprat) larger than the mean size of first sexual maturation –** The trend to sustain of the proportion at reference level of 68% (sprat).Basic condition for calculations of the limit reference points the contemporary state of the populations have been used. The indicator needs of additional development and will be operational toward 2014 (Size of individuals of sprat (Sprattus sprattus), cm) **3.3.1. Proportion of fish (turbot) larger than the mean size of first sexual maturation** - The proportion of fish with length higher than the mean at sexual maturation (42 cm), and to be over the reference value of 74% (Size of individuals of turbot (Psetta maxima), cm) **3.3.1. Mean length of fish (turbot)** in the catch should not be under the reference level of 56 cm (± 10 %) (Size of individuals of turbot (Scophthalmus/Psetta maxima), cm). **3.3.3. 95 % from the observed length structure of the species (sprat)** in the research surveys– the indicator needs of additional development and will be fully operational at national level toward 2018. The main lack of data and knowledge is the inability to calculate this indicator before 2012, due to the differences of the length structure and methodological issues. The lack of the genetic effects on the population due to overexploitation are also

	obstacles (Size of individuals of sprat (Sprattus sprattus), cm). **3.3.3**. 95 % percentile from the observed length structure of the species (turbot) in the research surveys – 95% percentile from length structure of the population to show stable trend with mean reference value of 62 cm for turbot (Size of individuals of turbot (Psetta maxima) (cm). **Relevant MSFD targets defined in the Article 10 reporting of Bulgaria under Descriptors 1 – Biodiversity (Non-commercial fish species) and 4 (Food webs)** **State targets** 1.1.1 Targets – Distribution of Round goby (Neogobius melanostomus) and other demersal fish species is not significantly affected by human activities: the geographic and depth distribution of sensitive fish should meet individual indicator targets in a statistically significant proportion of species monitored. 1.2.1 and 4.3.1 Targets: Abundance of the Round goby (Neogobius melanostomus) is not negatively affected by human activities. 6.2.2 Targets. Coastal assessment area: Population abundance of non-commercial fish species is above the following threshold values, indicative of GES: • Total number of species (S) > 10 • Shannon index H' (log2) > 1,454 • Fisher's alpha (a) > 0,486 • Gini-Simpson (1- a) > 0,514 • Taxonomic distinctness (Δ*) > 79,58 6.2.2 Targets. Shelf assessment area: Population abundance of non-commercial fish species is above the following threshold values, indicative of GES: • Total number of species (S) > 7.204 • Shannon index H'(log2) > 0.896 • Fisher's alpha (a) > 0.694 • Gini-Simpson (1- a) > 0.306 • Taxonomic distinctness (Δ*) => 89.18 Impact targets Reduction of the by-catch mortality
Descriptors	*Categorisation of the measures to the descriptors in lined with Annex 1 MSFD. The descriptors are identified by their short form:* D1 - Biodiversity D3 - State of commercial fish and shellfish stocks

	D4 - Food web D6 - Sea-floor integrity
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:* **Biological disturbances:** • selective extraction of species, including incidental non-target catches (e.g. by commercial and recreational fishing). **Physical damage** • abrasion (e.g. impact on the seabed of commercial fishing, boating, anchoring) • selective extraction (e.g. exploration and exploitation of living and non-living resources on seabed and subsoil).
Main drivers	*The sectors/activities targeted by the measure* Activities extracting living resources (fisheries including recreational, maerl, seaweed).
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":* - Fish - Benthic habitats - Pelagic habitats
Link to other directive/legislation/ policy	*Aligning objectives with other legal commitments* Convention on Biological Diversity Convention for the Protection of the Black sea against pollution and relevant protocols to it Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea (2009) Habitat Directive (Directive 92/43/EEC) Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning Regulation (EC) № 708/2007 concerning use of alien and locally absent species in aquaculture Regulation (EU) № 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species CFP (Regulation (EU) 1380/2013) and its related legislations (e.g. Regulation 1967/2006, all technical measures, on fishing efforts) Council Regulation (EC) No 199/2008 of 25 February 2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice

	regarding the Common Fisheries Policy Council Regulation (EC) No 1198/2006 of 27 July 2006 on the European Fisheries Fund **National legislation**: Fisheries and Aquaculture Act Environmental Protection Act Biological Diversity Act Protected Areas Act
Necessity for transnational regulation	*Information as regarding the necessity for regulations at EU, regional and international level to achieve MSFD environmental objectives.* No
Mode of implementation	*Stating the implementation process in line with the „PoM Recommendations"; multiple options possible:* • Legislative • 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* coastal waters (WFD CW*)* and territorial waters of the Republic of Bulgaria
Contribution of the measure to achieving the target	*– using technical information* The measure is expected to have a **high** contribution to achieving of the environmental targets under Descriptor 3 (State of commercial fish and shellfish stocks) and Descriptor 1 (Biodiversity). Increasing of abundance of fish stocks; achievement of total allowed catch (TAC); decreasing of fish mortality; decreasing of discards. Achieving sustainability of fish populations, protection of their habitats, respectfully achieving of sustainable stocks of the Black sea fish species.
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 neighbours.
Costs	**First rough assessment: medium** (**50.000 - 200.000 €)** **Total one off costs within MSFD cycle (6 years): 79.000 € (less then 200.000 €)** Administration and implementation costs: 1. Operational cost for WG elaboration dealing with on spatio-temporal bans and closures for fish species (representatives from the National

	agency for Fisheries and Aquaculture, other relevant state administration, research institutes, NGOs and fishery sector as Fisheries Local Action Groups, FLAGs). 2. Review of existing spatio-temporal bans and closures in national marine waters 3. Research to specify spatio-temporal stock assessments/needs; 4. Designation of spatio-temporal zones; 5. Bilateral meetings between Bulgaria and Romania for coordination of designated zones in national waters of both countries. 6. Conducting control for compliance with these prohibitions and restrictions in designated areas.
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* The measure is directly linked to the achievement of defined environmental targets for GES under Descriptors 1 (Biodiversity), 3 (State of commercial fish and shellfish stocks), 4 (Food web) and 6 (Sea - floor integrity). The implementation of this measure will contribute to decreasing of commercial fishing pressure on Black sea fish stocks, conservation / gradual restoration of pelagic and seabed habitats affected by overfishing in medium and long term period. The measure is expected to have **high effectiveness** for achieving of these targets.
Indicator(s) to measure effectiveness	*Should be based on existing indicators.* 1. Set an interministrial working group at the national level for establishment of spatio-temporal bans and closures for fishing. 2. Number of studies to clarify the spatial and temporal stock assessments / needs. 3. Number of proposals for establishment of spatio-temporal bans and closures for fishing. 4. Number of decisions (orders or other legislative acts) for approval of these spatio-temporal zones. 5. Number of updated decisions (orders or other legislative acts) per year. 6. Number of inspections per year for compliance with the prohibitions and restrictions in defined zones. 7. Number of fines per year for non-compliance with the legislative requirements.
Socio-economic assessment	***Cost Effectiveness Assessment:*** **moderate** ***Cost Benefit Assessment*****: high** ***Negative side effects:*** The implementation of the measure is not expected to have negative effects on the marine environment.

	The measure could have a negative effect on the fishing business by limiting and / or bans on fishing. **Positive effect from the implementation of this measure:** The measure will help for more sustainable exploatation of Black sea fish stocks, respectively development of the Fishery sector and improvement of quality of life of local people related with the sector.
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* at local level at national level at bilateral level with Romania
Technical feasibility	Options: • Frequently applied; extensive experience / evidence of good practice
Body responsible for the measure implementation	Ministry of Agriculture and Food, National Agency for Fisheries and Aquaculture.
Financing opportunities	*Including EU-cofinancing* National and European funding (Horizon 2020 Program, European Maritime and Fisheries Fund (EMFF) and National Programme for Maritime Affairs and Fisheries 2014-2020 of Bulgaria
Temporal coverage	**Starting: 2017**
Difficulties in implementation	*Provide information on the potential challenges that could likely faced in implementation.* Possible objections in defining spatio-temporal bans and closures Refusal by fishermen to respect the prohibitions and restrictions for fishing in defined areas.