**Factsheet for new measures**

*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.*

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| **Measure characteristics** | **Management area:**   * ***Black Sea***   ***Any other codes*** | **Code:**  ***MSFD reporting code***  **No. of measure:**  **7** |
| **Measure title** | Stimulation of environmental friendly practices for fishing vessels under 10 m and not using towed gear (small scale fishery). | |
| **Short, precise description of the measure** | This measure is developed as coordinated measure between Bulgaria and 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 aims to encourage the development of small-scale coastal fishing, thus promote the use of technological innovations (i.e. more selective fishing techniques) that do not increase fishing effort.  Territorial scope of the measure: coastal and territorial waters of Republic of Bulgaria and Romania. The national agencies for fisheries and aquaculture should facilitate or co-initiate with the fisheries research institutions, including fishermen for efficient implementation of the measure. The measure contains the following steps:  1) Regulatory guidance elaboration ( by Government/Ministry)  2) Technical guidance elaboration  2.1.Sector technical guidance  2.2. Horizontal guidance (among all sectors regulating) | |
| **EU measure category** | **2b** | |
| **Key Types of Measures** | KTM 20 Measures to prevent or control the adverse impacts of fishing and other exploitation/removal of animal and plants  KTM 35 Measures to reduce biological disturbances in the marine environment from the extraction of species, including incidental non-target catches | |
| **Environmental targets** | **D 1,4,6 – Seabed habitats**   * Target on the extraction of living resources – Ban non–precautionary fishing technologies (Black Sea Strategic Action Plan, Target 5); * Target on the extraction of living resources – consider the designation of marine protected areas with a ban on bottom trawling;   **D3 – State of commercial fish and shellfish stocks**  **Pressure targets**  Criterion 3.1. Level of pressure of the fishing activity  \* Maintaining the fishing mortality F ≤ FMSY = 0.64 (sprat);  \* Stable trend toward decreasing values of the fishing mortality at regional level in the range FMSY=Range (F0.1-FMAX) with levels between F= 0.07 and F= 0.15 - limit reference points (turbot);  \* A stable trend of decreasing fishing mortality at regional level, FMSY not exceed the limit reference value of 0.54 (FMSY = F ≤ 0.54, recommended limiting point) when the value of the coefficient of natural mortality M 1-3 = 0.81 and level of service from E ≤ 0.4 (anchovy);  **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)   **Bulgaria national 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)).  \* Maintaining the sprat stock at values of ~ 60,000 tones at the Romanian littoral  \* Recovery of the turbot stock to value of 1500-2000 tones at the Romanian littoral  **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).  Criterion 3.3. Population age and size distribution  \* Increasing the percentage of specimens older than 1.5 – 2 years (sprat)  \* Increasing the percentage of specimens older than 5 – 6 years (turbot)  \* Increasing the percentage of specimens older than 3 – 4 years (whiting)  \* Increasing the percentage of specimens older than 3 – 4 years (horse mackerel)  \* Increasing the percentage of specimens older than 2 years (anchovy)  \* Increasing the percentage of specimens larger than 120 cm (dogfish)  \* Increasing the percentage of specimens older than 3 years (red mullet)  **Romania national targets**  **Descriptor 1**  Crt. 1.4 Habitat distribution  1.4.1 Area distribution of benthic habitats  1110-1: Maintaining existence of the three grasslands of *Zostera noltei* in Mangalia zone  1110-8: Maintaining the current distribution in the area Costinești -2 Mai  Sands with *Donax trunculus*: Maintaining the current distribution in the area Navodari - 2 Mai  1140-3: Maintaining the current distribution in the area Eforie Nord-Eforie Sud  1170-7 : Maintaining the current distribution in the area 2 Mai – Vama Veche  1170-8: Maintaining the current distribution in the area Cap Aurora – Vama Veche  1170-10: Maintaining the current distribution in the point Agigea, Costinești și Vama Veche  1170-2 *Mytilus galloprovincialis* biogenic reefs: Maintaining current distribution throughout Self Romania between 30-50m  1170-9: Maintaining the current distribution across the rocky circalitoral substrate  Crt. 1.5 Habitat extent  1.5.1 Benthic habitat surface  1110-1: The area occupied by habitat ≥ 2,43 ha  1140-3: The area occupied by habitat ≥ 2,06 ha  1170-7: The area occupied by habitat ≥ 1.8 ha  1170-8: The area occupied by habitat ≥ 46 ha  1170-10: The area occupied by habitat ≥ 1 ha  Crt. 1.6 Habitat condition  1.6.1 Species state  Leaf height of Z*. noltei* in june ≥ 70 cm; annual rhizomes extending of *Z. noltei* in growing areas ≥ 70 cm  Height equities of *Cystoseira barbata* in cold season ≥ 100 cm; frequency of juveniles of *C. barbata* in 1 m2 ≥ 50%  The median size of specimens by *Mytilus galloprovincialis* (shell length) ≥ 50 mm SL  Juveniles frequency of *Pholas dactylus* in 1m2 ≥ 50%; the maximum size of specimens *P. dactylus* (shell length) = 70mm SL  The maximum size of specimens *Donacilla cornea* (shell lenght) ≥ 22-24 mm SL  The maximum size of specimens *Donax trunculus* (shell lenght) 45-50mm SL  The maximum size of specimens *Arenicola marina* (whole body length) 250-350mm TL  1.6.2 Relative biomass and abundance  Coverage with *Z. noltei* ≥ 50%; Foliar biomass of *Z.noltei* ≥ 1600 g•m-2  Coverage with *Cystoseira barbata* ≥ 50%; the wet biomass of *C. barbata* without epiphytic ≥ 3000 g•m-2  Coverage with Mytilus inside the habitat ≥ 50%; living biomass of *Mytilus galloprovincialis* ≥ 5000 g•m-2  The population density of *Donacilla cornea* ≥ 3300 ind•m-2  The population density of *Donax trunculus* ≥ 200 ind•m-2  Coverage with *Corallina officinalis* inside the fields ≥ 50%  The population density of *Lentidium mediterraneum* ≥ 9000 ind•m-2; living biomass of *Lentidium mediterraneum* ≥ 100 g•m-2  Coverage with Mytilus in the habitat ≥ 80%; living biomass of *Mytilus galloprovincialis* ≥ 8000 g•m-2  Living biomass *Modiolula phaseolina* in 1 m2 ≥ 16 g•m-2  *Descriptor 3*  Criterion 3.1. Level of pressure of the fishing activity  Maintaining the fishing mortality F ≤ FMSY = 0.64 (sprat);  Stable trend toward decreasing values of the fishing mortality at regional level in the range FMSY=Range (F0.1-FMAX) with levels between F= 0.07 and F= 0.15 - limit reference points (turbot);  A stable trend of decreasing fishing mortality at regional level, FMSY not exceed the limit reference value of 0.54 (FMSY = F ≤ 0.54, recommended limiting point) when the value of the coefficient of natural mortality M 1-3 = 0.81 and level of service from E ≤ 0.4 (anchovy);  3.1.1  Reducing fishing effort to F≤ FMSY =0.4 (whiting)  Drastic reduction in fishing effort, 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  Maintaining the threshold value of catch/biomass ratio <= 0.082 (sprat)  Maintaining the threshold value of catch/biomass ratio <= 0.033 (turbot)  Criterion 3.2. Reproductive capacity of the stock  3.2.1  Increasing the SSB for the relevant fish species at regional level (whiting (*Merlangius merlangus euxinus*), turbot (*Psetta maxima*), horse mackerel (*Trachurus mediterraneus ponticus*), anchovy (*Engraulis encrasicolus*), dogfish (*Squalus acanthias*), and red mullet (*Mullus barbatus ponticus*).  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 according to this indicator is increasing of the SSB at regional level.  The indicator needs additional development and will be operational at regional level toward 2018.  3.2.2  Maintaining the sprat stock at values of ~ 60,000 tones at the Romanian littoral  Recovery of the turbot stock to value of 1500-2000 tones at the Romanian littoral  Criterion 3.3. Population age and size distribution  Increasing the percentage of specimens older than 1.5 – 2 years (sprat)  Increasing the percentage of specimens older than 5 – 6 years (turbot) Increasing the percentage of specimens older than 3 – 4 years (whiting)  Increasing the percentage of specimens older than 3 – 4 years (horse mackerel)  Increasing the percentage of specimens older than 2 years (anchovy)  Increasing the percentage of specimens larger than 120 cm (dogfish)  Increasing the percentage of specimens older than 3 years (red mullet)  Descriptor 4  Crt. 4.3 Abundance/distribution of key trophic groups/species  4.3.1 The abundance of certain groups / species functionally important  The population density of *Lentidium mediterraneum* ≥ 9000 ind/m-2  The population density of *Arenicola marina* ≥ 0,1 ind/m-2; the population density of *Necallianassa truncata* ≥ 1 ind/m-2  The population density of *Mytilus galloprovincialis* ≥ 500 ind. m*-2*;  The population density of *Modiolula phaseolina* in 1 m2≥ 200 ind•m-2  Descriptor 6  Crt. 6.1 Physical damage, having regard to substrate characteristics  6.1.1 Type, abundance, biomass and extent of relevant biogenic substrate  Total ban any demersal fishery (trawl, honey), including the EEZ  Stopping any hydraulic or coastal protection works of nature to destroy *Zostera noltei* grasslands or indirectly affect them; total ban on any kind of human activity in *Zostera noltei* meadows, except for scientific research and interventions for saving lives.  Stopping any hydraulic or coastal protection works of nature to destroy belts *Cystoseira barbata* or indirectly affecting on them; total ban on any type of human activities *Cystoseira barbata* belts except scientific research and interventions to save lives.  Crt. 6.2 Condition of benthic community  6.2.1 Presence of particularly sensitive species and / or tolerant  Coverage with *Z. noltei* ≥ 50%; decapod frequency *Palaemon adspersus* in 1 m2 = 100%; decapod frequency *Carcinus aestuarii* in transects of 50 m2 ≥ 30%  Coverage with *C.barbata* inside the belt ≥ 50%; frequency of *Colaconema thuretii* in1m2 ≥ 80%; gastropod frequency *Gibbula divaricata* in 1 m2 ≥ 30%; gastropod frequency *Tricolia pullus* in 1 m2 ≥ 1%  Frequency of Lithothamnion, Phyllophora or Coccotylus in transect of 50 m2 ≥ 10% ; decapod frequency *Liocarcinus navigator* in transect of 400 m2 ≥ 70%  Polychaets frequency *Ophelia bicornis* in samples ≥ 1%; frequency of *Gastrosaccus sanctus* in samples ≥ 50%  Decapod frequency of *Eriphia verrucosa* in transects of 100 m2 ; densities of *Halichondria panicea* in the habitat ≥ 1 colonie m-2  6.2.2 Multimetric indices for assessment of benthic community condition and functionality, as well as species diversity and richness report opportunistic species / species sensitive  Index values EEI > 0.6  Index values EEI > 0.  Indices values :M-AMBI ≥ 0.55; AMBI ≤ 3.3  Indices values :M-AMBI ≥ 0.55; AMBI ≤ 3.3  Indices values :M-AMBI ≥ 0.55; AMBI ≤ 3.3  6.2.3 Proportion of biomass or number of individuals over a certain length or size  Specimens median size of *Mytilus galloprovincialis* (shell leght) ≥ 50 mm SL  Specimens median size of *Mytilus galloprovincialis* (shell leght) ≥ 70 mm SL | |
| **Descriptors** | D1- Biodiversity  D3 – State of commercial fish and shellfish stocks  D4 – Food web  D6 – Seabed | |
| **Main pressures** | 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), Interference with hydrological processes  Biological disturbances: selective extraction of species, including incidental non-target catches (e.g. by commercial and recreational fishing). | |
| **Main drivers** | Activities extracting living resources (fisheries including commercial and recreational on fish and shellfish). | |
| **Characteristics** | * Fish * Benthic habitats | |
| **Link to other directive/legislation/policy** | Council Regulation (EC) No 1198/2006 of 27 July 2006 on the European Fisheries Fund  Regulation (EU) No 1380/2013 of the European Parliament and the Council of 11 December 2013 on the Common Fisheries Policy  **Descriptor 3 – State of commercial fish and shellfish stocks**  CFP (Regulation (EU) 1380/2013) and its related legislations (e.g. Regulation 1967/2006, all technical measures, on fishing efforts); Regulation (EC) № 1198/2006 of the European Parliament and of the Council of 27 July 2006 on the European Fisheries Fund. | |
| **Necessity for transnational regulation** | *No* | |
| **Instrument for implementation/** **Mode of implementation** | * Technical * Policy * Economic | |
| **Spatial reference/implementation zones** | Territorial waters/EEZ | |
| **Contribution of the measure to achieving the target** | Over a longer period, the measure is expected to have a positive effects both in terms of increasing commercial fish stocks and pelagic and benthic fauna diversity.  The measure is expected to have a moderate contribution to the achieving the targets | |
| **Transboundary impact** | The implementation of the measure is not expected to have negative effects on the marine environment of neighbouring countries*.* The measure is expected to have a beneficial effect, for the marine waters of neighbouring countries by gradually increasing stocks of Black Sea migratory commercial fish species, and not only. | |
| **Costs** | **First rough assessment:** medium € 50.000 - 200.000  This measure consists of administrative and implementation costs.  1) Training of administration and fishermen: 1500 €  2) Financial stimulation (mechanism) of fishery sector for introduction of environmental friendly equipments and practices : not possible to assess at this stage  3) pilot programme introduction of test equipment: 6000 €  4) distribution printed material : 1000 €  5) stakeholder meeting between small scale and large scale fishery sectors: 2000 €  6) Introduction of best available practices: not possible to assess at this stage  Total one off costs within MSFD cycle (6 years): minimum 10.500 €, but probably > 50.000 €  Scoring:   |  |  | | --- | --- | | **Score** | **total cost** | | 1 | > € 1 million | | 2 | € 500.000 - 1 million | | 3 | € 200.000 - 500.000 | | **4** | **€ 50.000 - 200.000** | | 5 | < € 50.000 | | |
| **Effectiveness** | Potentially strong | |
| **Indicator(s) to measure effectiveness** | *No of vessels* | |
| **Socio-economic assessment** | **Negative side effects:**  The implementation of the measure is not expected to have negative effects on the marine environment.  **Cost Effectiveness Assessment:** Cost effective  **Cost Benefit Assessment:** medium | |
| **Coordination** | Bilateral | |
| **Technical feasibility** | * *New development* | |
| **Body responsible for the measure implementation** | **Bulgaria:** Ministry of Agriculture and Food, National Agency for Fisheries and Aquaculture (NAFA).  **Romania:** Ministry of Environment, Waters and Forests  National Agency for Fishery and Aquaculture, NIRD “Grigore Antipa” | |
| **Financing opportunities** | Public funds, European Maritime and Fisheries Fund (EMFF)  Bulgaria: National Programme for Maritime Affairs and Fisheries (2014-2020) | |
| **Planning of implementation/temporal coverage** | **2017** | |
| **Difficulties in implementation** | Yes - fishermen fear on increasing investment (costs) and loss of jobs | |
| ***Supporting information for SEA*** | | |
| **Additional values for protection (outside MSFD)** |  | |
| **Reasonable alternatives** |  | |