SEA BASIN CHECKPOINT
LOT4: BLACK SEA

CHALLENGE 9 – River Inputs
Expert evaluation of Targeted Products

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1. Expert evaluation of Targeted Product quality

Please use your own judgement to describe for each Targeted product of the assessment of the "fitness for purpose and use". For each Targeted product please comment on the following points:

1) Assign an overall product quality score with respect to scope (fitness for purpose) and explain why, according to the scale in Table 1.

2) Identify the most important characteristic(s) for the Targeted Product quality (if all characteristics are important, please say so).

3) Identify and explain what is (are) the quality element(s) of the most important Characteristic(s) that affects the Targeted product quality;

4) Identify and explain the limitations on the quality of Targeted products due to the input data set used (fitness for use)

5) Comment and explain which Characteristics and respective data set "fails the most" to meet the scope of the Targeted product (fitness for use)

6) Provide an expert judgement of the most important gaps in the input data sets for each Targeted Product

SCORE	MEANING
1	EXCELLENT → completely meets the scope of the Targeted Product
2	VERY GOOD → meets more than 70% of the scope of the Targeted Product
3	GOOD → meets less than 50% of the scope of the Targeted Product
4	SUFFICIENT → does not adequately meet the scope but is a starting point
5	INADEQUATE → does not fulfil the scope and is not usable

Table 1. Targeted Products quality scores and their meaning.

CHALLENGE 09

BLACKSEA_CH09_Product_1

1) The overall product quality score with respect to scope (fitness for purpose) is **excellent (1)**. The data covering all important river discharge in the Black Sea.
2) All characteristics are important because they have different spatial coverage.
3) The following aspects of quality have the greatest effect on the Targeted product quality:
    - **Spatial extent**: the product covers the important Black Sea river tributaries.
    - **Spatial resolution**: the targeted product is based on in-situ river discharge data collected in the same point more than a decade that is suitable to describe and to evaluate the River Inputs trend and the impact on the physical/chemical Black Sea waters properties.
    - **Spatial accuracy:** data are highly accurate as they are acquired through GPS.
    - **Time extent**: the product is time limited because data are available only for the time period 1921-1984.
    - **Time resolution**: the targeted product based on monthly means data is suitable to describe and to evaluate the River Inputs trend and the impact on the physical/chemical Black Sea waters properties.
    - **Usability**: the product is easy to understand and use.
    - **Completeness**: due to the lack of spatial and temporal data from the north-eastern Black Sea, the level of missing data is low because the main river is covered, Danube River, which influence the physical and chemical properties of the Black Sea (located in the north-western part).
    - **Logical consistency**: the targeted product agrees with the format required.
    - **Thematic accuracy**: uniform.
4) The limitations of the product due to the data sets used are:
    - Missing of spatial and temporal data from the north-eastern Black Sea and of recent time series.
5) The characteristic monthly mean time series of Rivers Discharge into Black Sea basin from in-situ data (RIVDIS) used to generate this product does not fail to meet the scope of the Targeted Product. In-situ datasets are checked before dissemination, thus they are considered reliable for 20-year river discharge monitoring. In this product 6 main rivers monthly mean discharge datasets are used.
6) The most important gaps in these targeted products are related to the limited geographical and temporal coverage.

BLACKSEA_CH09_Product_2

1) The overall product quality score with respect to scope (fitness for purpose) is **excellent (1)**. The data covering all important river discharge in the Black Sea.
2) All characteristics are important because they have different spatial coverage.
3) The following aspects of quality have the greatest effect on the Targeted product quality:
    - **Spatial extent**: the product covers the important Black Sea river tributaries.
    - **Spatial resolution**: the targeted product is based on in-situ river discharge data collected in the same point more than a decade that is suitable to describe and to

evaluate the River Inputs trend and the impact on the physical/chemical Black Sea waters properties.

- **Spatial accuracy:** data are highly accurate as they are acquired through GPS.
- **Time extent**: the product is time limited because data are available only for the time period 1921-1984.
- **Time resolution**: the targeted product based on yearly means data is suitable to describe and to evaluate the River Inputs trend and the impact on the physical/chemical Black Sea waters properties.
- **Usability**: the product is easy to understand and use.
- **Completeness**: due to the lack of spatial and temporal data from the north-eastern Black Sea, the level of missing data is low because the main river is covered, Danube River, which influence the physical and chemical properties of the Black Sea (located in the north-western part).
- **Logical consistency**: the targeted product agrees with the format required.
- **Thematic accuracy**: uniform.

4) The limitations of the product due to the data sets used are:
    - Missing of spatial and temporal data from the north-eastern Black Sea and of recent time series.
5) The characteristic yearly mean time series of Rivers Discharge into Black Sea basin from in-situ data (RIVDIS) used to generate this product does not fail to meet the scope of the Targeted Product. In-situ datasets are checked before dissemination, thus they are considered reliable for 20-year river discharge monitoring. In this product 6 main rivers yearly mean discharge datasets are used.
6) The most important gaps in these targeted products are related to the limited geographical and temporal coverage.

BLACKSEA_CH09_Product_3

1) The overall product quality score with respect to scope (fitness for purpose) is **excellent (1)**. The data covering all important river basins those discharge into the Black Sea.
2) All characteristics are important because they have different spatial coverage.
3) The following aspects of quality have the greatest effect on the Targeted product quality:
    - **Spatial extent**: The products cover all the important Black Sea river tributaries.
    - **Spatial resolution**: the targeted product is based on E-HYPE model with geographical domain the Drainage basin of Europe; the E-HYPE model data are based on calculus of the hydrological variables on a daily time-step at a high sub-basin resolution (120 km2, median) simultaneously that is suitable to describe and to evaluate the Rivers discharge trend and the impact on the physical/chemical Black Sea waters properties.
    - **Spatial accuracy:** data are highly accurate. The model uses global databases and GMES satellite products as input data. Forcing data is obtained from ECMWF and SMHI. The model produces high resolution information.
    - **Time extent**: the product is time limited because data are available only for the period 2000 – 2010 years.
    - **Time resolution**: the targeted product based on monthly means data is suitable to describe and to evaluate the River discharge trend and the impact on the physical/chemical Black Sea waters properties.

- **Usability**: the product is easy to understand and use.
- **Completeness**: the product is EXCELLENT covered.
- **Logical consistency**: the targeted product agrees with the format required.
- **Thematic accuracy**: uniform.

4) The limitations of the product due to the data sets used are:
   - There are no limitations on spatial and temporal data for the Black Sea Rivers and covers recent data time series.
5) The characteristic daily time series of Rivers Discharge into Black Sea basin from modelled data (E-HYPE model) used to generate this product does not fail to meet the scope of the Targeted Product. Modelled datasets are checked before dissemination, thus they are considered reliable for 10-year river discharge monitoring. In this product 11 main rivers daily discharge datasets are used.
6) There are no important gaps and these targeted products fitness for use.

BLACKSEA_CH09_Product_4

1) The overall product quality score with respect to scope (fitness for purpose) is **excellent (1)**. The data covering all important river basins those discharge into the Black Sea.
2) All characteristics are important because they have different spatial coverage.
3) The following aspects of quality have the greatest effect on the Targeted product quality:
   - **Spatial extent**: the product covers all the important Black Sea river tributaries.
   - **Spatial resolution**: the targeted product is based on E-HYPE model with geographical domain the Drainage basin of Europe; the E-HYPE model data are based on calculus of the hydrological variables on a daily time-step at a high sub basin resolution (120 km2, median) simultaneously that is suitable to describe and to evaluate the Rivers temperature (°C) trend and the impact on the physical/chemical Black Sea waters properties.
   - **Spatial accuracy:** data are highly accurate. The model uses global databases and GMES satellite products as input data. Forcing data is obtained from ECMWF and SMHI. The model produces high resolution information.
   - **Time extent**: the product is time limited because data are available only for the period 2000 – 2010 years.
   - **Time resolution**: the targeted product based on monthly means data is suitable to describe and to evaluate the River Temperature trend and the impact on the physical/chemical Black Sea waters properties.
   - **Usability**: the product is easy to understand and use.
   - **Completeness**: the product is EXCELLENT covered.
   - **Logical consistency**: the targeted product agrees with the format required.
   - **Thematic accuracy**: uniform.
4) The limitations of the product due to the data sets used are:
   - There are no limitations on spatial and temporal data for the Black Sea Rivers and covers recent data time series.
5) The characteristic time series of monthly mean river temperature at the discharge point into the Black Sea from modelled data (E-HYPE model) used to generate this product does not fail to meet the scope of the Targeted Product. Modelled datasets are checked before

dissemination, thus they are considered reliable for 10-year river temperature monitoring. In this product 11 main rivers monthly mean temperature datasets are used.

6) There are no important gaps and these targeted products fitness for use.

BLACKSEA_CH09_Product_5

1) The overall product quality score with respect to scope (fitness for purpose) is **excellent (1).** The data covering all important river basins those discharge into the Black Sea.
2) All characteristics are important because they have different spatial coverage.
3) The following aspects of quality have the greatest effect on the Targeted product quality:
    - **Spatial extent**: The products cover all the important Black Sea river tributaries.
    - **Spatial resolution**: the targeted product is based on E-HYPE model with geographical domain the Drainage basin of Europe; the E-HYPE model data are based on calculus of the hydrological variables on a daily time-step at a high sub basin resolution (120 km2, median) simultaneously that is suitable to describe and to evaluate the Rivers Inorganic nitrogen (µg/L), Organic nitrogen (µg/L),Total nitrogen (µg/L) and Nitrogen load (kg/month) trends and the impact on the physical/chemical Black Sea waters properties.
    - **Spatial accuracy:** data are highly accurate. The model uses global databases and GMES satellite products as input data. Forcing data is obtained from ECMWF and SMHI. The model produces high resolution information
    - **Time extent**: the product is time limited because data are available only for the period 2000 – 2010 years.
    - **Time resolution**: the targeted product based on monthly means data is suitable to describe and to evaluate the River Inorganic nitrogen (µg/L), Organic nitrogen (µg/L), Total nitrogen (µg/L) and Nitrogen load (kg/month) trends and the impact on the physical/chemical Black Sea waters properties.
    - **Usability**: the product is easy to understand and use.
    - **Completeness**: the product is EXCELLENT covered.
    - **Logical consistency**: the targeted product agrees with the format required.
    - **Thematic accuracy**: uniform.
4) The limitations of the product due to the data sets used are:
    - There are no limitations on spatial and temporal data for the Black Sea Rivers and covers recent data time series.
5) The characteristic time series of monthly mean river nutrients at the discharge point into the Black Sea from modelled data (E-HYPE model) used to generate this product does not fail to meet the scope of the Targeted Product. Modelled datasets are checked before dissemination, thus they are considered reliable for 10-year Rivers Inorganic nitrogen (µg/L), Organic nitrogen (µg/L), Total nitrogen (µg/L) and Nitrogen load (kg/month) monitoring. In this product 11 main rivers monthly mean nitrogen datasets are used.
6) There are no important gaps and these targeted products fitness for use.

BLACKSEA_CH09_Product_6

1) The overall product quality score with respect to scope (fitness for purpose) is **excellent (1).** The data covering all important river basins those discharge into the Black Sea.
2) All characteristics are important because they have different spatial coverage.

3) The following aspects of quality have the greatest effect on the Targeted product quality:
    - **Spatial extent**: the product cover all the important Black Sea river tributaries.
    - **Spatial resolution**: the targeted product is based on E-HYPE model with geographical domain the Drainage basin of Europe; the E-HYPE model data are based on calculus of the hydrological variables on a daily time-step at a high sub-basin resolution (120 km2, median) simultaneously that is suitable to describe and to evaluate the Rivers Soluble phosphorus (µg/L), Particulate phosphorus (µg/L), Total phosphorus (µg/L) and Phosphorus load (kg/month) trends and the impact on the physical/chemical Black Sea waters properties.
    - **Spatial accuracy:** data are highly accurate. The model uses global databases and GMES satellite products as input data. Forcing data is obtained from ECMWF and SMHI. The model produces high resolution information.
    - **Time extent**: the product is time limited because data are available only for the period 2000 – 2010 years.
        - **Time resolution**: the targeted product based on monthly means data is suitable to describe and to evaluate the River Soluble phosphorus (µg/L), Particulate phosphorus (µg/L), Total phosphorus (µg/L) and Phosphorus load (kg/month) trends and the impact on the physical/chemical Black Sea waters properties.
        - **Usability**: the product is easy to understand and use.
        - **Completeness**: the product is EXCELLENT covered.
        - **Logical consistency**: the targeted product agrees with the format required.
        - **Thematic accuracy**: uniform.
4) The limitations of the product due to the data sets used are:
    - There are no limitations on spatial and temporal data for the Black Sea Rivers and covers recent data time series.
5) The characteristic time series of monthly mean river phosphorus at the discharge point into the Black Sea from modelled data (E-HYPE model) used to generate this product does not fail to meet the scope of the Targeted Product. Modelled datasets are checked before dissemination, thus they are considered reliable for 10-year Rivers Soluble phosphorus (µg/L), Particulate phosphorus (µg/L), Total phosphorus (µg/L) and Phosphorus load (kg/month) monitoring. In this product 11 main rivers monthly mean phosphorus datasets are used.
6) There are no important gaps and these targeted products fitness for use.

BLACKSEA_CH09_Product_7

1) The overall product quality score with respect to scope (fitness for purpose) is **inadequate** (5). No eel available data in the Black Sea. No data / information to produce the salmon biomass on the Black Sea Rivers.
2) All characteristics are important but there are no available data / information to produce the products.
3) The following aspects of quality have the greatest effect on the Targeted product quality:
    - **Spatial extent**: The products not cover the Black Sea river tributaries.
    - **Spatial resolution**: no available data / information to produce trends.
    - **Spatial accuracy:** No eel available data in the Black Sea. No data / information to produce the salmon biomass on the Black Sea Rivers.

- **Time extent**: the product is time limited because there are no available data.
- **Time resolution**: No eel available data in the Black Sea. No data / information to produce the salmon biomass on the Black Sea Rivers.
- **Usability**: Inadequate: Impossible to produce or fails to meet all the objectives (not usable).
- **Completeness**: the product is INADEQUATE covered.
- **Logical consistency**: no available data / information to produce products.
- **Thematic accuracy**: no available data / information.

4) The limitations of the product due to the data sets used are:
    - There are no eel data available in the Black Sea Rivers.
    - No data / information to produce the salmon biomass on the Black Sea Rivers.
5) The characteristic Eel/salmon recruitment and escapement used to generate this product fail to meet the scope of the Targeted Product.
6) There are important gaps and these targeted products are not fitness for use. Component is not covered because existing data are not available.