

## **EU4Environment – Water Resources and Environmental Data (EU4Env Water & Data)**

### **Terms of References for the development of a national methodology for assessing the hydromorphological status of coastal and transitional waters in Georgia and testing of the methodology in a pilot area**

#### **1. Financing**

European Union (ENI/2021/424-550)

#### **2. Procedure**

Direct award procedure pursuant to sec. 46 BVergG 2018 of Austria and in line with the Umweltbundesamt GmbH's internal procurement regulations

#### **3. Contracting Authority**

Umweltbundesamt GmbH (UBA)

#### **4. Thematic Leader**

Umweltbundesamt GmbH (UBA)

#### **5. Nature of contract**

Service contract

#### **6. Indicative time period of implementation**

June 2023 – November 2023

#### **7. Contract amount**

Max 6.000.- Euro

#### **8. BACKGROUND INFORMATION**

The Programme EU4Environment – Water Resources and Environmental Data (EU4Env) aims to operationalise several key mechanisms to preserve natural resources, thus improving people's wellbeing in the European Union's Eastern partner (EaP) countries while enabling countries' green growth in line with the European Green Deal and a post-COVID-19 green recovery. This will contribute towards longer term environmental, climate, and socio-economic resilience, improved human health and wellbeing, as well as the achievement of the Sustainable Development Goals (SDGs).

##### ***Ecological monitoring and status assessment***

Ecological monitoring of coastal and transitional waters (CTW) in Georgia, initiated under the previous EUWI+ project in the coastal zone from Sarpi to Kobuleti, remains an important action under the EU4Env programme, Output 1.4 (New approaches to water monitoring continue to be supported). Therefore the

ecological monitoring of coastal and transitional waters was continued in 2022 and 2023 encompassing the coastal zone from Kobuleti to Anaklia.

Since coastal and transitional water bodies are the basic monitoring units under the EU Water Framework Directive (WFD), the whole coastal strip from Sarpi to Anaklia was already delineated into water types and water bodies according to the WFD System B (system with mandatory and optional delineation factors). According to this draft delineation (Annex 1, download link 1.1.), 11 coastal and 5 transitional waters were designated in this area. Considering that the natural conditions in some parts of the coastal strip from Sarpi to Anaklia are significantly modified, 2 of the 11 identified coastal water bodies (Batumi and Poti Ports) were designated as candidates for heavily modified water bodies (HMWBs).

All identified coastal and transitional water bodies are currently undergoing a verification process based on recent monitoring data, substrate composition, and surface salinity distribution in specific water bodies (Annex 2, Figure 1).

The ecological status of the monitored water bodies from Sarpi to Anaklia has been assessed so far only on the basis of the results of the investigated physico-chemical and biological quality elements, while the status of the river basin specific pollutants and the status of the hydromorphological quality elements (Annex 2, Figure 2) are still missing for a complete assessment of the ecological status.

The following steps are still required to assess the status of these two quality elements:

- identification of the river basin specific pollutants;
- determination of thresholds for " good-high/moderate" status for all specific pollutants identified;
- development of a national methodology for determining the hydromorphological status of coastal and transitional water bodies, based on the requirements of the Water Framework Directive and associated guidance documents. The guidance documents may be downloaded from Annex 1, download links 1.2. - 1.4.

### ***Hydromorphological status assessment***

The most important quality elements (QEs) for determining hydromorphological status in CTW bodies are tidal regime and morphological conditions. The conditions of these QEs are based on the degree of change in natural conditions (generally as a result of physical alteration by human activities) in freshwater flow, direction of prevailing currents, depth variation, substrate structure, etc., in specific water bodies (Annex 3, Figures 3 and 4).

Some typical activities that have negative impacts on hydromorphology and aquatic ecology are listed in Table 1 (Annex 3).

Based on hydromorphological monitoring results, the hydromorphological status of water bodies is classified as high, good, moderate, poor, or bad.

In case of hydromorphological assessment as high or good, the overall status of a surface water body is described by its ecological and chemical status (Annex 2, Figure 2), while in case of moderate, poor or bad hydromorphological assessment, the overall status is described by the ecological potential and chemical status of a water body. Those water bodies that do not achieve at least good hydromorphological status are declared as heavily modified water bodies (HMWBs) (Annex 2, Figure 1).

In addition to HMWBs, the WFD also recognises artificial water bodies (AWBs), which are surface water bodies created by human activities. The status of artificial water bodies is also assessed based on their ecological potential and chemical status.

## 9. SCOPE OF WORKS AND DELIVERABLES

The selected Expert for this assignment will perform the following tasks:

### General tasks

1. Development of a national methodology for the assessment of the hydromorphological status of coastal and transitional water bodies appearing in Georgia based on WFD hydromorphological quality elements;
2. Implementation of one hydromorphological monitoring of coastline sections in the Poti pilot area (Annex 4, Figure 5, Table 2) with photo documentation;
3. Assessment of the hydromorphological status for each coastline section, including identification of occurring HMWBs and/or AWBs;
4. Contribution to occasional Communication & Visibility (press releases, social media posts).

The proposed national methodology should include chapters describing the following issues

- availability of historical data on the Georgian coast (maps, shapefiles), tidal regime, morphological conditions, freshwater flow, direction of prevailing currents, depth variation, substrate structure, etc., and institutional location of these data;
- the most appropriate hydromorphological quality elements for coastal and transitional waters in Georgia;
- proposed national hydromorphological assessment system with thresholds for high, good, moderate, poor, and bad status;
- office and field equipment needed for hydromorphological monitoring;

and an example of field protocols for monitoring coastal and transitional waters.

### Specific tasks

Close cooperation and coordination with the EU4Env Water & Data Programme Representative in Georgia Mr Zurab Jincharadze (z.jincharadze@eu4waterdata.eu) and CTW Expert Grozdan Kušpilić (kuspe@izor.hr) during all phases of the tasks

### Deliverables

The Expert for this assignment will deliver the following main products:

- Preparation of a final report on the developed national methodology for the assessment of the hydromorphological status of coastal and transitional water bodies appearing in Georgia;
- Preparation of a final report as annex on the obtained hydromorphological status for each coastline sector in the Poti pilot area.

The individual deliverables and all data will be prepared in English and Georgian languages and submitted to:

- EU4Env Water & Data Programme Leader, Umweltbundesamt, Mr Alexander Zinke and to EU4Env Water & Data CTW Thematic Leader Mr Robert Konecny and CTW Expert Mr Grozdan Kušpilić
- EU4Env Water & Data Programme Representative in Georgia Mr Zurab Jincharadze

## 10. IMPLEMENTATION MODALITIES

### Location of services

Georgia

### Assignment schedule

The duration of the assignment is 6 months. The expected commencement of the assignment is June 2023 and the planned completion date for the:

- final report on the developed national methodology for the assessment of the hydromorphological status of coastal and transitional water bodies appearing in Georgia is September 2023;
- final report on the obtained hydromorphological status November 2023.

### Implementation modality

The Expert has to provide all means and technical equipment (e.g. hardware, software) necessary for a successful implementation of these services.

The Expert has to implement the service in close contact and cooperation with the competent authorities in Georgia.

All correspondence and documents related to the service must be written in English.

The EU4Env Water & Data Programme Representative will support the Expert through helping with organization of necessary meetings and provide logistical and administrative support.

The Expert agrees to adhere to the EU visibility guidelines.

### Reporting

Preparation of a final report on the obtained hydromorphological status for each coastline sector in the Poti pilot area as annex to the report on the national methodology.

The Expert shall report to the persons mentioned under Deliverables in part 9 of the ToR regarding the progress of services and for all day-to-day management issues.

### Remuneration and payment schedule

The tranches of payment made will be subject to acceptance of the tasks and deliverables and will be defined in the service contract.

## 11. EXPERTISE AND QUALITY REQUIREMENTS OF THE EXPERT

The Expert must have the following qualifications and skills:

- At least 10 years of demonstrated experience in projects related to GIS geographic mapping in Georgia, including the coastal zone
- Experience in hydrology and/or hydromorphology
- Background on basic principles of the Water Framework Directive (WFD)
- Demonstrated successful cooperation with the water-related authorities of Georgia
- Very good proficiency in English language.

## 12. SELECTION AND AWARD PROCEDURE

Potentially qualified candidates will be contacted and invited to submit an Expression of Interest, a Financial Offer and a Proposal related to the hydromorphological monitoring performance (visual inspection of the coastal zone, use of drones etc) and to the evaluation of the HYMO status (use of historic information, development plans, hydrological and morphological data etc).

The submitted offers will be evaluated by the Thematic Leader and the CTW Expert. The Contracting Authority will award the contract according the best-bidder principle based on the best value for money.

## 13. CONTACT DETAILS

Interested parties (individual and legal persons) are invited to send their technical offer, including CVs of key staff, references, methodology and list of projects implemented, as well as their financial offer by email to the following address:

Email address: [daniela.carretta@umweltbundesamt.at](mailto:daniela.carretta@umweltbundesamt.at)

Email address: [gabriele.vincze@umweltbundesamt.at](mailto:gabriele.vincze@umweltbundesamt.at)

The deadline for submission is **31 May 2023, 12:00** CET. Tenders submitted after the deadline will not be considered.

The publication of these Terms of Reference does not commit the Contracting Authority to award the announced contract. The Contracting Authority can withdraw from this call at any given time. In no event shall the Contracting Authority be liable for any damages whatsoever including, without limitation, damages for loss of profits, in any way connected with the cancellation of a tender procedure.

# ANNEXES

## Annex 1

Download links:

1.1. Delineation proposal for Georgian coastal and transitional waters. Link:

[https://drive.google.com/file/d/1pv70CWiGVXIFPKBUHh7qtVpV\\_70CRrLE/view?usp=share\\_link](https://drive.google.com/file/d/1pv70CWiGVXIFPKBUHh7qtVpV_70CRrLE/view?usp=share_link)

1.2. The EU Water Framework Directive. Link: [https://eur-](https://eur-lex.europa.eu/resource.html?uri=cellar:5c835afb-2ec6-4577-bdf8-756d3d694eeb.0004.02/DOC_1&format=PDF)

[lex.europa.eu/resource.html?uri=cellar:5c835afb-2ec6-4577-bdf8-756d3d694eeb.0004.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:5c835afb-2ec6-4577-bdf8-756d3d694eeb.0004.02/DOC_1&format=PDF)

1.3. CIS Guidance document No 5. Link: [https://circabc.europa.eu/sd/a/85912f96-4dca-432e-84d6-a4dded785da5/Guidance%20No%205%20-%20characterisation%20of%20coastal%20waters%20-%20COAST%20\(WG%202.4\).pdf](https://circabc.europa.eu/sd/a/85912f96-4dca-432e-84d6-a4dded785da5/Guidance%20No%205%20-%20characterisation%20of%20coastal%20waters%20-%20COAST%20(WG%202.4).pdf)

1.4. CIS Guidance document No 4. Link: [https://circabc.europa.eu/sd/a/f9b057f4-4a91-46a3-b69a-e23b4cada8ef/Guidance%20No%204%20-%20heavily%20modified%20water%20bodies%20-%20HMWB%20\(WG%202.2\).pdf](https://circabc.europa.eu/sd/a/f9b057f4-4a91-46a3-b69a-e23b4cada8ef/Guidance%20No%204%20-%20heavily%20modified%20water%20bodies%20-%20HMWB%20(WG%202.2).pdf)

1.5. CIS Guidance document No 7. Link: [https://circabc.europa.eu/sd/a/63f7715f-0f45-4955-b7cb-58ca305e42a8/Guidance%20No%207%20-%20Monitoring%20\(WG%202.7\).pdf](https://circabc.europa.eu/sd/a/63f7715f-0f45-4955-b7cb-58ca305e42a8/Guidance%20No%207%20-%20Monitoring%20(WG%202.7).pdf)

# Annex 2

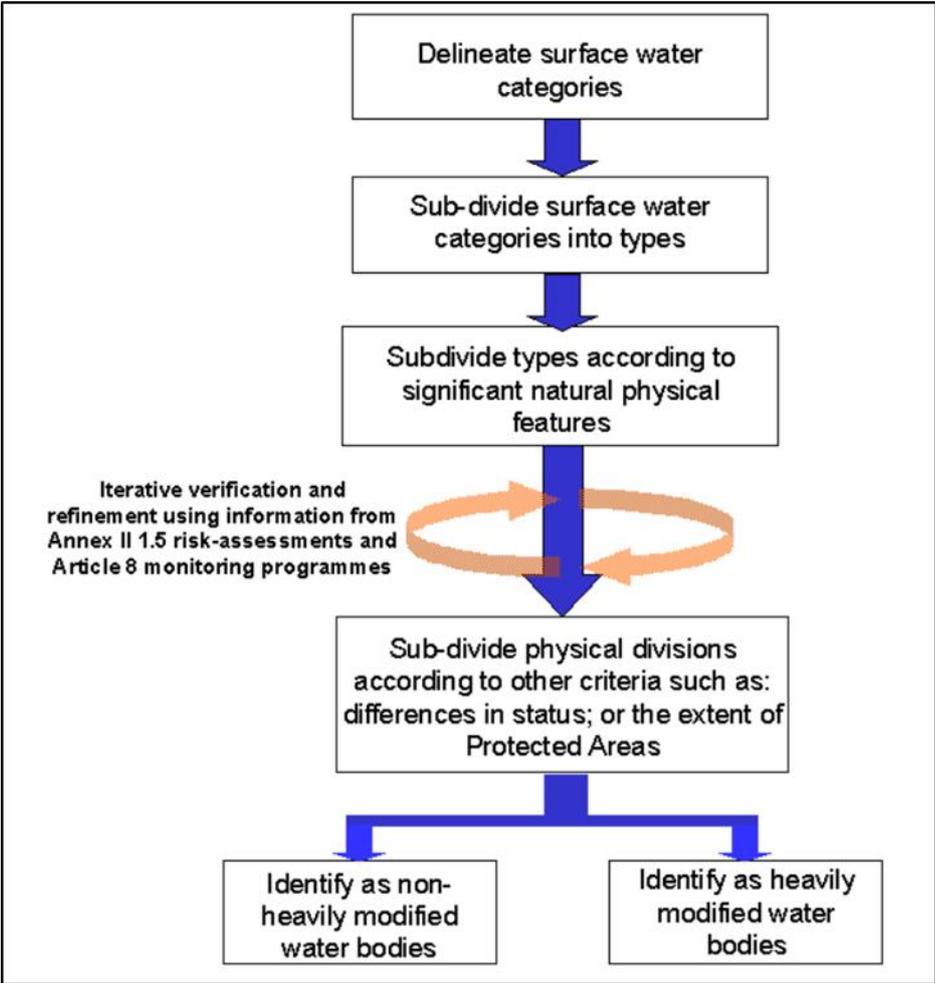


Figure 1. Suggested hierarchical approach to the identification of surface water bodies.



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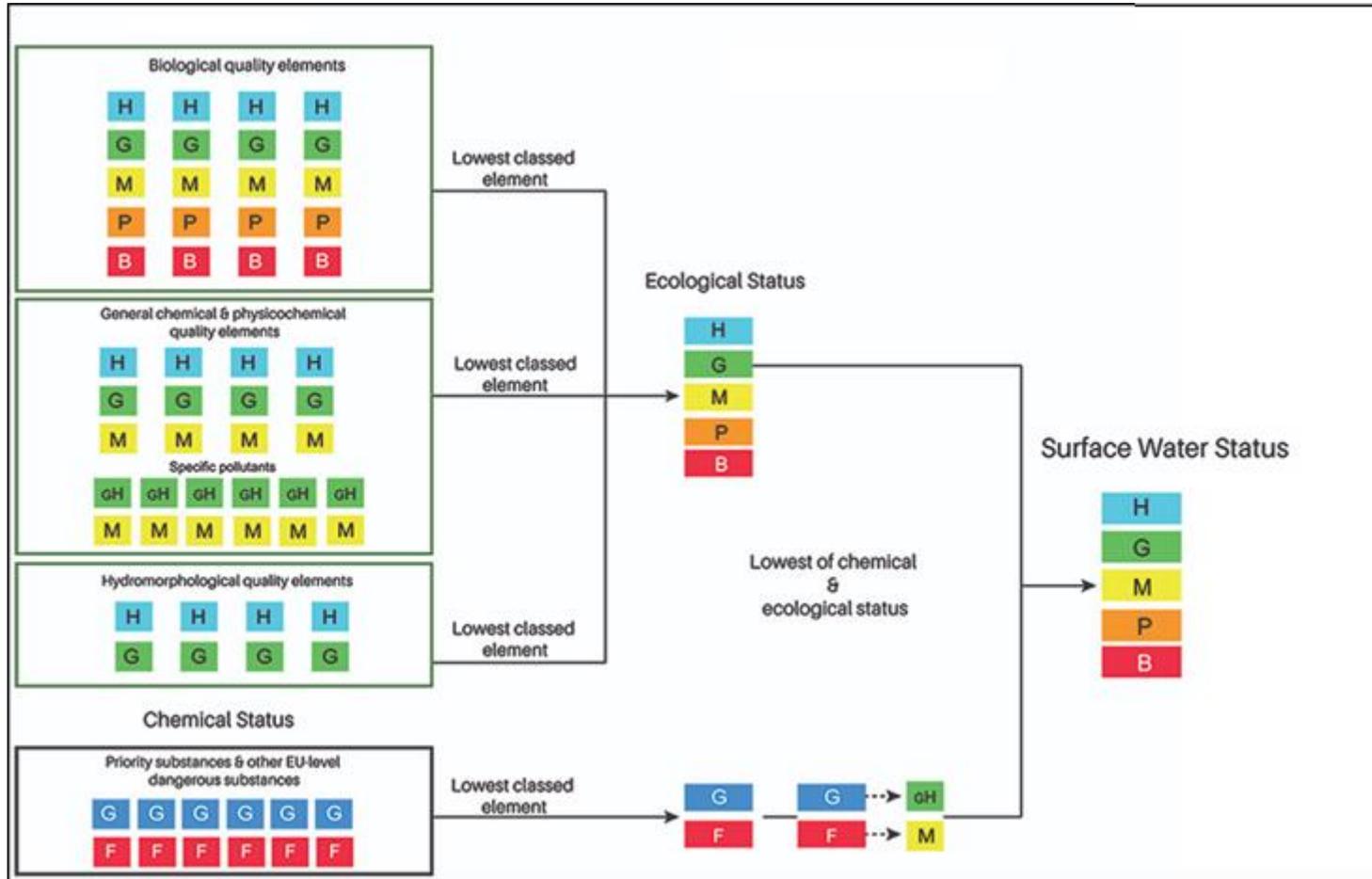


Figure 2. Schematic classification of the surface water status und the Water Framework Directive.

# Annex 3

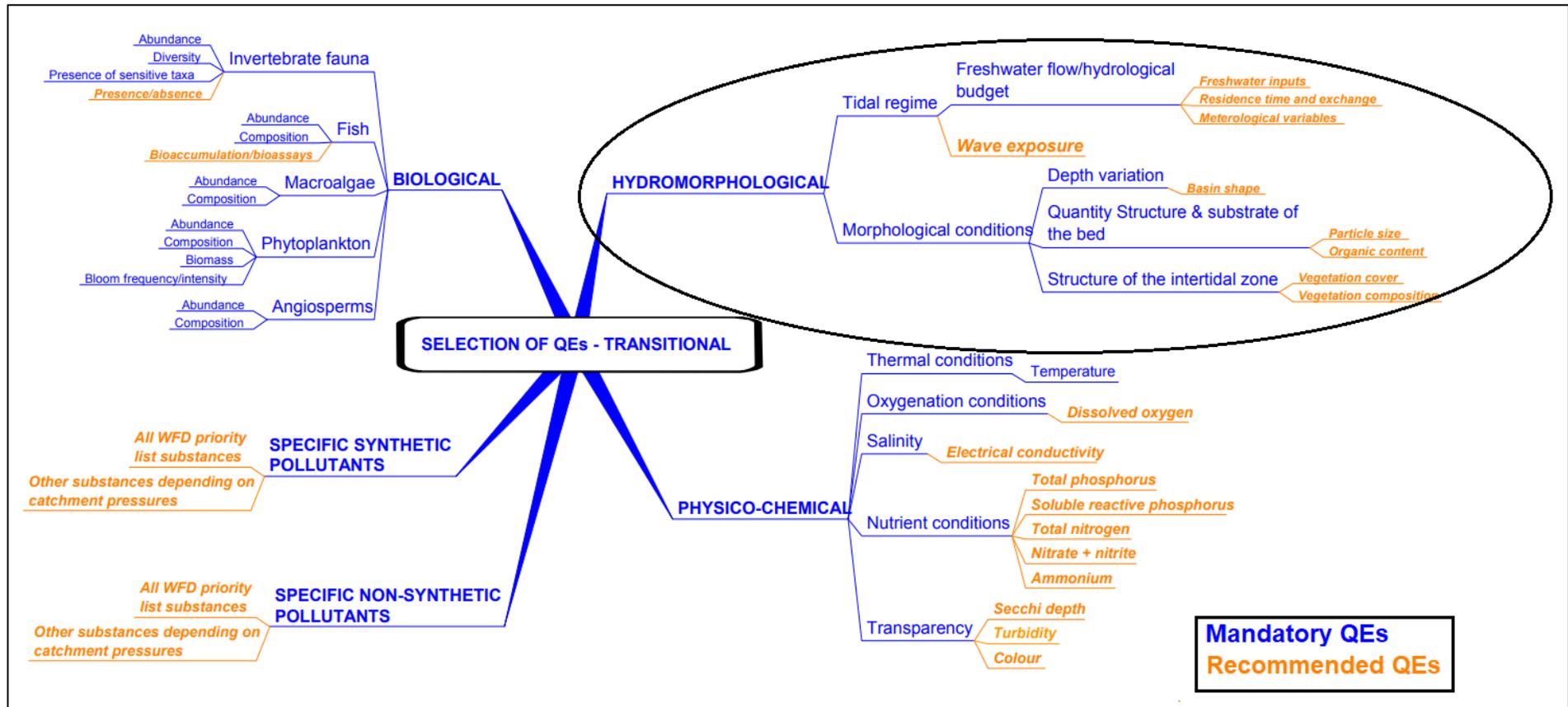


Figure 3. Mandatory and recommended Quality elements for transitional waters.

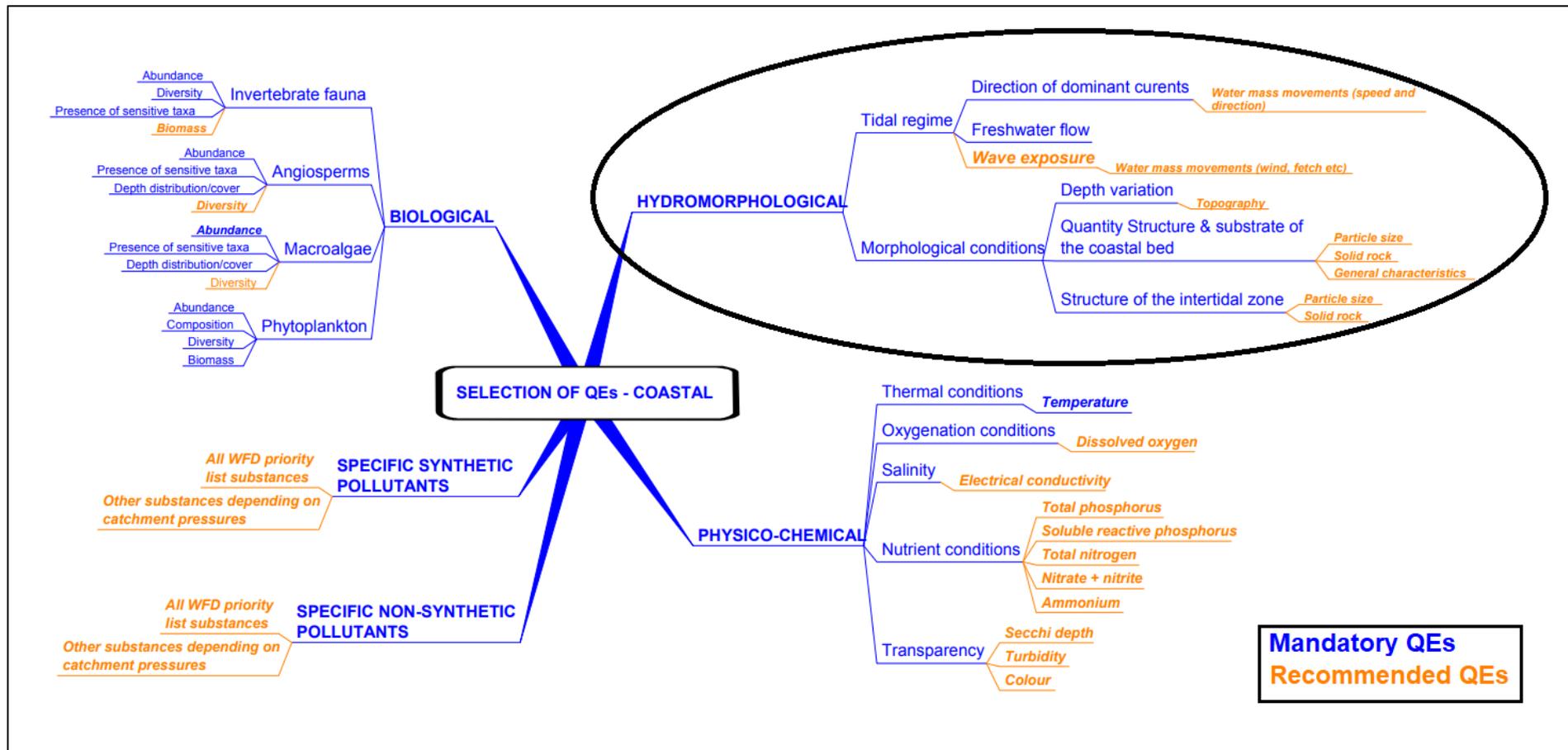


Figure 4. Mandatory and recommended Quality elements for coastal waters.

Use/activity	Nature of physical modification	Effect on hydromorphology	Ecological impacts
<b>Flood risk management</b>	Hard engineering protection e.g. concrete revetment, concrete and/or stone sea walls	Morphology: - intertidal zone and bed structure - bathymetry change	Changes to / loss of intertidal habitat (benthic communities: macroalgae, invertebrates, angiosperms)
<b>Coastal defence / erosion control</b>	Concrete sea walls, - groins, - sediment filling (artificial beach construction)	Morphology: -depth variation (i.e. loss of natural gradient) - loss of existing natural sediment - intertidal zone structure - sediment input and distribution  Hydrology: - obstructed freshwater inflow and distribution - formation of stagnant water bodies (e.g. trapped near groins)	Changes to / loss of intertidal and shallow inshore habitat (benthic communities: macroalgae, invertebrates, angiosperms)
<b>Barrier, barrage, impounding structure</b>	Sluice for water level management, channel constructions	Hydrology: - freshwater inflow, - salinization - sediment flow  Morphology: - changes of natural sediment accumulation and erosion patterns - bed structure and substrate changes - bathymetry changes (e.g. shallowing)	Loss of continuity for fish passage
<b>Navigation dredging</b>	Dredging for navigational safety	Morphology: - bed structure (e.g. bathymetry changes) - bed substrate  Hydrology: -water quality (e.g. turbidity)	Changes to seabed or intertidal habitat (benthic communities(invertebrates, angiosperms)

<b>Urban development</b>	Embankment, concrete revetment	<p>Morphology:</p> <ul style="list-style-type: none"> <li>- depth variation (i.e. loss of natural gradient)</li> <li>- loss of existing natural sediment</li> <li>- intertidal zone structure</li> <li>- bed structure</li> <li>- substrate</li> </ul> <p>Hydrology:</p> <ul style="list-style-type: none"> <li>- freshwater inflow and distribution</li> </ul>	Changes to / loss of intertidal habitat (benthic communities: macroalgae, invertebrates, angiosperms)
<b>Land claim, reclamation, realignment</b>	Embankment, concrete revetment, channels	<p>Morphology:</p> <ul style="list-style-type: none"> <li>- depth variation (i.e. loss of natural gradient) -</li> <li>- intertidal zone structure</li> <li>- bed structure</li> <li>- bed substrate</li> <li>-</li> </ul> <p>Hydrology:</p> <ul style="list-style-type: none"> <li>- freshwater inflow and distribution</li> <li>- current velocities</li> </ul>	Changes to / loss of intertidal habitat (benthic communities: macroalgae, invertebrates, angiosperms)
<b>Port and harbour infrastructure</b>	Non- or semi permeable protection structures (concrete, stone or synthetic)	<p>Morphology:</p> <ul style="list-style-type: none"> <li>- depth variation (i.e. loss of natural gradient)</li> <li>- intertidal zone structure</li> <li>- bed structure (e.g. bathymetry changes)</li> <li>- bed substrate</li> </ul> <p>Hydrology:</p> <ul style="list-style-type: none"> <li>-variation of currents and waves</li> <li>- water quality (e.g. turbidity)</li> </ul>	Changes to / loss of intertidal habitat (benthic communities: macroalgae, invertebrates, angiosperms)
<b>Aquaculture</b>	Anchored cages or floating structures (fish and shell fish farms)	<p>Morphology:</p> <ul style="list-style-type: none"> <li>- bed substrate</li> </ul> <p>Hydrology:</p> <ul style="list-style-type: none"> <li>-organic enrichment</li> <li>- water turbidity</li> </ul>	Changes to / loss of intertidal habitat (benthic communities: invertebrates, macroalgae, angiosperms)

<b>Seabed infrastructure (pipelines, cables, etc.)</b>	Laid and fixed pipes	Morphology: -bed structure and substrate (minor influence)  Hydrology: -temporary water turbidity - water quality in case of disasters	Changes to / loss of intertidal habitat (benthic communities: invertebrates, angiosperms)
<b>Shoreline infrastructure (outfalls, intakes, etc)</b>	Laid and fixed outlets	Morphology: - bed substrate  Hydrology: -organic enrichment - water turbidity - water temperature (e.g. in case of water intake and outfall for cooling systems)	Changes to / loss of intertidal habitat (benthic communities: macroalgae, invertebrates, angiosperms)
<b>Infrastructure supporting recreational use</b>	Delimitation net, embankment (gravel, sand), aqua park structures, artificial beaches, beach replenishment	Morphology: -from minor influence (net) to changes of intertidal zone structure and bed structure -bed substrate  Hydrology: - water quality - water turbidity	Changes to / loss of intertidal habitat (benthic communities: macroalgae, invertebrates, angiosperms)

Table 1. Effects on hydromorphology and ecological impacts due to typical human activities in transitional and coastal waters

## Annex 4



Figure 5. Location of Poti pilot area with indicated endpoints of HYMO monitoring coastline sections



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Coastline sections in Poti pilot area	Endpoint	Geographic position (WGS 84)		Endpoint	Geographic position (WGS 84)	
		Latitude	Longitude		Latitude	Longitude
HYMO I	H1	42,226096	41,634540	H2	42,212147	41,629275
HYMO II	H3	42,208743	41,628874	H4	42,185566	41,634300
HYMO III	H5	42,182564	41,636042	H6	42,160150	41,650384
HYMO IV	H6	42,160150	41,650384	H7	42,159907	41,645432
HYMO V	H8	42,149378	41,653406	H9	42,131968	41,660132
HYMO VI	H10	42,133194	41,663002	H11	42,090717	41,700899
HYMO VII	H11	42,090717	41,700899	H12	42,098001	41,710932
HYMO VIII	H12	42,098001	41,710932	H13	42,137568	41,693814

Table 2. Coordinates of the coastline section endpoints