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EUROPEAN DREDGING ASSOCIATION PAPER ON WATER FRAMEWORK DIRECTIVE AND DREDGING

This paper is intended for the public administrations of the European Commission and the Member States in charge of regulating and enforcing the Water Framework Directive (WaterFD). This paper's purpose is to demonstrate on one hand, that the compatibility of dredging activities with the WaterFD and on the other hand, that in order to achieve some of the WaterFD goals, dredging is needed.

Executive Summary

1. EuDA welcomes the EU Water Resilience Strategy that establishes a common vision for the coordinated and sustainable water management in Europe. Playing a central role in the recent Water Resilience Strategy, the **EU Water Framework Directive** (WaterFD) is a legislative framework aiming at **protecting** surface waters and groundwater by **preventing further deterioration** and **enhancing the quality status** of the water bodies.
2. **Dredging** is a **problem-solving** and **solution-oriented industry** that provides essential specialised construction and civil engineering services to many waterborne infrastructures (including critical infrastructures such as ports, waterways or offshore energy production platforms) as well as to vulnerable and exposed marine habitats.
3. Dredging activities can cause **permanent impacts** and/or **temporary perturbances** to the water bodies where they take place. Permanent impacts, positive or negative, are subject to authorisation procedures (e.g. WaterFD, EIA). Temporary perturbances (e.g. turbidity), by definition, do not lead to a permanent deterioration of the quality of the water body. Depending on the site specificities, temporary perturbances are also covered by authorisation procedures to minimise/ring-fence/confine temporary deterioration.
4. Because dredging is among their critica1 enabler, several critical infrastructure and environmental projects, such as water quality improvement, habitats restoration, maintenance of Natura 2000, flood protection, sediment remediation, port maintenance and expansion, …, are facing significant delays or even denials when the WaterFD is applied too rigidly.
5. In order to achieve some/part of the Green Deal's water-related objectives, EuDA recommends pursuing a **constructive dialogue** between the European and national administrations and the dredging sector to identify the relevant metrics and approaches to improve water status.
6. EuDA recommends **integrating natural processes** (physical or biological) into the **projects' design**, in a source to sea approach, in order to minimise negative externalities and maximise positive externalities.
7. Public procurement governance in the EU should be adapted to prioritise in effect sustainability-friendly awards over price-only decisions: to this end, Sustainable Public Procurement, Adaptive Management and Adaptive Monitoring should be mainstreamed in publicly procured European projects.

1. Background

1.1 Water and Marine Strategy Framework Directives

The Water and Marine Strategy Framework Directives are the cornerstones of Europe's water policy. They are built around the following concepts:

- River basin management (cross-border);
- Good Ecological Status (water quality);
- Good Environmental Status (including more impacts of human activities).

The main objectives of these European legislations are the protection of all waters (surface, ground) as well as the marine environment across Europe. To achieve these objectives, they used the so called "combined approach" of emission limit values and quality standards.

The EU Water Framework Directive (2000/60/EC) is based on the following principles

- the **precautionary principle**,
- the **preventive action principle**,
- the **principle of rectification at source of environmental damage**, and
- the **polluter pays principle**.

Under the WaterFD, Member States have the obligation to establish a *river basin management plan* and a *programme of measures* per river basin district (under their jurisdiction).

The Marine Strategy Framework Directive (2008/56/EC) aims at “filling the gaps” left by the Water Framework Directive: for instance, the geographical scale is not restricted anymore to the coastal waters. Moreover, MSFD broadens the scope of water quality assessment by enlarging the “Good Ecological Status” (mainly chemical assessment of the water quality) to the “Good Environmental Status” (**GES**), introducing the human activities impacts on water quality and ecosystems.

Compared to the Water Framework Directive, the Marine Framework Directive introduced :

- the selection and implementation of the Measures (Descriptors), their Monitoring and adaptive Management;
- the integration and further development of the Shipping activities;
- a clarification of the handling of contaminated/uncontaminated sediments.

1.2 Dredging Activities

Dredging involves specialised construction activities applying **civil engineering where land meets water** either horizontally (e.g. coasts, river banks) or vertically (e.g. seabeds or riverbeds). Dredging is a problem-solving and solution-oriented industry that provides essential services to many **waterborne infrastructures**, including critical infrastructures such as ports, waterways or offshore energy production platforms, as well as **protection to vulnerable marine habitats, exposed populations and economic assets**.

For the past 30 years, European dredgers have developed sustainable approaches (such as Building with Nature) that allow them to work with Nature’s physical and biological forces instead of fighting them. European dredging companies provide **innovative and long-lasting solutions to infrastructures for waterborne navigation or offshore energy**

exploitation on otherwise unsolvable problems: such as defences against sea level rise, floods and storms, such as port capacity expansion in urbanised and populated areas, such as coastal erosion or sediment accretion in navigation channels.

Mega-Beach Nourishment

Dredgers can implement Nature-based Solutions for coastal protection and Nature development

Delft Sand Engine (The Netherlands)

Controlled Flood Area

Dredgers can implement Nature-based Solutions for effective flood protection.

Tielrodebroek Floodplain, Hamme (Belgium)

In this background overview, it is also important to highlight the relevance of waterborne transport infrastructure in the context Europe's decarbonisation objective. Shipping is more GHG efficient than other transport modes, such as road and aviation, but shipping is dependent on modern and properly maintained waterborne infrastructures. Moreover, in the current geopolitical context, ports and offshore windfarms have become crucial components of the EU's Open Strategic Autonomy.

2. Compatibility of Dredging Activities and the WaterFD

There is no provision in the WaterFD that forbids any specific industrial activities, including dredging. In fact, where an activity could affect the status of the water body, authorisation may depend on it fulfilling the strict conditions set out in Art. 4(7) of the WaterFD (including steps and measures to mitigate the adverse impact).

2.1 Sediment Management

Where human activities interfere with sediments' quantity or quality, **sediment management** becomes necessary.

Sediments are key components of aquatic ecosystems (host for all categories of aquatic species[1]). In addition, sediments provide important ecosystem services (see Annex IV), such as balancing riverine and coastline morphology, contributing to the connection between surface water and groundwater, increasing soil fertility, contributing to natural water purification, mitigating the negative effects of extreme flow events, etc.

Human activities in the river basin can affect these natural processes and may create unbalances due to a deficit or surplus of sediments, which can compromise the integrity of aquatic systems and can affect the multiplicity of ecosystem services provided by them.

In 2019, the EU Water Directors recognised that the proper management of sediments is important to reach the environmental objectives of the Water Framework Directive (**WaterFD**), as well as of other EU Green Deal policies. A guidance, the *EU Water Framework Directive Guidelines on Integrated Sediment Management and Good Practices*[2], was developed with a common understanding of the management of sediment in the context of the WaterFD and the relevant good practices.

Considering their natural dynamics and interactions with many uses in a river basin, sediments need to be addressed at the appropriate scale and in an integrated way. To achieve this, it is recommended to apply the concept of "**integrated sediment management planning**", which is defined in the context of the above-mentioned guidance as an approach (source to sea) that recognises the system scale at which sediment-related processes operate, and aligns these, in a consistent way with the objectives of environmental policies as well as those stemming from socio-economic activities (e.g. navigation, flood risk mitigation, hydropower production, irrigation).

2.2 Dredging in Sediment Management Programmes

Dredging activities are an integral part of integrated sediment management programmes because they can deliver and maintain positive and permanent impacts on the water bodies'

[1] Some aquatic and riparian plants use sediments as a substrate, some fish use sediments as spawning sites, and different benthic organisms use sediments as their habitat.

[2] https://environment.ec.europa.eu/system/files/2022-09/CISdocumentsedimentfinalTO_BE_PUBLISHED_1430554724.pdf

quality. However, dredging projects can also negatively and permanently affect the water bodies' quality.

In fact, dredging activities can cause **permanent impacts** on and/or **temporary perturbances** to the water body. Permanent impacts, positive or negative, are subject to authorisation procedures (e.g. WaterFD, Environmental Impact Assessment). Temporary perturbances (e.g. turbidity), by definition, do not lead to a permanent deterioration of the quality of the water body. Depending on the site specificities, temporary perturbances are also covered by authorisation procedures to minimise/ring-fence/confine temporary deterioration.

The key question is whether the deterioration of the water quality is effectively temporary and acceptable (e.g. sufficiently counterweighted by the long-term contribution to the environment and long-term added-value for society).

2.3 Permanent Impacts

Permanent impacts from dredging activities on the water bodies usually result from capital dredging projects, such as the deepening or broadening of waterborne navigation infrastructures, the building of coastal and flood defences, the restoration of Blue Carbon habitats, seabed or riverbed remediation.

Water Quality Improvement

Dredgers can eliminate stagnation zones and reactivate the renewal of a lake's waters in an adequate time period and reinstate a good physico-chemical quality of the waters.

Lac Sud in Tunis, Tunisia

These projects and associated activities, that cause permanent positive and/or negative impacts to the water bodies' quality, are subject to thorough authorisation procedures by the responsible local and national authorities under the WaterFD as well as under other relevant European legislation such as the Environmental Impact Assessment (EIA). Decision-making in these procedures take into account the overall costs and benefits for society and the environment.

*Dir. 2000/60/EC Art. 4 7 Member States will not be in breach of this Directive when: […] (c) the reasons for those modifications or alterations are of **overriding public interest** and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development, […]*

2.4 Temporary Perturbances

Temporary perturbances from dredging activities usually occur during operations (e.g. turbidity) and, from experience, these perturbances tend to disappear without lasting adverse effect shortly after the dredging works have been completed. Nevertheless, as confirmed by the recent judgement (C-525/20) by the European Court of Justice (ECJ), activities having temporary, short-term impacts which are without lasting consequences, have to be taken into account in the authorisation procedure:

> *22/05/2023 ECJ judgement:*
> *"Article 4 of Directive 2000/60/EC […] must be interpreted as* ***requiring Member States****, […]* ***to take into account temporary, short-term impacts which are without lasting consequences****, unless it is clear that such impacts have, by their nature, little effect on the status of the bodies of water concerned and cannot lead to a 'deterioration' of that status, within the meaning of that provision. […] that programme or project may be authorised only if the conditions set out in Article 4(7) of that directive are met, even if the deterioration is temporary in nature."*

NB: the ***deterioration of status****, mentioned in the above ECJ ruling, has a specific meaning in the WaterFD related to any downward change in the status class of one or more quality elements (or supporting elements). In some site-specific situations, where the water bodies are already close to a status class boundary, it is very easy to deteriorate. Indeed, with the principle of "one-out, all-out" used for defining the water status, any increase of turbidity could be sufficient to infer a deterioration of the status of entire water body, even though it would only be temporary.*

3. Possible Pitfalls

As it appears, most Member States will not achieve their objectives under the WaterFD (good status by 2027). This situation, combined with the above-mentioned ECJ judgement (C-525/20) and WaterFD principles, has led some Member States, such as The Netherlands, to reconsider their national Water policy and implementation of the WaterFD. Amongst other, the Dutch administration is considering that no deterioration, even temporary, should be authorised anymore. This overly strict interpretation could lead to unduly forbidding certain activities, such as dredging, that cause temporary deterioration without lasting consequences. By forbidding dredging activities, all the solutions offered by the dredging activities to add value to the environment (e.g. Nature-based Solutions, habitat restoration, flood and storm protection, riparian and coastal protection) would also be forbidden as a consequence.

Because dredging is among their critica1 enabler, several critical infrastructure and environmental projects, such as nature restoration, maintenance of Natura 2000 projects, flood protection, sediment remediation, port maintenance and expansion, water quality improvement, …, are facing significant delays or even denials when the WaterFD is applied too rigidly.

A too strict implementation of the WaterFD, e.g. forbidding temporary disturbances during dredging operations, may prove counter-productive with and undermine long-term goals of the WaterFD, such as :

Long-term ecological benefits
(habitats restoration, including blue carbon, maintenance of Natura 2000)
Initiatives like the Marker Wadden (NL) use dredged material to create habitats and Natura 2000 projects need to be maintained.
Dredgers can re-use locally dredged material to build islands and make suitable habitats for birds, aquatic plants and fish (e.g. mangrove island in Guayaquil, Ecuador; bird islands for the Szczecin-Świnoujście fairway, Poland).

Climate adaptation efforts
(flood and storm protection infrastructure)
Controlled flood zones (e.g., Tielrodebroek, BE) require dredging to function.

Water Quality Improvements
(sediment remediation, elimination of stagnation zones)
Cleaning contaminated riverbeds improves water quality but may cause short-term disruption.
Dredgers can eliminate stagnation zones and reactivate the renewal of a lake's waters, e.g. Tunis South Lake in Tunisia, in an adequate time period and reinstate a good physico-chemical quality of the waters.

Moreover, a too strict implementation of the WaterFD, e.g. forbidding temporary disturbances during dredging operations, may also undermine the long-term goals of other EU key policies, such as :

Safety and Strategic Autonomy
(maintenance and expansion of ports, inland waterways)
Maintaining and deepening navigation channels in major ports (e.g., Rotterdam, Antwerp, Hamburg) is essential for safety as well as for international trade and Europe's Strategic Autonomy.

In effect, this policy approach would reduce the range of possible solutions needed to enhance the quality status of the water bodies and to progress on the WaterFD objectives. Ultimately, this approach would also **limit the possible progress towards good status**.

At the recent Trilogue on the WaterFD (23/09/2025), the European Institutions agreed that the concept of deterioration should be clearly defined and that **exemptions should be considered for temporary deteriorations**. These exemptions should hopefully clarify the situation and allow dredging operations within properly framed conditions.

4. Way Forward

EuDA recommends pursuing the **constructive dialogue** between national and European administrations and the dredging stakeholders (as well as waterborne transport infrastructure owners) to identify the relevant metrics and effective approaches to maintain or even improve water quality.

4.1 Permanent Impacts

Regarding permanent impacts, EuDA recommends **integrating natural processes** (physical or biological) into the projects' design, in order to minimise negative externalities and maximise positive externalities. In other words, this means maintain as much as possible or improve the existing ecosystem services provided by the water body.

Green-Grey Infrastructure and Blue Carbon Habitats Restoration

Dredgers can build a mangrove island, blue carbon sink, by using locally dredged material (from the access channel).

Guayaquil access channel in Ecuador

4.2 Temporary Perturbances

In most cases, the temporary perturbances caused by dredging activities concern the temporary increase of turbidity and the removal of the biota contained in the dredged sediments.

Turbidity

Turbidity is a phenomenon occurring naturally in many estuaries and intertidal areas (due to e.g. tidal activity or storms) that can cause temporary, short-term impacts which are without lasting consequences.

Example of Naturally Occurring Turbidity

There is a natural transition of suspended sediment occurring between the Strait of Dover and the Dutch coast. This arrival of sediments is feeding the Waddenzee ecosystem and strengthens the protection of the coast against sea level rise. Indeed, these sediments, composed of a mixture of fine minerals (silt and clay), microorganisms, algae and nutrients, create maintain nutrient-rich soils and mudflats.

This situation creates a persistent natural turbidity zone in the seawater with high suspended matter concentrations on average only 1.5 km from the Dutch coast. However, the observation of the suspended sediment concentrations shows significant variations over time, due to tides, waves as well as seasonal biological activities. For instance, storms tend to resuspend the sediments and lead to concentrations exceeding 1000 mg/l.

As illustrated in the example above, turbidity levels are site specific and result from local hydrodynamics, sediments and biology conditions. The natural variations of turbidity levels are generally much higher and widespread than the permit requirements for dredging activities. The duration of the natural turbidity can also last longer than turbidity caused by dredging works. In such cases, the impacts of **dredging activities** would have little effect on the status of the concerned water bodies and **would not lead to a deterioration of that status**.

From the experience in most of the other cases, dredging-generated turbidity would cause temporary, short-term impacts, with no lasting consequences. Measures relative to sediments quantity and relative geographic spread, relative to hydrological conditions could be considered to mitigate adverse impacts and reduce the time to return to 'normality' (only natural levels of turbidity). If it is provided that these mitigation measures reduce the effect to no effect on status class, there would be no need to apply Article 4(7).

Impacts on Biodiversity

Dredging activities are often required to keep the sediments in the river or estuary system to preserve its functionalities and related ecosystem services.

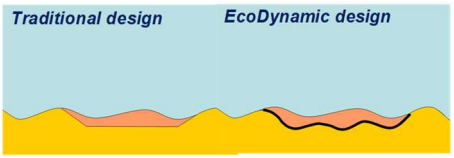
Where the sediments are abstracted, around 10% of the **biota** remains on site. However, depending on sites specificities, the biota, although partially reduced, is mostly alive in the dredged sediments and is usually relocated within the same system or ecoregion.

Creating a New Habitat with re-use of dredged Sediments

Dredgers re-use locally dredged material to build islands and make suitable habitats for birds, aquatic plants and fish.

Fairway between the Ports of Szczecin and Świnoujście, Poland

Moreover, dredgers have developed techniques (such as wavy sea bottoms) that allow a faster recolonisation (and restoration) at the extraction site by the remaining populations.



The wavy structure variates the **levels of biota oxygenation** and thereby keeps diverse populations alive after the abstraction.

Australia requires a full clean-up and sanitisation of the ships' hulls (inside and outside) to avoid any contamination by alien species.

Finally, dredging activities are necessary to maintain the hydrological conditions for the preservation of Nature 2000 sites situated in estuaries.

Improving Water Quality and Creating a New Habitat

Dredgers re-use local fine sediments to build and restore habitats for birds, aquatic plants and fish.

Marker Wadden, Lake Markermeer, The Netherlands

4.3 Evolution towards Sustainability-and Innovation-friendly Governance

In many cases, capital dredging projects are publicly procured. Therefore, EU public procurement regulations should be revised in order to mainstream sustainable public procurement: amongst others, **the public procurement governance should be adapted to prioritise in effect sustainability-friendly awards over price-only decisions**.

EuDA recommends that public governance should also be reviewed so that **Adaptive Management** and **Adaptive Monitoring** are fully mainstreamed and become the norm in all publicly procured sustainable projects.

Environmental Monitoring

Clear and unambiguous parameters (such as suspended solids concentrations, dissolved oxygen, salinity and temperature) are key for the monitoring of water quality and can ensure that dredging and reclamation activities are effectively controlled, by determining natural variability and confirming that any increases in these levels remain within predicted limits.

London Gateway Port, UK (2008 – 2014)

Adaptive Management and Adaptive Monitoring provide the governance tools necessary to initiate innovative solutions and approaches within controlled limits and build the missing knowledge.

It is important to note that the European Commission considers that Adaptive Management is a form of the precautionary principle. This precautionary approach has the advantage to allow activities to be undertaken under strict conditions (monitoring and project management review that can stop the project if necessary), rather than stop them without even trying (and without learning). This type of approach is particularly suitable for innovative solutions: (authorised) adaptively managed projects have allowed dredgers to build knowledge and experience, to improve processes and technology, and to provide more effective, innovative and nature-friendly solutions (e.g. Nature-based Solutions).

NB: Adaptive Monitoring is a complementary instrument to Adaptive Management. To fit its purpose, monitoring may require new or adapted measurements.

Annex I:
EU Water Resilience Strategy

On 04/06/2025, the Commission adopted the **European Water Resilience Strategy** aiming at restoring and protecting the water cycle, securing clean and affordable water for all and creating a sustainable, resilient, smart and competitive water-economy in Europe. EuDA welcomes the EU Water Resilience Strategy that establishes a common vision that will better coordinate and integrate water related EU legislations, policies and actions and effectively implement sustainable water management in Europe.
The Strategy identified the following **3 key objectives**:

1. **restore and protect the water cycle**,
   from source to sea, targeting effective implementation of existing EU framework for freshwater, including the Water Framework Directive and the Flood Management Directive, focusing on both water quantity and water quality;
2. build a **water-smart economy**
   including improving water efficiency and promoting sustainable water management;
3. secure **clean and affordable water and sanitation for all**
   essential to save water at home or at work.

To achieve the Strategy's objectives and support Member States, citizens, local authorities, businesses and civil society, the Commission is proposing over 30 flagship actions in **5 enabling areas**.

1. Governance and implementation
   To accelerate implementation of the EU water acquis, Structured Dialogues will be organised with all Member States as well as regular exchanges with regions, cities and water authorities to promote best practices, identify implementation challenges and enforcement priorities, encourage cross-border water cooperation, and simplify and streamline EU rules where possible.
2. Investments
   To ensure adequate financing and mobilise both public and private investment, the Commission will increase available cohesion policy funds for water and adopt a roadmap for nature credits. The European Investment Bank will also launch a new Water Programme and Sustainable Water Advisory Facility, in cooperation with the Commission, and make over €15 billion in planned financing available during 2025-2027. Private investment plays a key role to strengthen water resilience, and needs to be significantly stepped up.
3. Accelerating digitalisation and AI
   An EU-wide Action Plan on digitalisation in the water will unleash all the benefits of digitalisation, including Artificial Intelligence, in water management and sustainable water use. Smart digital metering offers significant potential to improve leak detections and satellite data can help with forecasting for example.
4. Boosting research and innovation
   Investment in research and innovation, industry and skills to strengthen the competitiveness of the water sector. Putting people at the heart of change, the

Commission will launch a Water Resilience R&I strategy and a European Water Academy among other actions.

5. Security and preparedness

   Finally, collective water resilience requires security and preparedness. The Commission will enhance EU real-time early warning and monitoring systems for floods and droughts with strengthened links between the European, national and local levels.

Annex II:
European Ocean Pact

On 05/06/2025, the Commission adopted the **European Ocean Pact**, which is a comprehensive strategy to better protect the ocean, promote a thriving blue economy and support the well-being of people living in coastal areas. The Pact brings together EU ocean policies under one single reference framework, addressing the significant threats facing our ocean, our coastal communities, islands and outermost regions.

The European Ocean Pact focuses on six priorities:

1. Protecting and restoring **ocean health**
   revise the Maritime Strategy Framework Directive and the Maritime Spatial Planning Directive
2. Boosting the **competitiveness of the EU sustainable blue economy**
   establish an Industrial Maritime Strategy and an EU Ports Strategy, revise the Common Fisheries Policy, Blue Generational Renewal Strategy, create European blue carbon reserves.
3. Supporting **coastal, island communities and outermost regions**
   establish a dedicated strategy for the development and resilience of EU coastal communities.
4. Advancing **ocean research, knowledge, skills and innovation**
   EU Ocean Observation Initiative, Ocean Research and Innovation Strategy, European Digital Twin of the Ocean, EU Ocean Youth Ambassador Network.
5. Enhancing **maritime security and defence**
   EU coast guard and naval cooperation and maritime border security, European (maritime) drone fleet, including the protection of energy, transport and communication infrastructure from intentional harm.
6. Strengthening **EU Ocean diplomacy and international ocean governance**
   Fight against illegal, unreported and unregulated fishing, European ocean diplomacy, Biodiversity Beyond National Jurisdiction Agreement, Plastics Treaty and three new vast marine protected areas in the Southern Ocean.

Annex III:
Water Quality Definitions in the WaterFD

In its Art. 4. **Environmental Objectives**, the Water Framework Directive (2000/60/EC) foresees under Art. 4(1) that:

"*Member States shall implement the necessary measures to **prevent deterioration of the status of all bodies of surface water**, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8.*"

In its Art. 2. Definitions, the Water Framework Directive (2000/60/EC) lists, amongst other the following definitions:

- *'*Surface water status*' is the general expression of the status of a body of surface water, determined by the poorer of its ecological status and its chemical status.*
- *'*Good surface water status*' means the status achieved by a surface water body when both its ecological status and its chemical status are at least 'good'.*

- *'***Ecological** status*' is an expression of the quality of the structure and functioning of aquatic ecosystems associated with surface waters, classified in accordance with Annex V.*
- *'*Good ecological status*' is the status of a body of surface water, so classified in accordance with Annex V.*
- *'*Good ecological potential*' is the status of a heavily modified or an artificial body of water, so classified in accordance with the relevant provisions of Annex V.*

- *'*Good surface water **chemical** status*' means the chemical status required to meet the environmental objectives for surface waters established in Article 4(1)(a), that is the chemical status achieved by a body of surface water in which concentrations of pollutants do not exceed the environmental quality standards established in Annex IX and under Article 16(7), and under other relevant Community legislation setting environmental quality standards at Community level*

- *'*Environmental **quality standard***' means the concentration of a particular pollutant or group of pollutants in water, sediment or biota which should not be exceeded in order to protect human health and the environment.*

Annex VI:
Ecosystem Services

'**Ecosystem services**' (ES) are the benefits that people derive from functioning ecosystems whose ecological characteristics, functions, or processes directly or indirectly contribute to human wellbeing.

Based on / adapted from Costanza et al., 1997; Millennium Ecosystem Assessment (MEA), 2005

There are four **main types of ecosystem services**: provisioning, regulating, cultural and supporting services.

	Main service types
	PROVISIONING SERVICES
1	**Food** (e.g. fish, game, fruit)
2	**Water** (e.g. for drinking, irrigation, cooling)
3	**Raw Materials** (e.g. fiber, timber, fuel wood, fodder, fertilizer)
4	**Genetic resources** (e.g. for crop-improvement and medicinal purposes)
5	**Medicinal resources** (e.g. biochemical products, models & test-organisms)
6	**Ornamental resources** (e.g. artisan work, décorative plants, pet animals, fashion)
	REGULATING SERVICES
7	**Air quality regulation** (e.g. capturing (fine)dust, chemicals, etc)
8	**Climate regulation** (incl. C-sequestration, influence of vegetation on rainfall, etc.)
9	**Moderation of extreme events** (eg. storm protection and flood prevention)
10	**Regulation of water flows** (e.g. natural drainage, irrigation and drought prevention)
11	**Waste treatment** (especially water purification)
12	**Erosion prevention**
13	**Maintenance of soil fertility** (incl. soil formation)
14	**Pollination**
15	**Biological control** (e.g. seed dispersal, pest and disease control)
	HABITAT SERVICES
16	**Maintenance of life cycles of migratory species** (incl. nursery service)
17	**Maintenance of genetic diversity** (especially in gene pool protection)
	CULTURAL & AMENITY SERVICES
18	**Aesthetic information**
19	**Opportunities for recreation & tourism**
20	**Inspiration for culture, art and design**
21	**Spiritual experience**
22	**Information for cognitive development**

Source: based on/adapted (mainly) from Costanza et al. (1997), De Groot et al. (2002), MA (2005a), Daily, Ehrlich, Mooney, et al. (2008).

EuDA

The European Dredging Association ("EuDA"), which celebrated its 30th Anniversary in 2023, was founded in 1993 as a non-profit industry organisation for European dredging companies and related organisations to interface with the various European Union's Institutions, including the European Parliament. EuDA is registered in the EU transparency register as Interest Representative Nr. 2492574893-58.

Dredging activities are not well known by the wider public, but as a matter of fact, the European dredging companies, members of EuDA, are world market leaders with about 80% share of the (open) world dredging market and a turnover of 14.6 bn Euro in 2024. Although 70% of operations take place outside Europe, 90% of the returns flow back to Europe. EuDA members employ approximately 30,000 European employees directly "on board of the ships and on land" and more than 60,000 people indirectly (through the suppliers and services companies). The combined fleet of EuDA's members counts approximately 750 seaworthy EU flagged ships.

The Association assists its members with all kinds of requests related to dredging issues, presently strongly focusing on Social, Environmental, Technical, Tax and Trade issues. These issues are coordinated by the Secretariat and executed by its specialised working groups composed of experts from the member companies.

The Association will pursue its goals by endorsing policies to create fair and equitable conditions for competition; commits to respecting applicable national, European and international rules and regulations; commits to operating its fleet safely, effectively and responsibly.