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CROSS BORDER MARITIME SPATIAL PLANNING FOR BLACK SEA – BULGARIA AND ROMANIA

MARSPLAN-BS II

GRANT AGREEMENT: EASME/EMFF/2018/1.2.1.5/01/S12.806725 - MARSPLAN-BS II

SYNTHESIS REPORT ON MARITIME USES, LAND-SEA INTERACTIONS AND MULTI-USES IN A TRANSBOUNDARY CONTEXT

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SYNTHESIS REPORT ON MARITIME USES

WP1, Activity 1.1, Sub-activity 1.1.1

- ▶ Introduction: defining the working framework
- ▶ Geographical scope of Black Sea MARSPLAN-BS (Bulgaria and Romania)
- ▶ Legal framework, governance structure and stage of MSP process
- ▶ Marine environmental status and natural/anthropogenic pressures
- ▶ Main maritime activities: trends and planning issues
- ▶ Findings from case studies: gaps of knowledge and lessons learned
- ▶ Summary of the main conclusions and transboundary issues
- ▶ Experience gained and recommendations for further MSP





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INTRODUCTION: DEFINING THE WORKING FRAMEWORK

Capitalizing results obtained in the first MARSPLAN-BS Project, the Synthesis Report is aimed:

- to summarize and synthesize all information and existing knowledge available so far for the maritime space of Bulgaria and Romania (based on detailed study and case studies results)
- to identify critical planning issues, as well as data and knowledge gaps
- to set the state of knowledge in order to frame and support the subsequent implementing of the MSP process in the Black Sea Basin.



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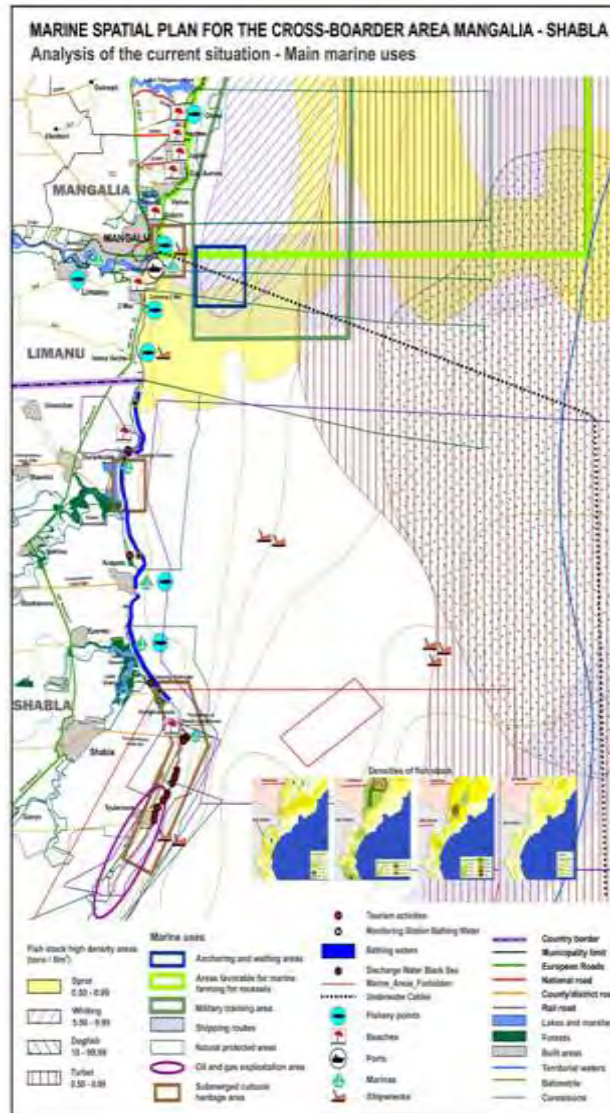
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GEOGRAPHICAL SCOPE OF BLACK SEA MARSPLAN-BS AREA



Map produced by CCMS

- ▶ MSP methodology was applied to the territorial sea zone of Romania and Bulgaria (12 nm, 22.2 km), and the coastal cross-border area including the basic administrative units (NUTS 4 in Romania and municipalities in Bulgaria) neighboring the shoreline.
- ▶ The draft planning area was located at the border between Romania and Bulgaria, its delimitation took into consideration two types of zones: territorial waters (the management area), incl. adjacent coastal area, and EEZ (the extended analysis area for the study of interactions).
- ▶ The coastal area included the municipalities Mangalia and Limanu (in Romania) and Shabla (in Bulgaria). The management area is 1 093 389 km², from which the Romanian area is 417 084 km² and the Bulgarian part is 672 93 km².



LEGAL FRAMEWORK, GOVERNANCE STRUCTURE AND STAGE OF MSP PROCESS

- ✓ **The MSP development has been started and the Directive 2014/89/EU was transposed in both countries national legislations:**
 - **In Romania** by) Government Ordinance no. 18/2016 on the maritime spatial planning; and b) Law no. 88/2017 related to the approval of the Government Ordinance no. 18/2016 on the maritime spatial planning.
 - **In Bulgaria** by an Amendment of the Law on Maritime Spaces, Inland Waterways and Ports of the Republic of Bulgaria, State Gazette No 28/29.03.2018.
- ✓ **Designated National Competent Authorities:** **Ministry of Regional Development and Public Works (BG)** and **Ministry of Regional Development and Public Administration (RO)**.
- ✓ **Started procedures on national MSP development and stakeholder consultations.**



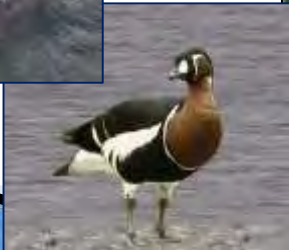
MARINE ENVIRONMENTAL STATUS

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WP1, Activity 1.1, Sub-activity 1.1.1

- ▶ Environmental protection (*Nationally designated protected areas and Natura 2000, SCI & SPA*)
- ▶ Marine habitats and biodiversity
- ▶ Marine mammals
- ▶ Birds
- ▶ Invasive species
- ▶ Fish (species, distribution, population, trends)
- ▶ Spawning ground and nursery
- ▶ Shellfish (species, distribution, abundance, trends)
- ▶ Algae and marine plants



Source: www.marsplan.ro



Photos credits: Hristo Stanchev

Country	Natura 2000 sites - coastal and marine (number)	Coastal protected areas (CPAs) (%)	Marine protected areas (MPAs) (%)
Bulgaria	34	80	7.8
Romania	13	90	22.0



NATURAL AND ANTHROPOGENIC PRESSURE

- ✓ **CPAs/MPAs challenges:** climate change and SLR, coastal erosion, lack of approved and operational management plans, mass tourism; lack of sewage systems and degradation of water quality in peak seasons; trawling;
- ✓ **Habitat loss** from the development of coastal infrastructures, dredging and anchoring as well as from water pollution and high eutrophication;
- ✓ **Physical damages to bottom substrates** caused by commercial fishing with active pelagic or demersal fishing gears or fishing with bottom gear leads to abrasion of the seabed;
- ✓ **Seabirds:** climate change, forestry destroy; coastal construction and development; agricultural intensification/pesticide use/drainage; erection of power lines and associated infrastructure; tourism and urbanisation; oil and chemical pollution; solid waste dumping; water contamination; entrapment in sewage; wind turbines, etc.;
- ✓ **Main threats for the Black Sea fishes:** pollution from land based sources (rivers) and direct discharges (inshore area), eutrophication, illegal fishing/overfishing, use of destructive harvest techniques, also loss of valuable spawning and nursery habitats in rivers and lagoons; modification in river flow regimes, etc.;
- ✓ **Impacts on algae and plants:** water pollution, destruction of the plants as a result of fishing, anchoring of boats and construction activities in the ports.



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Main Maritime Activities: Trends and Planning Issues

Main maritime activities/sectors		
Activities/Sectors	Bulgaria	Romania
Fishing and Aquaculture	<i>Development of fishing and aquaculture</i>	<i>Development of fishing and limited yet aquaculture development</i>
Extraction of non-living resources (oil and gas, incl. infrastructure, salt, water, etc.)	<i>Oil and gas exploitation, salt and water extraction: all these human activities require MSP to achieve environmental protection and sustainable development of the sector.</i>	<i>Oil and gas exploitation, activity requires MSP to achieve environmental protection and sustainable development of the sector.</i>
Maritime transport (infrastructure, shipping, ship building, shipyard, etc.)	<i>The sector has high socio-economic importance as it development affects other sectors as fishing and tourism.</i>	<i>The sector has high socio-economic importance as it development affects other sectors as fishing and tourism.</i>
Submarine cables and pipelines	<i>Bulgaria benefits from the advantages of geographical location on important gas transmission corridors and there are studies and explorations on gas fields.</i>	<i>Romania benefits from the advantages of geographical location on important gas transmission corridors and access to major gas resources recently discovered in the Black Sea.</i>
Tourism (coastal and marine)	<i>Coastal tourism, mostly mass beach tourism, is prevailing branch; marine tourism, including yachting and recreational boating, is still limited, but expected to grow.</i>	<i>Coastal tourism is more developed (including Danube Delta area) than marine, which is represented only by yachting and recreational boating, still limited,</i>
Coastal defence/flood protection	<i>High number of coastal defence and flood protection structures (mainly groins, dikes and seawalls), few cases of beach nourishment.</i>	<i>High number of coastal defence and flood protection structures (mainly groins, breakwaters and seawalls), including beach nourishment.</i>
Dredging and dumping	<i>Dredging and dumping are practiced to maintain port areas and navigational canals functional.</i>	<i>Dredging and dumping are practiced to maintain port areas and navigational canals functional.</i>
Underwater Cultural Heritage	<i>Numerous UCH remains/ shipwrecks and their protection should be part of national MSP.</i>	<i>Numerous UCH remains/ shipwrecks and their protection should be part of national MSP.</i>
Military trainings	<i>Zones of military trainings and warnings are publicly announced before the trainings; however data on military trainings in maritime areas are not fully publicly available.</i>	<i>Zones of military training activities comprise the whole maritime space, but specifically zones and warnings are publicly announced before; Data/information on military trainings in maritime areas are not fully publicly available.</i>



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FISHERY AND AQUACULTURE

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Map produced by CCMS
Data source: EAFA



Map produced by NIMRD

- ✓ Fishery is important at regional level, especially in coastal areas and settlements. In recent years, catches of fish marked a gradual decline due to the decline of fish stocks in the Black Sea.
- ✓ Recently Bulgaria has evolved rapidly marine aquaculture expressed in cultivating black mussels: mussel farms with collectors numbering 29. In Romania there is one private aquaculture farm.
- ✓ Main issues are related to conflicts between representatives of the fishing community and aquaculture operators, pollution of any type that can halt mining production and significant increase in the population of rapana.

Knowledge gaps

- No existing spatial database for fishing areas and catchment;
- Data for aquaculture areas are not in spatial formats.

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Extraction of non-living resources (oil and gas, incl. infrastructure, salt, water, etc.)

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- In Bulgaria oil is exploited in the area of Burgas (oil refinery) and Shabla (oil and gas extractions) and 4 natural gas fields. In Romanian continental shelf there are 16 oil and gas exploration perimeters.
- From centuries coastal lagoons are subject of salt production through solar evaporation of sea water: Pomoriysko and Atanasovsko Lakes, located in the area of Burgas Bay.
- Potential conflicts: oil spills, marine accidents, increasing pressure on environment.

Knowledge gaps

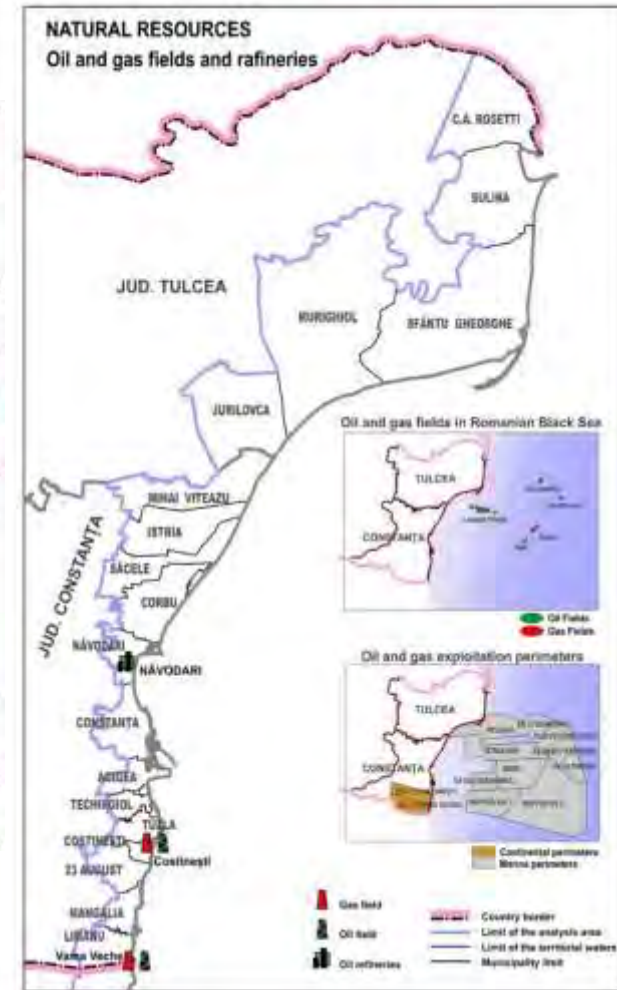
- No existing spatial database for extraction of non-living resources;
- Data for extraction of non-living resources are fragmented and in unfriendly formats.



Photo credits: CCMS



Source: www.marsplan.ro





MARITIME TRANSPORT (infrastructure, shipping, ship building, shipyard, etc.)

- Varna and Burgas Harbours
- Constanta and Mangalia Harbours
- Potential conflicts are related to environmental pressures, as well as limiting the development of other maritime sectors (e.g. tourism, fishing and aquaculture, "blue" energy) due to the existing territorial and structural solutions.

Knowledge gaps

- Lack of statistical information on the number, tonnage, type of ships visited Bulgarian ports – difficult to find;
- Lack of information on number of yachts visiting the ports;
- Vessel traffic data are not freely available;

	Port types	Number of ports
1	Ports for public transport with national importance	13
2	Ports for public transport with regional importance	9
3	Fishing ports	13
4	Yacht ports (marinas)	14
5	Ports of special purpose	11
	Total	61

Data source: *Executive Agency "Maritime administration"*, www.marad.bg

	Constanta	North	South	Total
Total area(Ha)		817	3109	3926
of which	land	495	818	1313
	water	322	2291	2613
Breakwater (m)		8344	5560	13904
Quay length (km)		15.5	14.6	30.1
Number of berths		82	74	156
Depth of basins (m)		7-14	7-19	





SUBMARINE CABLES AND PIPELINES



Map produced by CCMS

Several submarine cables pass through the Black Sea:

1. KAFOS: Mangalia (Romania) –Varna (Bulgaria)-Rumeli-Igneada (Turkey) – 504 km;
2. Caucasus Cable System: Balchik (Bulgaria) – Poti (Georgia) - 1,182 km km
3. Black Sea Fiber Optical Cable System (BSFOCS): Varna (Bulgaria) - Odessa (Ukraine) -Novorossiysk (Russia) is a 1,300 km (~ 335,4 km Bulgarian marine sector) submarine telecommunication, went into operation in September 2001 with a total capacity of 20 Gbit/sec along 2 fiber pairs.
4. ITUR: Italy - Turkey - Ukraine – Russia
5. Georgia-Russia

Installations increase noise, pollution, turbidity and physical disturbance to habitats: increase in suspended sediment concentrations and deposition, potential contaminant release from sediment, electromagnetic fields, etc.

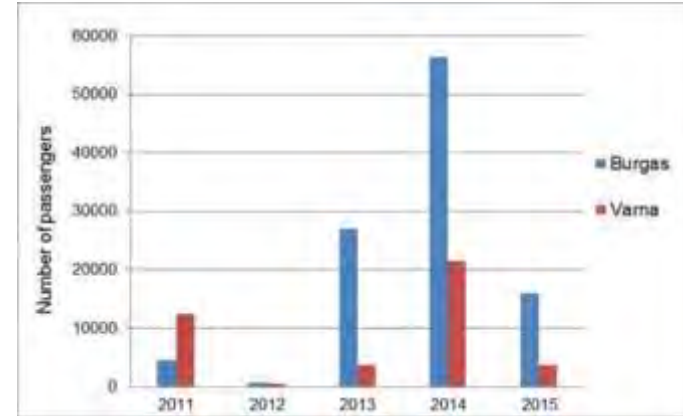


TOURISM (COASTAL AND MARINE)

- ✓ Almost 2/3 of tourist infrastructure in Bulgaria and number of tourists are concentrated in coastal areas, mostly beach and bathing tourism.
- ✓ In 2014 GVA from coastal tourism is 769.4 million Euro and the sector accommodated 109 519 people.
- ✓ Almost a half of the hotel accommodation capacity in Romania and approximately 2/3 of the accommodation provided to international tourism.
- ✓ Cruise tourism: 0.23 % of the GVA produced by the tourism sector and only 2.2 % of the sector employment.
- ✓ Yachting: number of yachts and motor boats in Bulgaria remains very low (around 1.000) and 14 marinas are licensed (Country Fiche Bulgaria, 2014).

Knowledge gaps

- ✓ Lack and poor comparability of data;
 - ✓ No existing spatial database for coastal and marine tourism;
 - ✓ Tourism data are mainly statistical provided from National Statistical Institute and most are not free of charge;
 - ✓ Lack of data for development of marine tourism, mostly for yachting, cruise tourism, recreational boating etc.
- ❖ **Conflicts between tourism development and protection of natural environment: expanded human pressure on limited land area and resources.**
 - ❖ **Potential conflicts are related to areas where boating/yachting may not occur due to the presence of infrastructures (e.g. aquaculture farms, oil and gas platforms, etc.) and other marine activities such as maritime transport, scuba diving etc.**
 - ❖ **It is expected an increase of marine tourism developments and therefore more maritime uses and activities should be regulated in the MSP process.**



Year	Burgas	Varna
2011	4479	12495
2012	712	590
2013	26971	3769
2014	56361	21457

Data source: EAMA, Bulgaria



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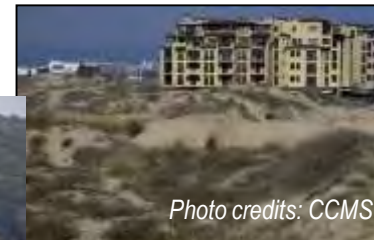


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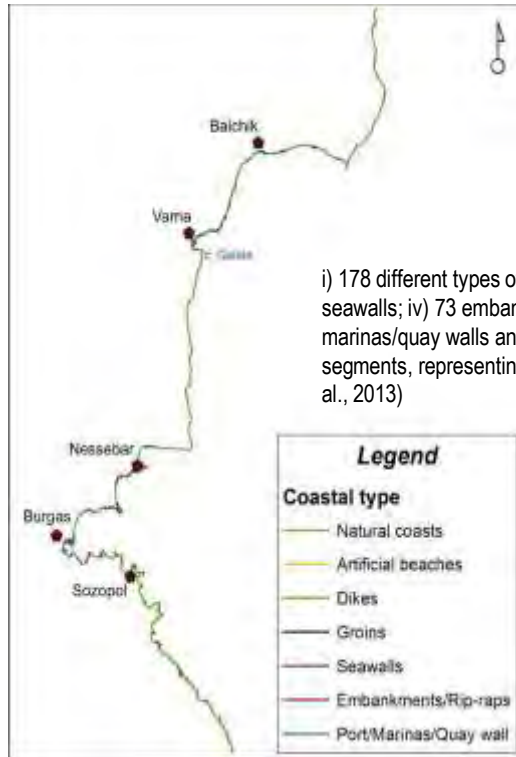


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COASTAL DEFENCE/FLOOD PROTECTION



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i) 178 different types of groins; ii) 31 dikes; iii) 26 seawalls; iv) 73 embankments/rip-raps; v) 62 ports, marinas/quay walls and navigational channels; vi) 14 segments, representing artificial beaches (Stanchev et al., 2013)

There is still a lack of relevant coast-protection management plans, which invariably involve hard engineering structures. Current cliff and beach erosion is associated with these, which have reduced sediment inputs and interrupted sand movement.

Photo credits: CCMS



Catalogue of port and coastal-protection structures at the Bulgarian-Romanian Black Sea coast (modified from: Burcharth, Hughes, 2006), after Stanica et al., 2012

Type of Structure	Objective	Principal Functions	Type of Construction
Sea/coastal dikes	Prevent or alleviate flooding by the sea of low-laying land areas	Separation of shoreline from hinterland by a high impermeable structure	Concrete armour units or rubble-mound (rock-fill) and composite type
Similar structures			
rip-raps	Prevent or alleviate flooding by the sea of low-laying land areas	Covering less tightly specified dumped or placed rock structures	Made from a variety of rock types or concrete rubble from building and paving demolition
Groins (Y, T, Z, I- shape)	Prevent beach erosion	Reduction of alongshore sediment transport	Impermeable, concrete sheet-pile or rubble-mound (rock-fill) design
Seawalls	Protect land and structures from flooding and overtopping	Reinforcement of some part of the beach profile	Formed of concrete/rock blocks or sheet piling
Similar structures			
i) revetments	Protect the shoreline against erosion	Reinforcement of some part of the beach profile	Consist of a cladding of stone, concrete, or asphalt to armour sloping natural shoreline profiles.
ii) bulkheads	Retain soil and prevent sliding of the land behind	Reinforcement of the soil bank	Vertical wall anchored with tie rods
Reef breakwaters	Prevent beach erosion	Reduction of wave heights at the shore	Rubble-mound structures constructed as a homogeneous pile of stone or concrete armour units
Detached breakwaters	Prevent beach erosion	Reduction of wave heights in the lee of the structure and reduction of long-shore sediment movement	Rubble-mound construction
Submerged breakwaters	Prevent beach erosion	Retard offshore movement of sediment	Rock-armoured, rubble-mound structures or made of commercially available prefabricated units
Harbour breakwaters	Shelter harbour areas and harbour entrances, and water intakes against waves and currents	Dissipation of wave energy and/or reflection of wave energy back into the sea	Shore-connected or detached; sloping-front and vertical-front structures; composite or rubble-mound armoured with rock or concrete armour units, with or without seawall superstructures, or concrete blocks placed on a rubble stone base layer
Similar structures			
1) jetties	Stabilise navigation channels at river mouths and tidal inlets	Protect against storm water and cross-currents	Shore-connected, construction similar to breakwaters
2) moles	Protect harbours and inlets that are important commercial and military navigation links and to stabilise navigational channels	Shelter from waves and storm winds, provide adequate depth/manoeuvring room within the harbour, secure minimal navigation channel dredging	Shore-connected, construction similar to breakwaters
Navigation channels	Provide safe, reliable, and efficient waterway navigation	Maintained by constant dredging activities to a required depth for modern ships	



DREDGING AND DUMPING



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- ✓ During 2006-2015, dredging activities were carried out at 12 locations along the Bulgarian Black Sea coast, *EMODNET data*.
- ✓ Two designated areas for depositing dredged sediments that fall into the territorial waters of the Republic of Bulgaria (12 nm zone of the Black Sea) against Varna and Burgas bays.

Knowledge gaps

- ✓ *Lack of freely available spatial data*
- ✓ *Lack of information on environmental impact and monitoring of the dumping sites*

- Dredging is violating the integrity of the seabed and destroying the seabed ecosystems.**
- One of the main concerns over dumping and dredging is the release of contaminants to the water column (such as heavy metals), which is associated with temporary increases in turbidity.**