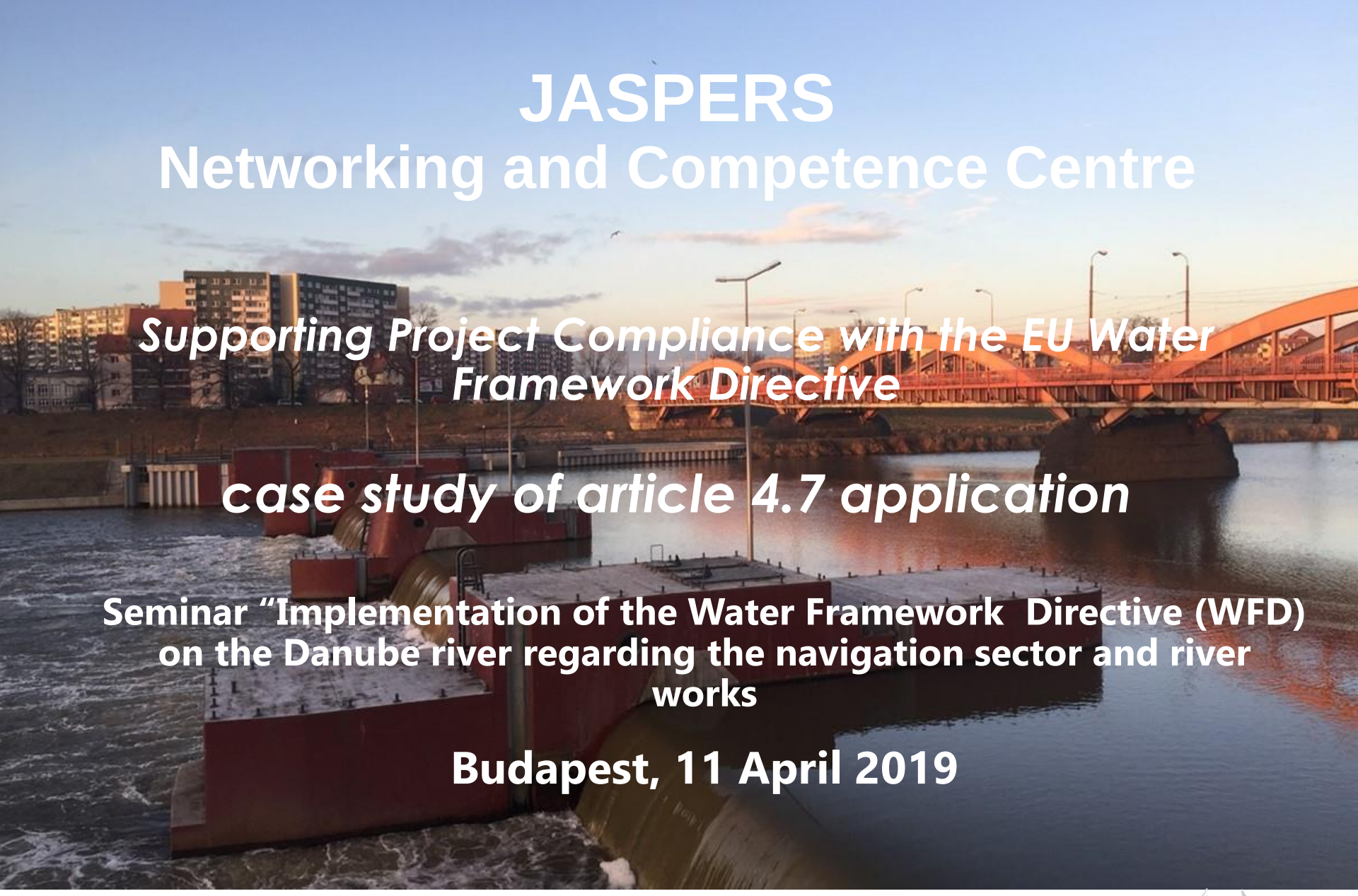


JASPERS
Networking and Competence Centre

Supporting Project Compliance with the EU Water Framework Directive

case study of article 4.7 application

Seminar "Implementation of the Water Framework Directive (WFD) on the Danube river regarding the navigation sector and river works

Budapest, 11 April 2019

European Investment Bank The EU bank

Jaspers Joint Assistance to Support Projects in European Regions

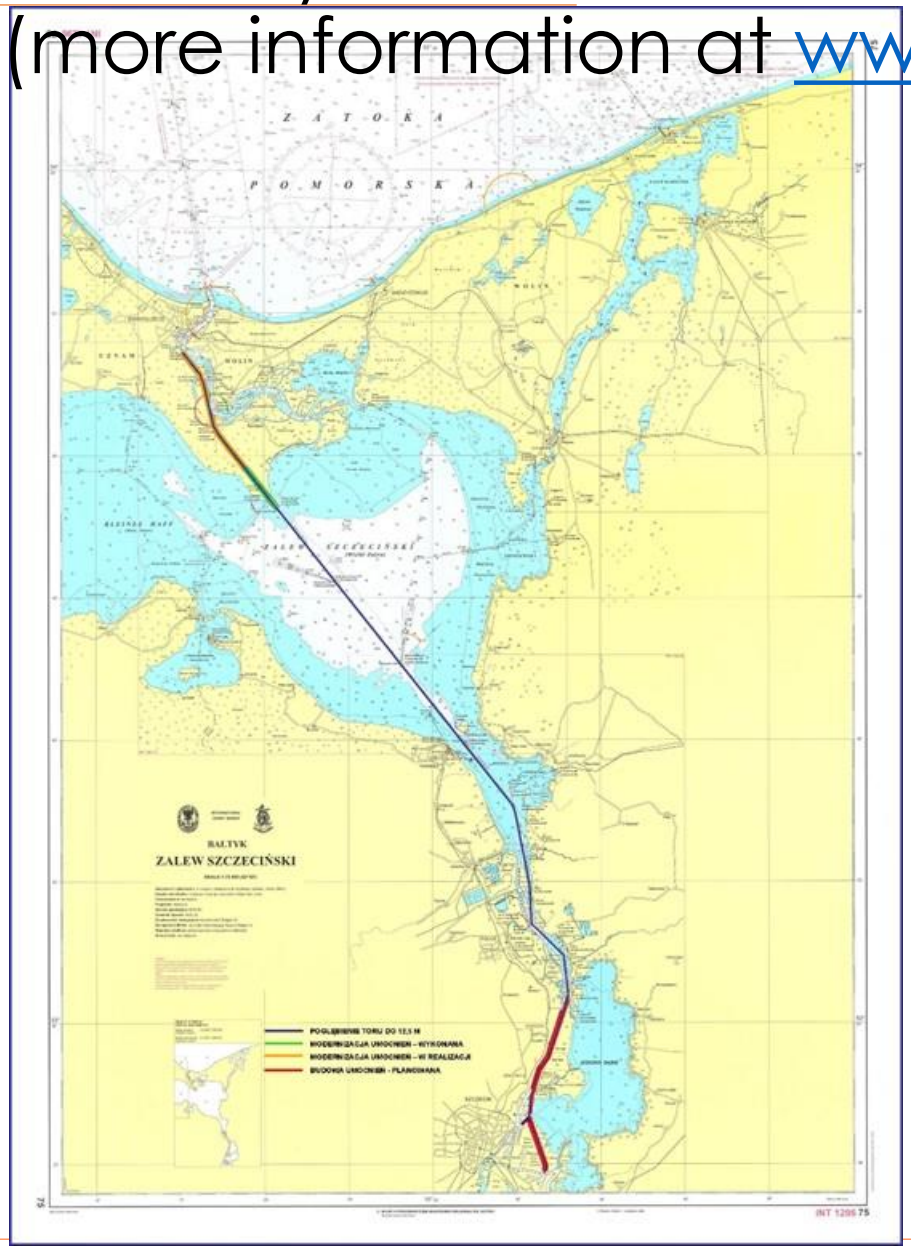
European Commission

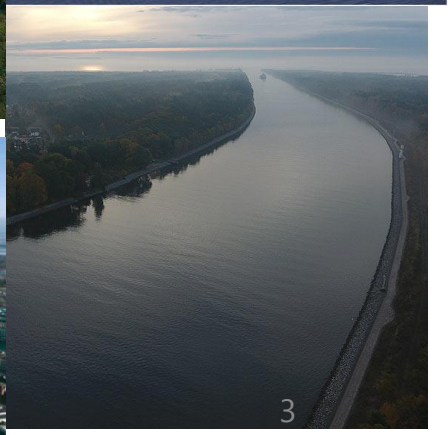
Project background

- An artificial navigation canal (original works commenced in 1720)
- Provides access of sea-going vessels to several ports.
- Included in the TEN-T core network forming an essential link between the Baltic Sea and south of Europe (Baltic – Adriatic corridor).
- The total length of the waterway amounts to around 67km
- Passes through a lagoon.

- Characteristics prior to modernization:
  - a minimum width of 90 meters at the seabed with appropriate widening at the curved and transition areas,
  - depth of 10.5 meters below the sea level
- Construction works were carried out in years 2000 – 2004 and 2009 - 2015 (i.a. strengthening and retaining works on the embankments in preparation for the deepening)

Courtesy of the Maritime Office in Szczecin (more information at www.ums.gov.pl)





The Project

The main aim of the Project is deepening the waterway to the depth of 12.5 m, thus making it available for vessels with a higher loading capacity and draught and to improve the safety of navigation of sea vessels on the waterway.

The project involves several components:

- Deepening the waterway to 12.5 meters depth over a distance of about 62 kilometers;
- Reconstruction and regulation of embankments and underwater retaining walls;
- Flattening of the bottom of the canal in port area;
- Deepening three vessel's turning areas belonging to the waterway in proximity of ports;
- Adaptation and modernization of navigational signaling and traffic control system and modernization of the Navigation Base buildings;
- Construction of two dredging material disposal sites in the form of two artificial islands on the Szczecin Lagoon;
- Acquisition of land plots necessary to regulate the waterway.

Procedures background

- The main project component (i.e. works on the water way and disposal of dredging material) was classed as belonging to
  - annex I of the EIA Directive, point 8. a. *Inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1 350 tonnes;*
  - in conjunction with point 24. *Any change to or extension of projects listed in this Annex where such a change or extension in itself meets the thresholds, if any, set out in this Annex.*
  - The main project component underwent a full EIA procedure

- The project is included in the Master Plan for XXX Catchment as well as in the updated River Basin Management Plan, as a project subject to derogation under article 4.7 of the Water Framework Directive.
- The ex-ante conditionality 6.1 concerning water sector is now deemed fulfilled (it was not fulfilled at the time of adoption of the Partnership Agreement).
- Special conditionality concerning projects subject to derogation under article 4.7 in accordance with the text of the Operational Programme will only be lifted following the positive assessment of compliance the RBMPs with Article 4(7) of the Water Framework Directive (concerning hydropower, flood defence and navigation projects).

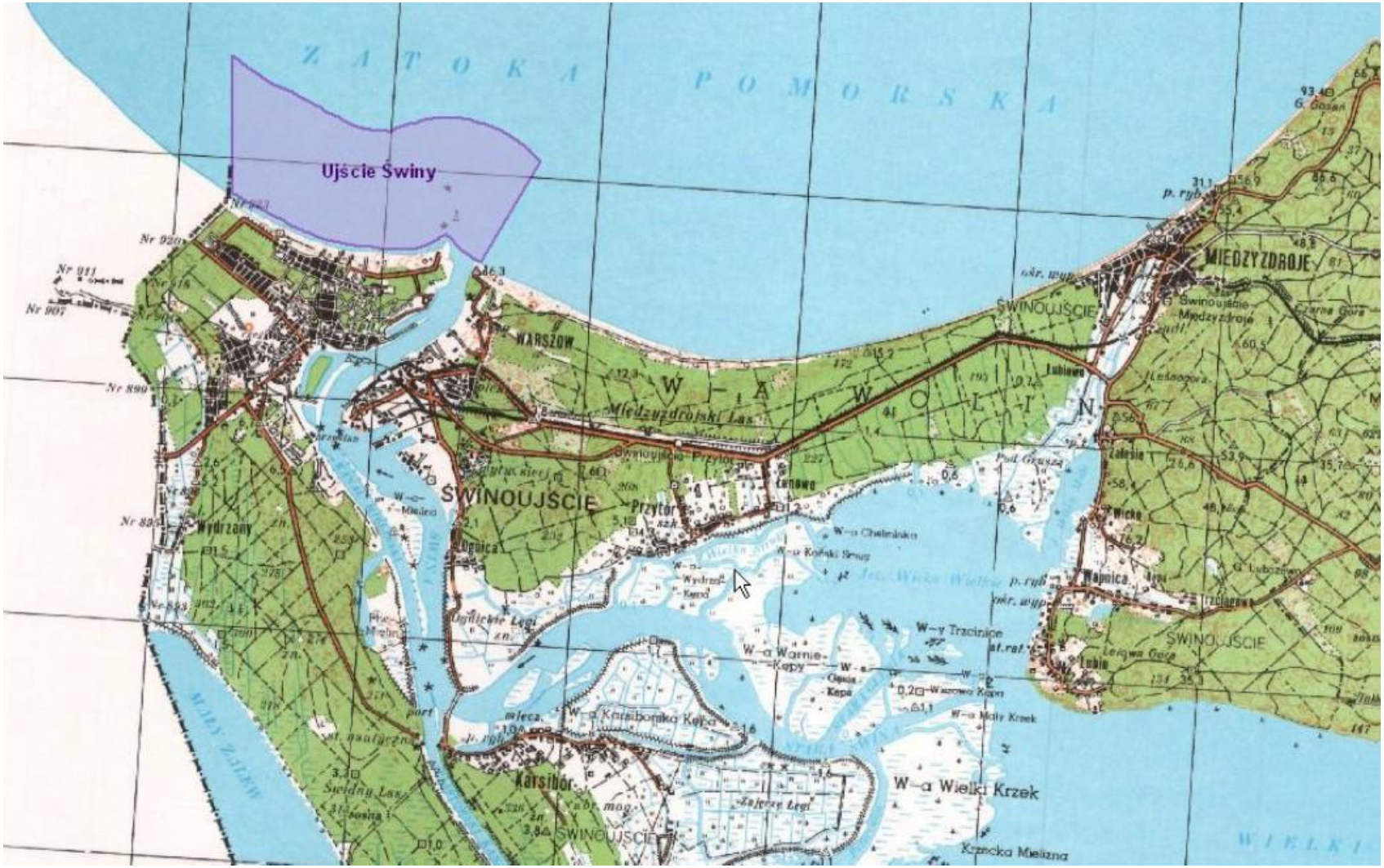
WFD compliance

- A separate part of the EIA report concerned conformity with the WFD
  - (separate study, volume III of the EIA report).

- The analysis took into account hydrology and hydraulic regime
  - as well as other consideration required by the Water Framework Directive.

- The stages followed were
    - identification of WB, their characteristics, current status
    - identifications of factors potentially impacting water quality and indicators for forecasting change
    - conclusions as to possibility of class deterioration or impeding improvement
    - Review of compliance with conditions of article 4.7

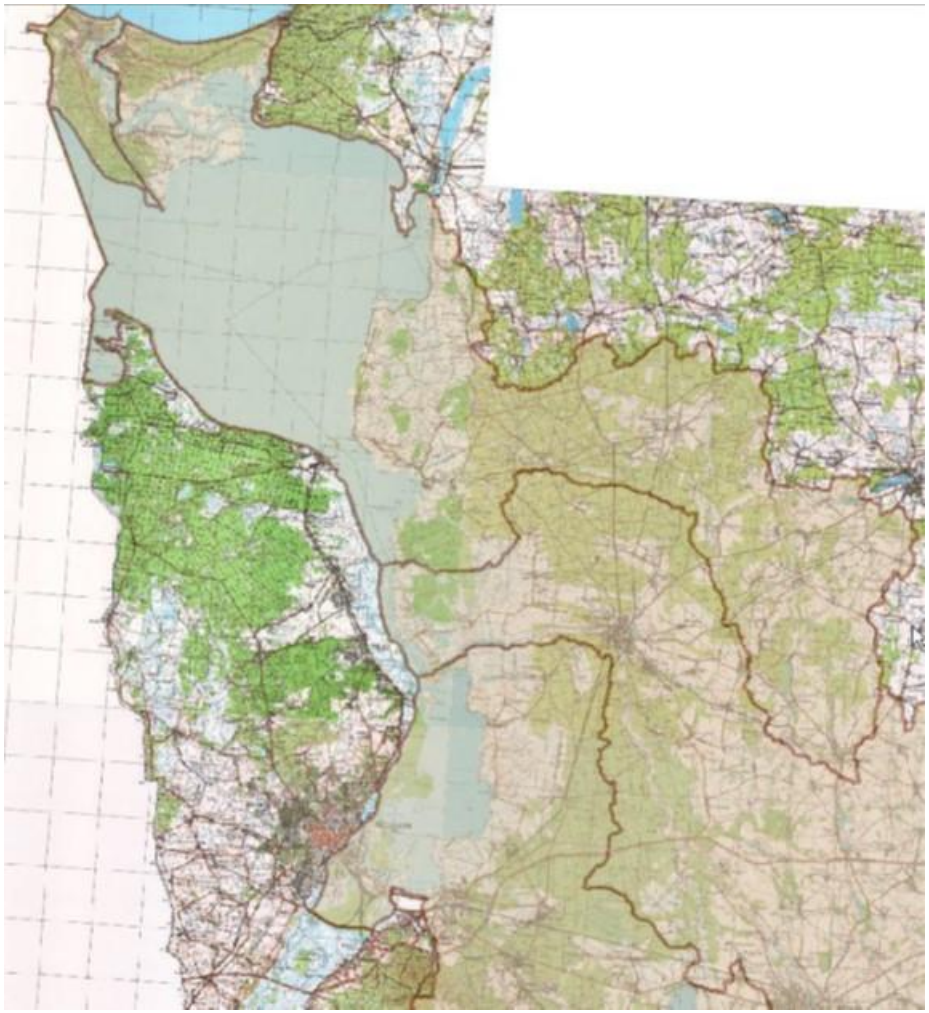
Water bodies (surface waters)

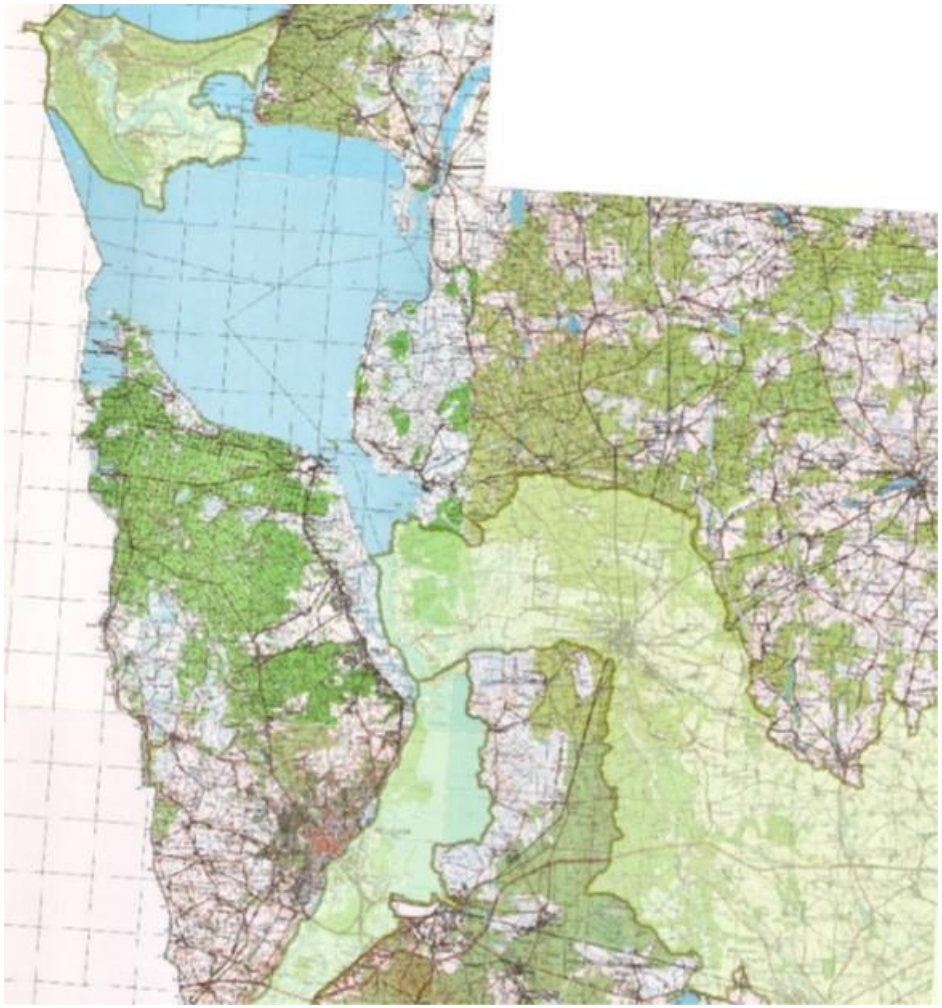



Zalew Szczeciński

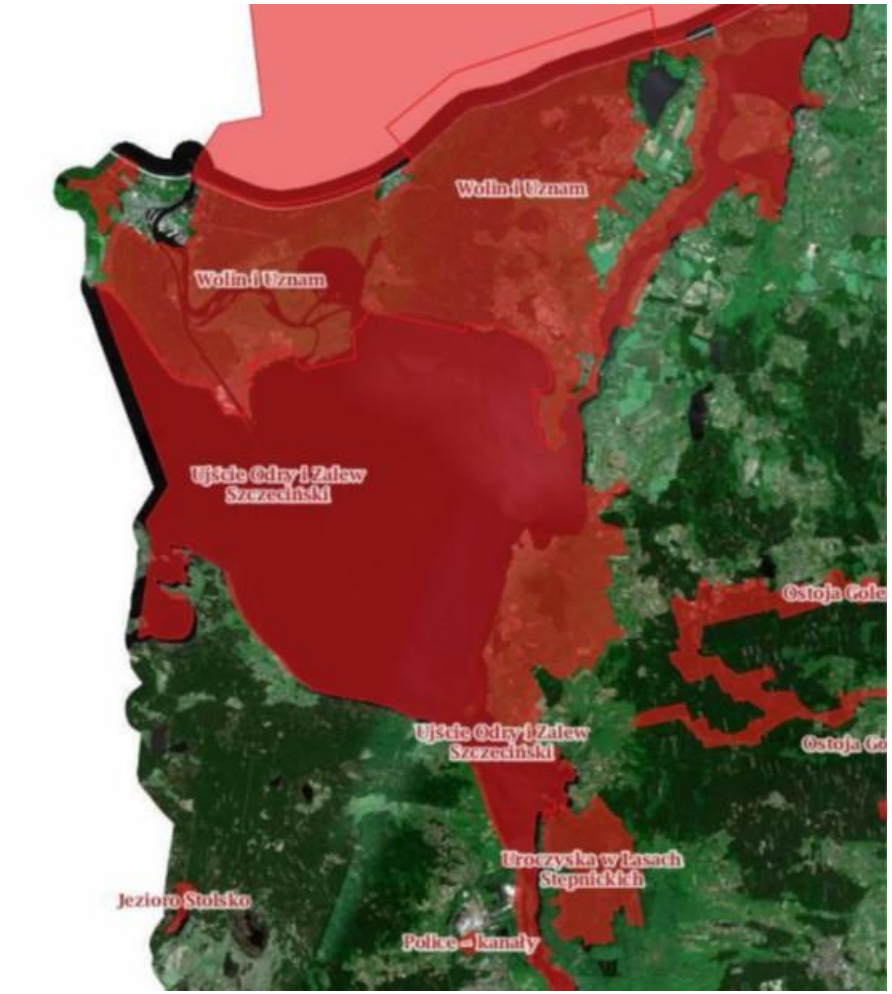

POLICE
SZCZECIN

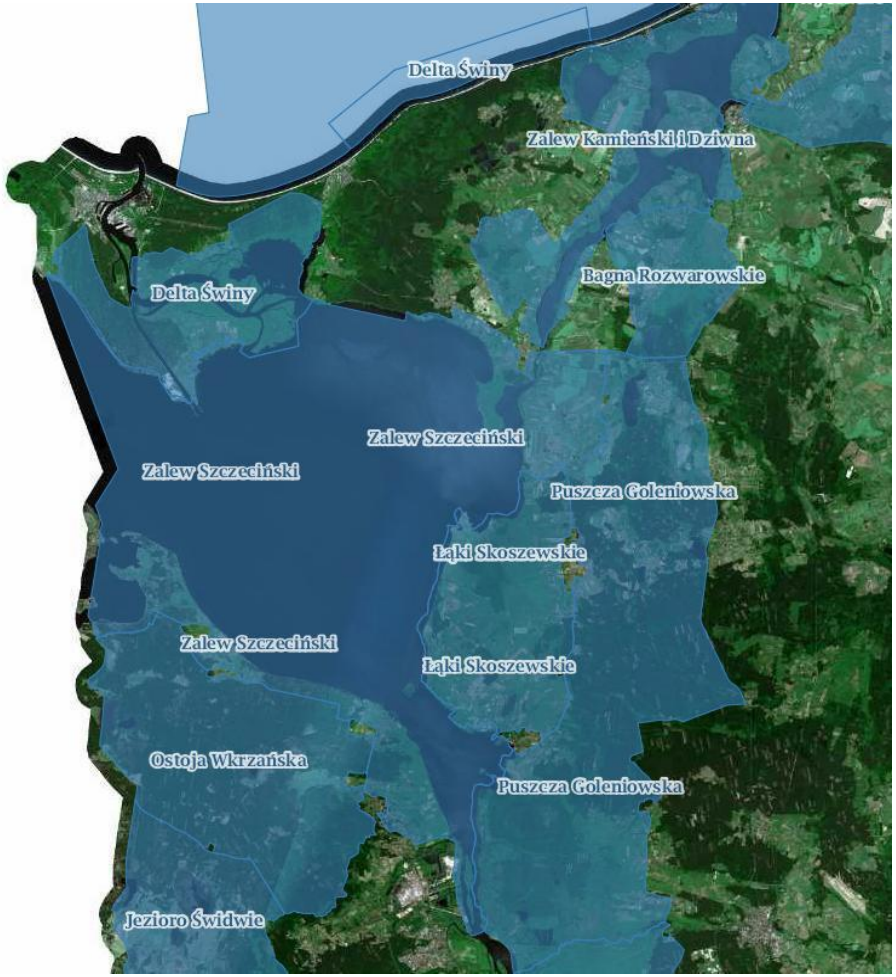
Water bodies (ground waters)



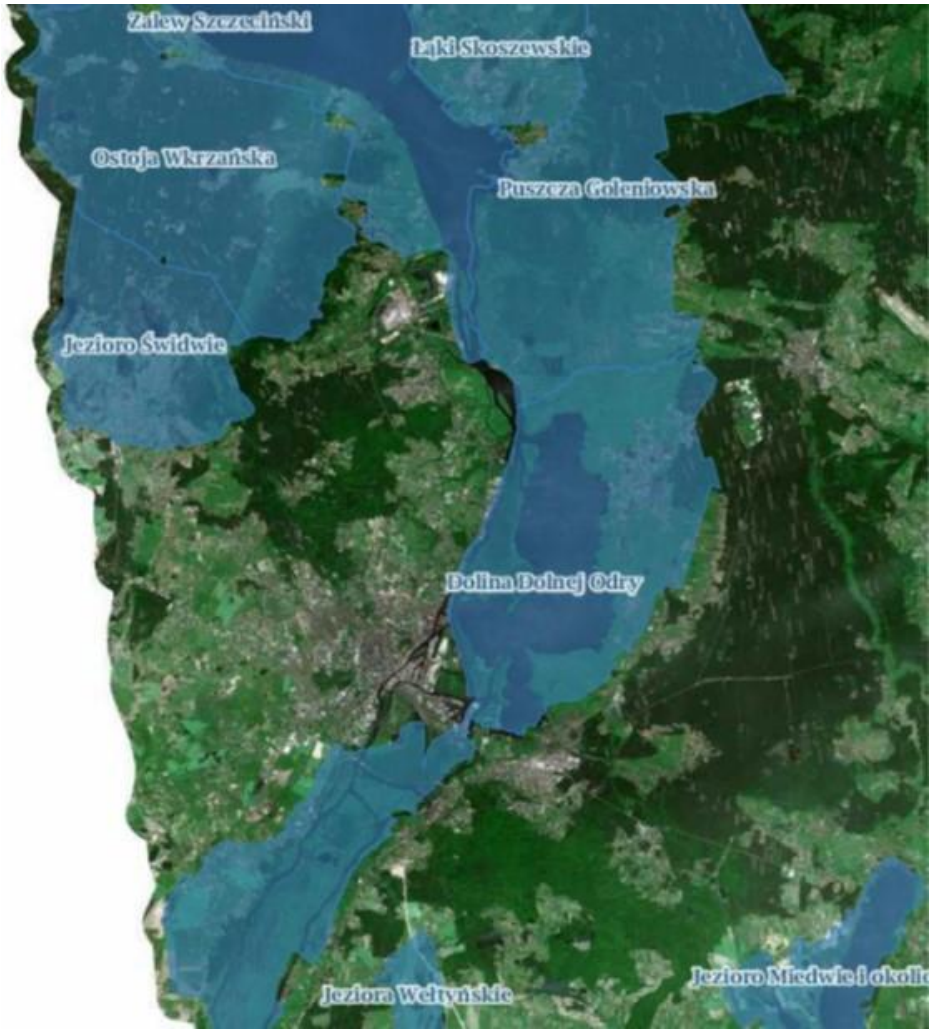


Natura2000 areas





Natura2000 areas



Current water quality

Tabela 14.

Wyniki badań JCWP *Zalew Szczeciński* z 2013 r. (a w przypadku ich braku z 2012 r. lub 2011 r.) (źródło: [41, 71, 80]).

nr	nazwa wskaźnika jakości	jednostka	wartość stężenia			stężenia graniczne				
			średnia	najwyższa	najniższa	klasa I	klasa II	klasa III	klasa IV	klasa V
potencjał ekologiczny										
1.1.5	Fitoplankton - chlorofil „a"	µg/l	34,10	48,2	23,7	<10,0	≤20,00	≤30,0	≤40,0	>40,00
1.4	Makroglony i okrytozalążkowe - wskaźnik SM1					≥0,95	≥0,80	≥0,57	≥0,20	<0,20
1.5	Makrobezkręgowce bentosowe – multimetryczny indeks B *		2,05	2,82	1,17	>3,72	≥3,18	≥2,70	≥1,91	<1,91
1.6	Ichtiofauna - wskaźnik SI		3,1			≥4,4	≥3,4	≥2,4	≥1,4	<1,4
3.1.4	Przezroczystość	m	1,1	1,8	0,9	>2,50	>1,90			
3.2.1	Tlen rozpuszczony nad dnem	mg/l O_2	7,33	8,42	4,49	>6	>4,2			
3.2.4	Ogólny węgiel organiczny (OWO) *	mg/l C	11,4	12,5	10,8	≤5	≤10			
3.2.5	Nasycenie tlenem - warstwa 0-5m	%	130,7	160,3	110,4	90-110	80-120			
3.5.1	Azot amonowy	mg/l N-NH_4	0,072	0,124	0,052	<0,04	<0,06			
3.5.3	Azot azotanowy	mg/l N-NO_3	1,18	1,56	0,77	<0,60	<0,90			
3.5.5	Azot ogólny	mg/l N	2,25	2,63	1,84	<1,25	<1,90			
3.5.6	Fosforany P_{PO4}	mg/l P-PO_4	0,037	0,059	0,021	<0,060	<0,090			
nr	nazwa wskaźnika jakości	jednostka	wartość stężenia			stężenia graniczne				

72

Hydromorphology and water circulation patterns

Zmiany morfologiczne w granicach JCWP *Zalew Szczeciński* wraz z ich oceną [32, 78].

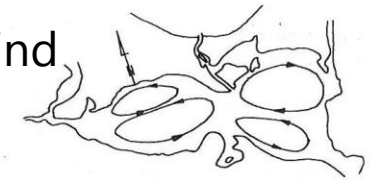
	rodzaj zmiany	Zm	istotność zmiany WskZn	stopień zmiany ekosystemu WskWp [%]
1	Łączna powierzchnia pogłębianych torów wodnych*	43,05	0,67	7,08
2	Łączna powierzchnia zmian dna narażonego na naruszenie osadów (trałowanie, kotwicowiska oraz obrotnice)**	24,83	0,20	1,22
3	Łączna powierzchnia składowanego urobku bagrowanego***	2,30	0,50	0,28
4	Łączna długość brzegu zabudowana ostrogami, pirsami		0,25	0,00
5	Łączna długość falochronów	2,54	0,40	0,32
6	Łączna długość głębokich torów wodnych na zalewach	43,75	0,40	5,44
7	Łączna długość budowli poprzecznych		0,50	0,00
8	Łączna długość nabrzeży	6,68	0,50	1,04
9	Łączna długość opasek brzegowych (umocnień)	17,24	0,20	1,07
10	Łączna długość zasilanego brzegu		0,08	0,00
11	Łączna długość wałów przeciwpowodziowych	70,03	0,13	2,83
	Wynik obliczeń zmiany odporności ekosystemu [%]			**19,28**

*) Zgodnie z zapisami *Metodyki* powierzchnia obszaru dla prac naruszających strukturę dna winna być pomnożona 10. Mnożnik ten zastosowano jedynie dla toru wodnego Szczecin-Świnoujście (o powierzchni 4,092 km^2), gdyż w obszarze tym prace pogłębiarskie prowadzone są ustawicznie. W przypadku pozostałych torów (o powierzchni 2,131 km^2)prowadzone są one doraźnie.

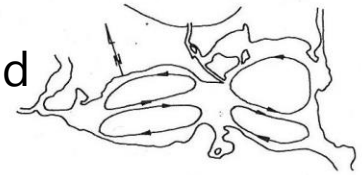
**) Zgodnie z zapisami *Metodyki* powierzchnię zmian dna pomnożono przez 10, uznając że są to prace/obiekty naruszające dno.

***) Odstąpiono od pomnożenia przez 10. Uznano bowiem, że prace te nie naruszają dna w sposób ciągły. Dno zostało naruszone jedynie w trakcie budowy składowiska. W obliczeniach uwzględniono aktualną – a nie docelową – pól refulacyjnych.

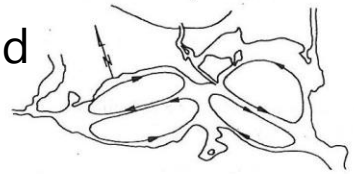
W wind



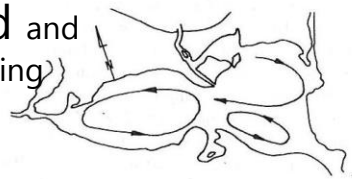
E wind



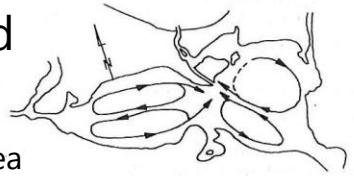
S wind



W wind and water flowing from sea



W wind and water flowing towards sea



Forecasted changes in hydromorphology

Zmiany morfologiczne w granicach JCWP *Zalew Szczeciński* wraz z ich oceną [32, 78].

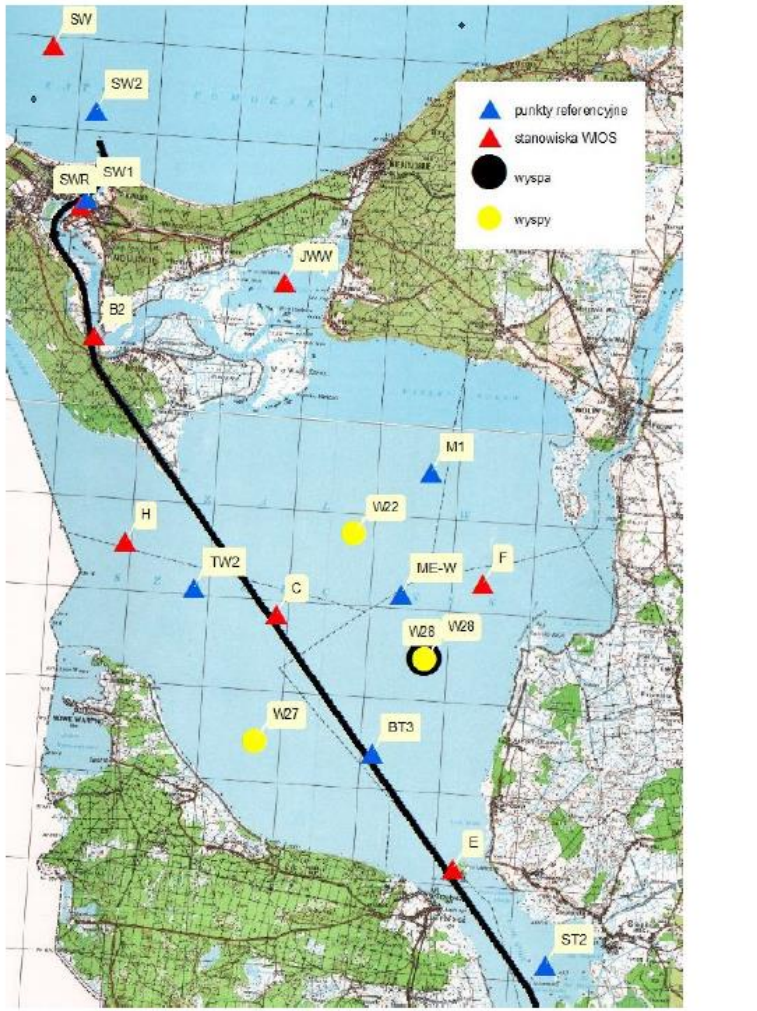
	rodzaj zmiany	Zm	istotność zmiany WskZn	stopień zmiany ekosystemu WskWp [%]	stopień zmiany ekosystemu WskWp [%]
1	Łączna powierzchnia pogłębianych torów wodnych*	43,05	0,67	7,08	8,08
2	Łączna powierzchnia zmian dna narażonego na naruszenie osadów (trałowanie, kotwicowiska oraz obrotnice)**	24,83	0,20	1,22	1,83
3	Łączna powierzchnia składowanego urobku bagrowanego***	2,30	0,50	0,28	0,75
4	Łączna długość brzegu zabudowana ostrogami, pirsami		0,25	0,00	0,00
5	Łączna długość falochronów	2,54	0,40	0,32	0,32
6	Łączna długość głębokich torów wodnych na zalewach	43,75	0,40	5,44	5,44
7	Łączna długość budowli poprzecznych		0,50	0,00	0,00
8	Łączna długość nabrzeży	6,68	0,50	1,04	1,15
9	Łączna długość opasek brzegowych (umocnień)	17,24	0,20	1,07	1,51
10	Łączna długość zasilanego brzegu		0,08	0,00	0,00
11	Łączna długość wałów przeciwpowodziowych	70,03	0,13	2,83	2,83
	Wynik obliczeń zmiany odporności ekosystemu [%]			**19,28**	**21,91**

Macrozoobenthos – monitoring sites and state of populations

Tabela 16a.
Średnia liczebność makrozoobentosu w punktach referencyjnych Programu utrzymania morski dróg zlokalizowanych na Zatoce Pomorskiej (na podstawie [39]).

Takson	liczebność [osobników/m²]	%
POLYCHAETA		
Pyrogospio elegans	1395	18.750
Marenzelleria viridis	1278	17.180
Hediste diversicolor	781	10.500
BIVALVIA		
Mya arenaria	1159	15.580
Cerastoderma glaucum	302	4.060
Mytilus edulis	286	3.840
Macoma balthica	178	2.390
GASTROPODA		
Hydrobia sp.	270	3.630
CRUSTACEA		
Balanus improvisus	1132	15.210
Corophium volutator	585	7.860
Gammarus sp.	38	0.510
Cyanthura carinata	14	0.190
Crangon crangon	2	0.030
OLIGOCHAETA		
	20	0.270
SUMA:	7440	100.00

1 - tolerancyjne	2 - pośrednie	3 - wrażliwe
69.02	7.98	23.00



Rys. 13. Punkty badania makrozoobentosu na Zalewie Szczecińskim i w Zatoce Pomorskiej (opracowanie własne na podstawie: [21]).

Forecasted changes in mocrozoobenthos

Tabela 28.

Szacowana zmiana jakości wód w zakresie makrozoobentosu na poszczególnych stanowisk obrębie JCWP *Zalew Szczeciński.*

stanowisko	wartość indeksu B		lokalizacja stanowiska
	aktualna	szacowana po realizacji Projektu	
C	1.17	1.14	w zasięgu inwestycji
E	2.82	2.75	w zasięgu inwestycji
F	2.12	2.06	w zasięgu inwestycji
H	1.90	1.85	w zasięgu inwestycji
B2	1.74	1.69	w zasięgu inwestycji
SWR	2.00	1.95	w zasięgu inwestycji
JWW	2.59	2.52	poza zasięgiem inwestycji (jez. Wicko)
średnia	**2.05**	**2.00**	

The change in multimetric index will **not** result in a deterioration of quality class.

However given that for 3 sites the microzoobethos is already in the lowest class the deterioration **may** impact the overall ecological potential of the water body.

Other issues addressed

The following issues were **also** addressed for all waterbodies concerned:

- Biological criteria:
  - Phytoplankton
  - Macroalgae
  - Ichtiofauna

- Hydromorphology:
  - Water levels and water flows
  - Changes in bottom depth
  - Bottom morphology
  - Flora structure and density

- Physicochemical characteristics
  - Transparency
  - Oxygen content and total organic carbon
  - Salinity ands acidity
  - Nutrients (N and P)
  - Specific pollutants

- Protected areas (as per annex IV of the WFD)

In these cases the conclusions were that the proposed project will not have a significant impact.

Impact

The conclusion was that

- the Project will not impact any of the 3 ground water bodies involved
- it may have an impact on the achievement of good status/potential for 2 (out of 3) surface water bodies.

In case of PLTWIWBX XXX XXX(Lagoon, heavily modified transitional water body) – the critical criterion was macrozoobenthos invertebrates – which may be impeded in achieving good potential (although it will not cause deterioration) and hydromorphology (looking at cumulative impact of all stages of modernisation and all envisaged works, the impact cannot be excluded).

Hydromorphology is also the criterion where impact cannot be excluded concerning PLRWXXXX XXX XXX (heavily modified water body), where the deterioration concerning macrozoobenthos invertebrates will not cause a class deterioration.

It is noted that in both cases the issue concerns uncertainty and the application of precautionary principle

Article 4.7

Were all practicable steps taken to mitigate adverse impact?

- Current modifications are a consequence of the long-term purpose (port operation)
- The main objective – safe navigation – is met at least environmental impact (see EIA and FS)
- Disposal od dredged material subject to EIA, including extensive public consultations, and modified in the process
- Calendar of works takes into account migration of various species and provide opportunity for recolonisation
- Technology used minimises turbidity and sediment resuspension
- Numerous measures resulting form EIA decision concerning species and their habitats

Are the reasons modification set out/explained in the RBMP?

- Yes
- see http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20160001967 , annex 3, p.7009-13
- The document underwent consultations, was formally adopted, is publicly available and has been submitted to the EC for adoption

Article 4.7

Are the reasons for modification of overriding public interest and/or are the benefits to society of achieving the objectives outweighed by the benefits of the new development?

- Socio-economic development of the region (linked with the functioning of the ports)
- Modernization of existing waterway

Are there no technically feasible and not disproportionately costly alternatives that are significantly better from an environmental perspective?

- Alternative means of transport of goods are less environmentally friendly
- External costs calculator- https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/external-cost-calculator-marco-polo-freight-transport-project-proposals-call-2012-version)
- Reference to option analysis (larger ships – more goods with fewer vessels) and EIA (environmental impacts of options)

The application of the derogation will not preclude the achievement of the objectives in other water bodies.

Lessons learned

1. **Compliance with WFD is a standard part of project preparation**

2. **If included in project planning does not entail additional time or significant costs**

3. **There are advantages to addressing the issue as part of EIA procedure (public consultations, approval by authorities, clearly stated conditions for implementation etc.)**

4. **Structured analysis allows for good identification of the potential for impact and (if needed and possible) application of derogation**

5. **When in doubt – it is safer to err on the side of caution**

6. **Well prepared WFD compliance analysis may prove critical for project approval**

7. **There is considerable advantage to cross referencing between various documents prepared for the project (e.g. nature inventory, appropriate assessment, EIA, WFD assessment, feasibility studies, option analysis etc.**

8. **The checklist tool may be used as a guide to prepare the WFD compliance assessment as well as a tool to review the procedure used for completeness**

9. **The project was positively appraised [*The project's compliance with the WFD has been demonstrated by the assessment carried out as required in order to establish the applicability of the exemption under Article 4.7 of the WFD. The EIA decision, together with the clarifications provided by RDOS (2017) confirms that the proposed project meets the conditions for the exemption under Article 4.7 of the WFD*]**

More Information

For info or further questions on this presentation please contact the JASPERS Networking and Competence Centre:

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JASPERS Website: jaspers.eib.org