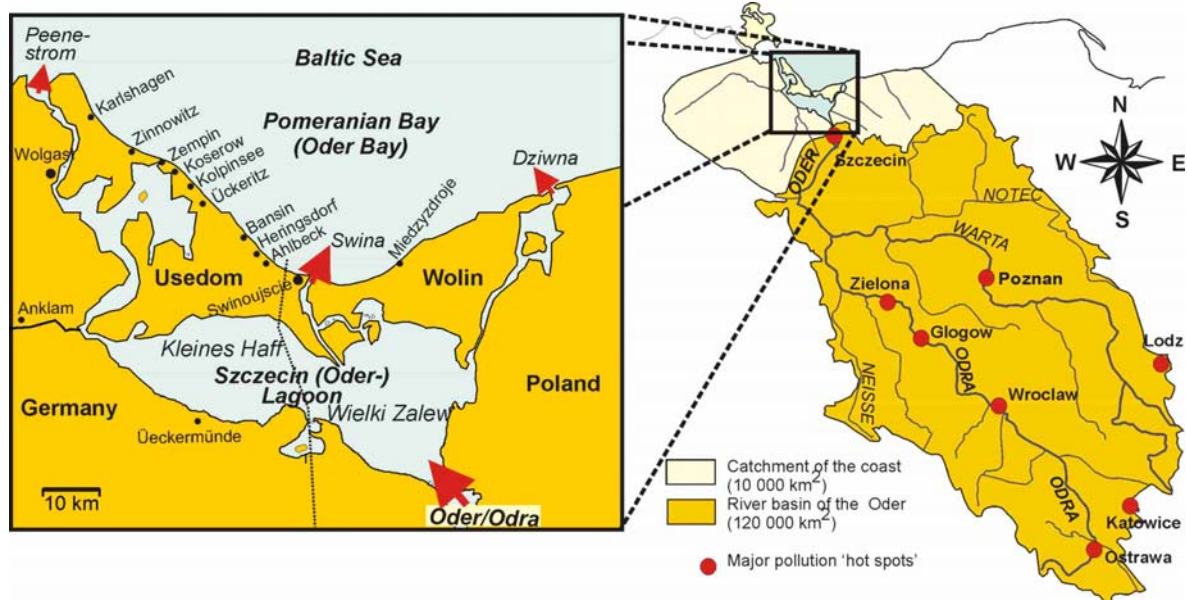


INTEGRATED PROJECT SPICOSA – COASTAL STUDY SITES

THE ODER/ODRA ESTUARY

1. **Host Institution:** Baltic Sea Research Institute Warnemünde, Germany
Contact: Gerald Schernewski gerald.schernewski@io-warnemuende.de



2. **Location:** The Oder estuary is the mouth of the Oder (Polish: Odra) river, one of the largest rivers in the Baltic region. It is located at the southern Baltic Sea (border between Germany and Poland).

3. Characteristics

<i>Marine System</i>	<p>Oder Lagoon: The coastal zone is dominated by the discharge of the river Oder (Odra) into the Szczecin (Oder) Lagoon. The large (687 km²) and shallow (average depth 3.8 m) Szczecin (Oder) Lagoon, is the key element of the Oder estuary region. The lagoon is subdivided into the “Kleines Haff”, located mainly on the German territory, and the “Wielki Zalew” on the Polish territory. The Wielki Zalew covers about 60 % of the lagoon area and volume.</p> <p>Pomeranian Bay: The lagoon is connected to the Pomeranian Bay via three outlets. The bay is part of the Baltic Sea. Seaward boundaries are the Arkona Sea towards north-west and the Bornholm Sea in the north-east. The bay has an average depth of 13.2 m and covers an area of approx. 6.000 km². The bay is influenced by the Oder River water, but intensive wind-induced mixing and large-scale currents in the Baltic Sea dominate this system.</p>
<i>Watershed</i>	<p>Oder River: is one of the most important transboundary rivers in the Baltic region (854 km length). Its basin (118,000 km²) is shared between Poland (89 %), the Czech Republic (6 %) and Germany (5 %). Many larger cities and industries are located in the river basin (total population in the basin 15.4 millions). The basin is under intensive agricultural use. The average annual Oder discharge is 17 km³ (530 m³ s⁻¹) and it contributes at least 94% to the lagoon’s water budget. In the 1990’s the riverine nutrient load was 94,000 t/a nitrogen (N) and 8,500 t/a phosphorus (P). Other major river basin – coastal area issues are flooding, shipping and technical measures as well as species migration.</p>
<i>Human Activities</i>	Tourism, agriculture, fishing and shipping
<i>Impact Responses</i>	Eutrophication, nutrient loading, bio-chemical pollution, habitat destruction, biodiversity loss

4. Policy

<i>Policy issues</i>	<ul style="list-style-type: none"> ➤ Impact of changes in land use and agriculture in the river basin on coastal water quality, consequences for coastal water management; ➤ Development of future land use scenarios, suggestion of concrete measures to reduce
----------------------	--

	<p>pollution and socioeconomic evaluation;</p> <ul style="list-style-type: none"> ➤ Impact of climate changes on water discharge and nutrient load in the river basin, effect on coastal eutrophication, consequences for coastal water management and socioeconomic evaluation; ➤ Harmonization of the management approaches of Natura 2000, EU-ICZM recommendations and the Water Framework Directive;
<i>Policy changes</i>	<ul style="list-style-type: none"> ➤ Drastic changes in agricultural intensity and practice in the Oder river basin after German reunification and political changes in Poland (from 1989 ongoing). Heavy impacts on nutrient loads and eutrophication were observed. ➤ Drastic changes in tourism and industry intensity after German reunification (1989) and political changes in Poland (from 1989 ongoing) as well as Poland's membership in EU (2004). ➤ Changing social, economical and environmental gradients between Germany and Poland and increasing economic problems. ➤ Changes in agriculture intensity and nutrient loads due to the Polish EU-membership.

5. Stakeholders and Institutional Governance

<i>Major organisations</i>	<p>The following authorities are already involved in the ICZM-Oder initiative:</p> <ul style="list-style-type: none"> ➤ Umweltministerium, Abt 4 - Integrierter Umweltschutz und Nachhaltige Entwicklung ➤ Amt für Raumordnung und Landesplanung Vorpommern ➤ Landesamt für Umwelt, Naturschutz und Geologie Mecklenburg-Vorpommern (LUNG) ➤ Landesamt für Forsten und Großschutzgebiete ➤ Staatliches Amt für Umwelt und Natur Ueckermünde and Rostock ➤ Institut für Fischerei der Landesforschungsanstalt ➤ Europaregion Pommerania ➤ Landkreis Ostvorpommern and Landkreis Uecker-Randow ➤ Stowarzyszenia Polskich Euroregionu Pomerania ➤ West-Pommern Woiwodschaft Inspektorat Szczecin
<i>Other leading organisations</i>	<p>The following groups are already involved in the ICZM-Oder initiative and have the aim to ensure a sustainable cross-border coastal development and to implement joint measures:</p> <ul style="list-style-type: none"> ➤ Joint Polish/German Environmental Commission ➤ Regional Agenda 21 "Oder lagoon" (joint German/Polish agreement and co-operation)

6. Partner Collaboration

<i>SPICOSA Partner Collaborations.</i>	<p>IOW: Baltic Sea Research Institute Warnemünde; IOEW: Institute for Ecological Economic Research; EUCC: The Coastal Union, Netherlands, Germany and Poland & KMG</p>
--	--

7. Systems Studies

<i>Long time series</i>	<p>Hydrochemical, -physical and phytoplankton data, river discharge and nutrient loads of 30 years as well as weather and socio-economic data.</p>
<i>Research Projects</i>	<p>ICZM-Oder: 11 partner institutes from different disciplines are involved in this national reference project on ICZM. The project is a reference project in UNEP-ICARM and LOICZ as well (budget: 2 Mio Euros, funded by BMBF, www.ikzm-oder.de). Aquatic systems, river basin –coast interactions, land use changes, tourism, indicators and global change effects on water quality are major topics. Further, investigations on spatial planning as well as legislative and socio-economic aspects are carried out.</p> <p>ASTRA: The Interreg project about practical consequences of climate change in the region. Data from many previous projects is available.</p> <p>Large inter-disciplinary and trans-national projects with many partners were e.g.: Oder Basin-Baltic Sea Interactions (OBBSI), Inter-disciplinary research on water quality, legislation & planning, lead by IOW. Transport and turnover in the Pomeranian Bay (TRUMP), lead by IOW. GOAP, inter-disciplinary project on ecological processes and functions in the Oder estuary. International Oder project (IOP), lead by University of Hamburg.</p>
<i>Social study</i>	<p>Socio-economic studies are available with respect to tourism, agriculture, regional planning, cost-benefit analysis, public perception and participation (Agenda 21).</p>