



Wetland as a target

Classical wetlands

- Swamps and marshes
- Wet grasslands, and peat lands

Other wetlands

- Margins of lakes and rivers
- Estuaries, deltas, tidal flats
- Mangroves and near shore marine areas



Significant wetlands
exist in every country

- 2200 Ramsar wetlands worldwide (www.ramsar.org)

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Ramsar sites in Romania

ROMANIA / ROUMANIE / RUMANIA (19 Ramsar Sites, 1,156,448 hectares)

* Bistret <i>TRIS</i>	13/06/12	Dolj County	27,482	ha	43°52'34"N 023°34'40"E
* Blahnița	02/02/13	Dolj County	45,286	ha	44°25'31"N 022°38'17"E
* Borcea Arm (Bratul Borcea)	02/02/13	Calarasi, Ialomita Counties	21,529	ha	44°17'12"N 027°40'03"E
* Calafat-Ciupercei-Danube	02/02/13	Dolj County	29,206	ha	43°50'46"N 022°57'09"E
* Canarale de la Horsova	02/02/13	Ialomita, Constanta Counties	7,406	ha	44°40'37"N 027°55'28"E
* Comana Natural Park (Parcul Natural Comana)	25/10/11	Giurgiu County	24,963	ha	44°09'N 026°09'E
* Danube Delta	21/05/91	Tulcea County	647,000	ha	45°10'N 029°15'E
* Danube Islands-Bugeac-Iortmac (Ostroavele Dunarii-Bugeac-Iortmac)	02/02/13	Calarasi, Constanta Counties	82,832	ha	44°13'32"N 027°45'48"E
* Dumbrăvița Fishpond Complex (Complexul Piscicol Dumbrăvița)	02/02/06	Transylvania	414	ha	45°46'N 025°29'E
* Iron Gates Natural Park	18/01/11	Caras Severin, Mehedinti Counties	115,666	ha	44°41'N 021°56'E
* Jiu-Danube Confluence (Confluenta Jiu-Dunare)	02/02/13	Dolj County	19,800	ha	43°59'38"N 023°53'48"E
* Lake Calarasi (Iezerul Calarasi) <i>TRIS</i>	13/06/12	Calarasi County	5,001	ha	44°11'24"N 027°16'28"E
* Lake Techirghiol	23/03/06	Constanta County	1,462	ha	44°03'N 028°38'E
* Mures Floodplain	02/02/06	Arad, Timis Counties	17,166	ha	46°13'N 021°09'E
* Old Danube-Macin Arm (Dunarea Veche-Bratul Macin)	02/02/13	Braila, Tulcea, Constanta Counties	26,792	ha	44°59'01"N 028°09'14"E
* Olt-Danube Confluence (Confluenta Olt-Dunare)	13/06/12	Olt, Teleorman Counties	46,623	ha	43°45'43"N 024°43'53"E
* Poiana Stampei Peat Bog (Tinovul Poiana Stampei)	25/10/11	Suceava County	640	ha	47°17'28"N 025°05'57"E
* Small Island of Braila	15/06/01	Braila County	17,586	ha	44°58'N 027°55'E
* Suhaia <i>TRIS</i>	13/06/12	Teleorman County	19,594	ha	43°44'17"N 025°11'33"E

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Needs/Pains

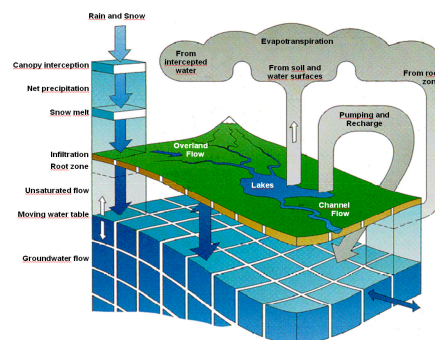
- Ecosystem services Flood mitigation, sediment trapping, water treatment, recreation,
- Habitat and refuge Excess nutrients, sediments, chemicals
- Planning needs Management plans required for Ramsar and transboundary wetlands
Restoration and remediation design
Information management – MIKE Customized

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MIKE SHE is a key solution

- Wetlands = GW + SW + ET
- Used in the world's two largest wetlands
(Everglades, Okavango Delta)
- Probably the largest application area for MIKE SHE



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Wetlands touches many DHI business lines/products

- FEFLOW – detailed gw exchange with wetlands (eg mining)
- MIKE FLOOD – detailed hydraulics in wetlands (eg infrastructure)
- MIKE 21 – coastal and estuarine wetlands (eg mangroves)
- MIKE 21C – sediment transport and morphology (eg mining)
- ECO Lab – water quality, ecology and ecohydrology (eg restoration)
- MIKE Customized – data management (eg transboundary planning)

Key is understanding specific needs

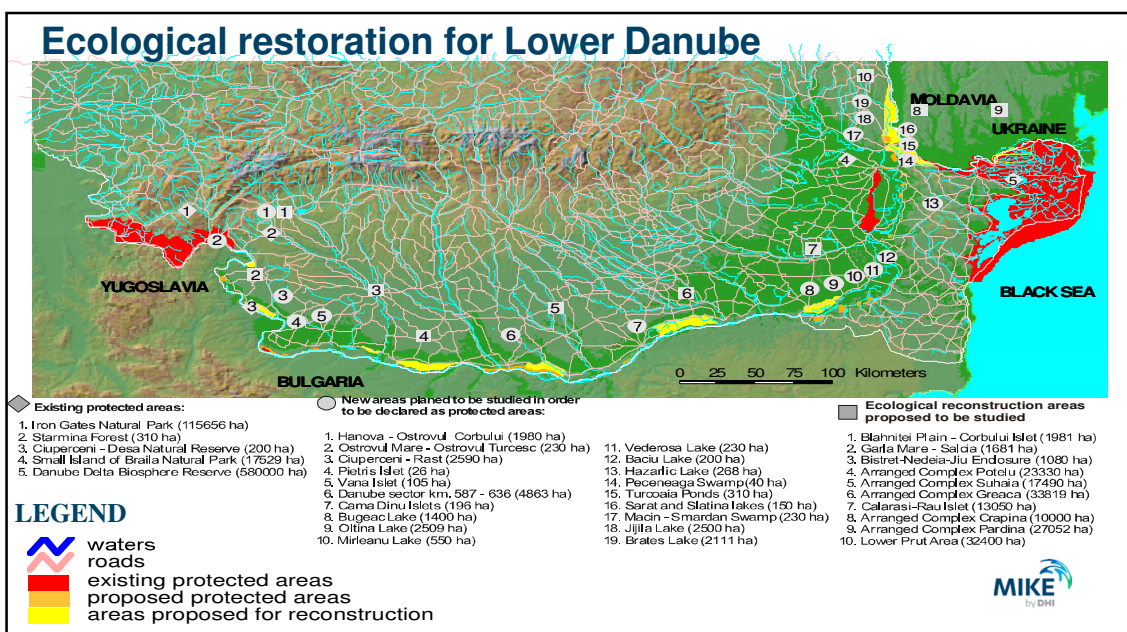
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Support

- Extensive DHI project experience (globally, not just DK)
- WRD – DK: a willing partner
- Software technology, modeling expertise and consultancy
- DHI Academy courses
- [Video](#)

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Flood mitigation and Wetland restoration in Danube River Basin

- Flood Forecast and Warning System
- Ecological wetland restoration model
- Ecological restoration in accordance with FD, WFD, ICPDR action program for flood protection, Natura 2000

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Thank you for attention!

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