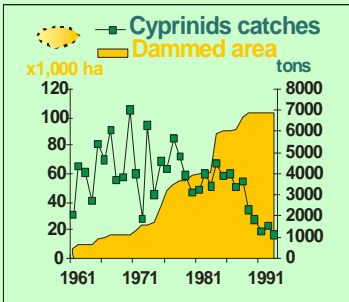


## Policy Issue/Impact for the SSA

**Issue:** Embankment/ land use change coupled with pollution/eutrophication of Danube Delta surface waters  
**Impact:** Shift in fish catch structure due to Danube effluent (pollution)/embankment (habitat reduction), fishery decline

**Issue:** How to maintain a good quality of bathing waters?  
**Impact:** of low quality (reduced transparency) of bathing water



### Stakeholder partners

Ministry of Environment, Danube Delta Biosphere Reserve Authority; Romanian Water Authority; NGO's (local, national, international); Tourism (companies); Fishermen associations;

### goods and services

**Goods-** Species/Habitat biodiversity, natural resources (fish, reed)  
**Services-** flora & fauna habitats, leisure activities, tourism, aesthetic values

**BS Basin Directorate;** Reg.Ins.EPW ; Reg.Ins. EHP; WSSS Agency; Municipality-Varna; Port Authority; Industry-Devnya; IMH-BAS; National Tourism Agency-Varna; EA for Fishery and Aquaculture; Black Sea NGO Network; Institute of Ecological Modernization

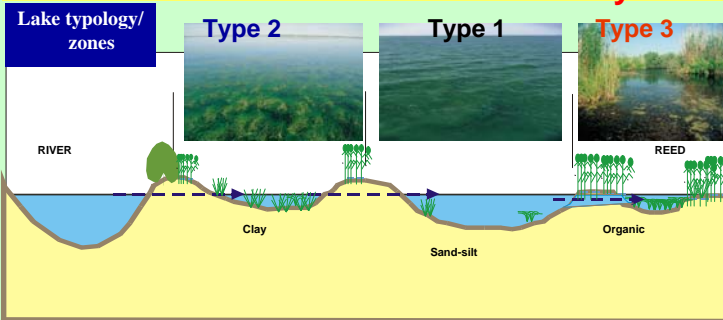
**Goods-** Species/Habitat Biodiversity; Fishery, living resources, oil/gas extraction  
**Services-** Tourism (aesthetic value, feel good or warm glow, SPA and thalassotherapy, Recreation and leisure (diving, fishing);  
**Over-arching support services** (Resilience and resistance (life support), Biologically mediated habit, Nutrient cycling/C sequestration, Research /education/



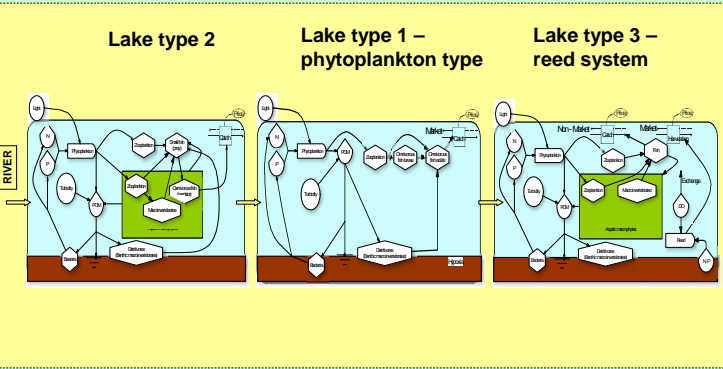
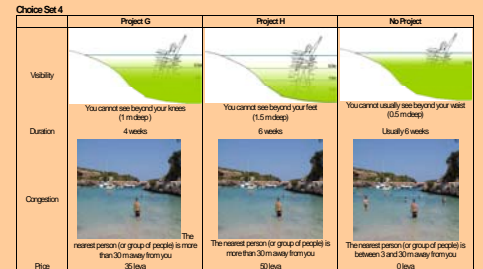
### Human Activities -Environmental state (related to the impact)

Increased nutrient load	Pressure /Environmental state
Tourism (Sewage discharge, Marinas)	Exceeding maximum capacity of sewage treatment plants (WWTP's)-lead to steeper increases in nutrient discharge; Habitat destruction/squeeze
Shipping (Oil pollution, transport (dredging for maintenance)	Alteration biodiversity; Exotic species, Sediment re-suspension (nutrients turn-over)
Urbanization / Surface erosion	Extreme weather and surface erosion-cause pulses of particle bound nutrients
Industry	Nutrients introduction
Agriculture- use of fertiliser	Exceeding maximum take-up of nitrogen by soil

## Economic, ecosystem components in the "Virtual System"

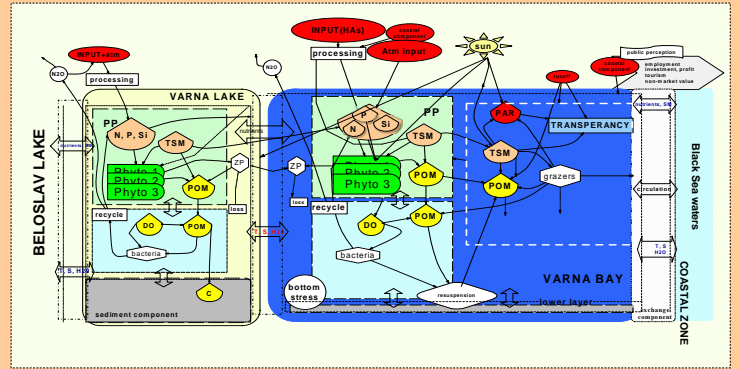


- Methods for valuing:  
 (1) Cost-benefit analysis of changes in nutrient flow  
 (2) Contingent Valuation (CV), willingness to pay (WTP) for a specified improvement in environmental quality (visibility)  
 (3) Conjoint Choice Experiments (CE) based on the stated preferences technique used to assign monetary values to environmental goods/ services  
 ✓ Results of 1000 interviews →



### Conceptual model diagram for the VS

build mainly on the results/output of THRESHOLD Project: after T. Taylor et al., 2007



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Science and Policy Integration for COastal Systems Assessment

