Navigation and River Ecology

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Steering Committee PA1a EUSDR

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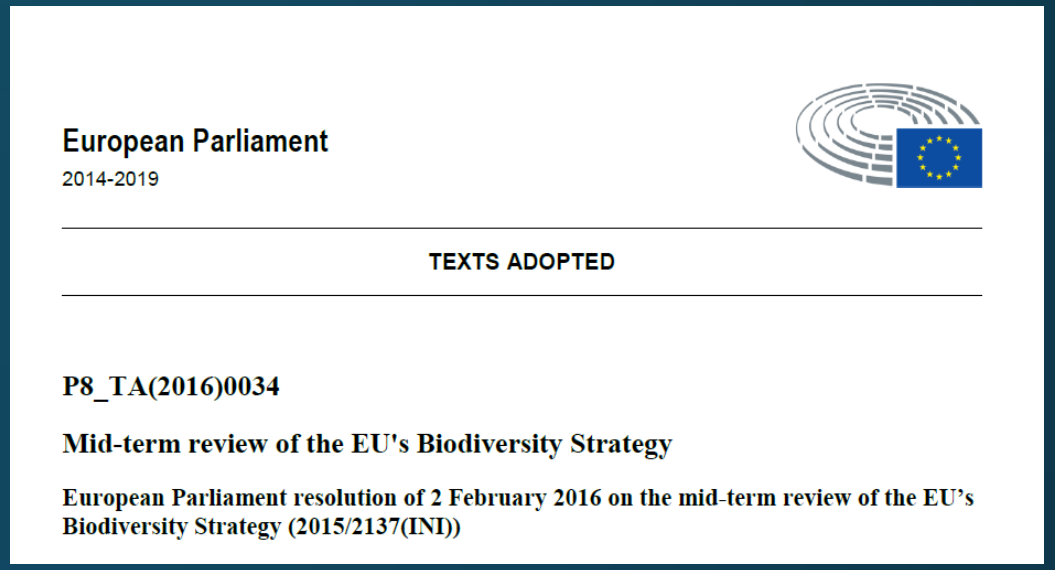
Increasing political support for biodiversity conservation



European Parliament
2014-2019

TEXTS ADOPTED

P8_TA(2016)0034

Mid-term review of the EU's Biodiversity Strategy

European Parliament resolution of 2 February 2016 on the mid-term review of the EU's Biodiversity Strategy (2015/2137(INI))

European Parliament, 2016: Resolution on the Mid term review of the EU's Biodiversity Strategy

- Habitat destruction - the most important cause of biodiversity loss
- Integration of biodiversity protection into other policy areas – essential
- Biodiversity loss has devastating economic costs for society
- Biodiversity is an overall social responsibility
- Calls for the EU to reduce its biodiversity footprint

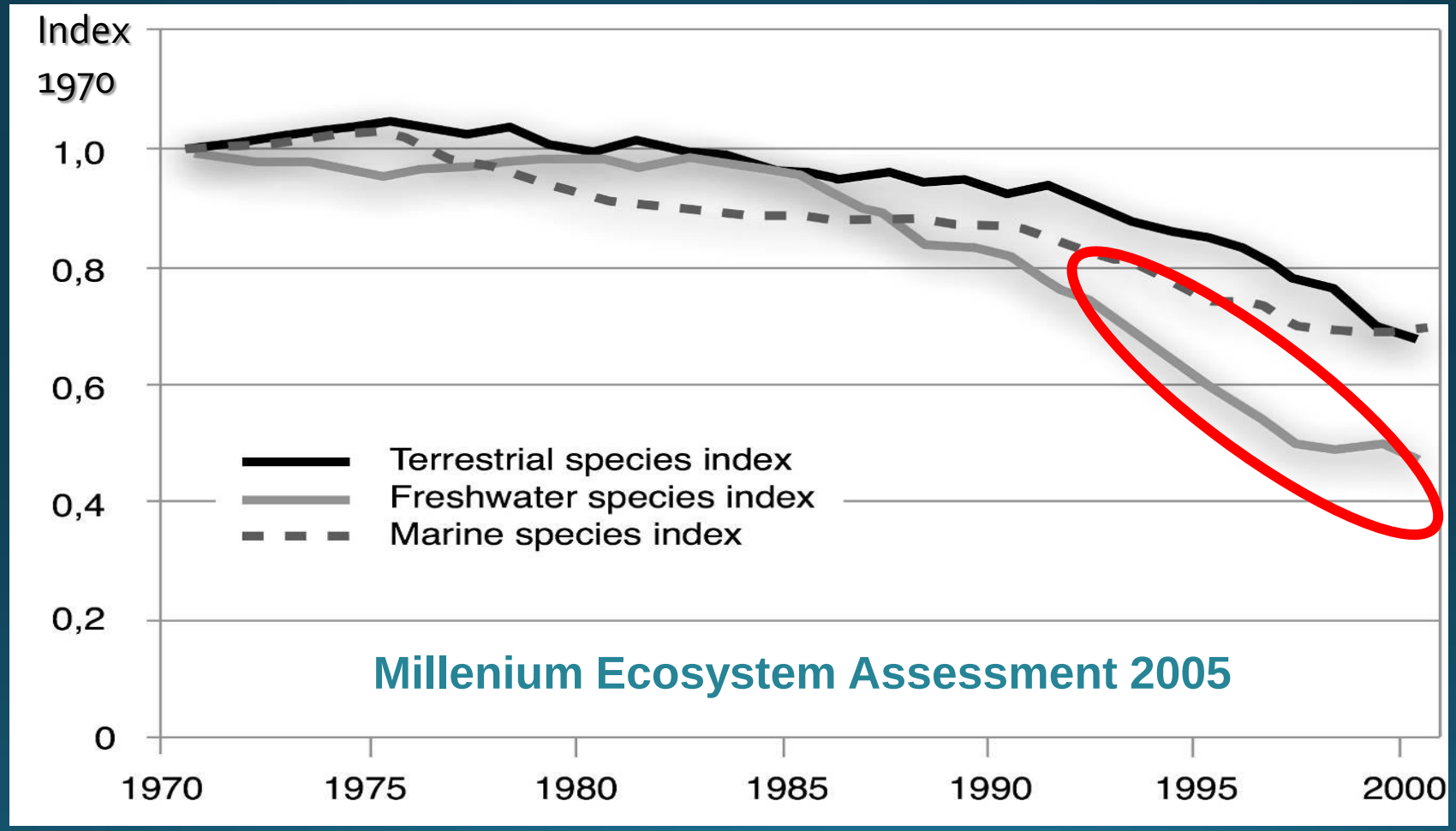
Why is biodiversity so important?

Apart from its intrinsic value, **biodiversity ensures the very basis of human existence**

Ecosystem services (benefits) provided by biodiversity:

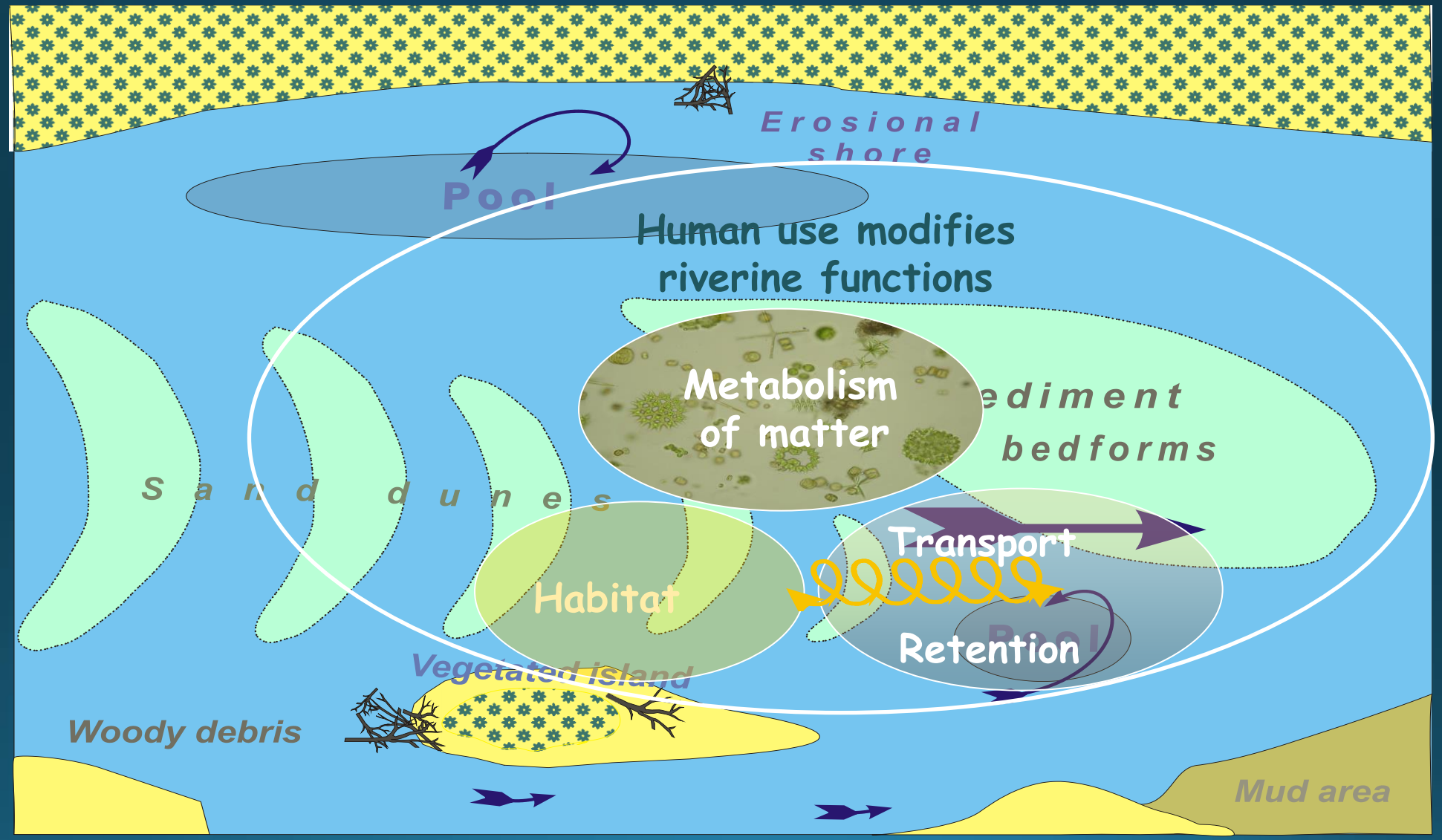
- **Cultural services** - recreation, tourism, esthetics and religious significance of landscape elements
- **Supporting services** - soil generation, photosynthesis , pollination, nutrient recycling, oxygen production
- **Provisioning services** - food, water, fibers, wood, oil
- **Regulating services** - regulation of atmospheric composition, climate, floods, diseases or water quality

Freshwater species are the most endangered



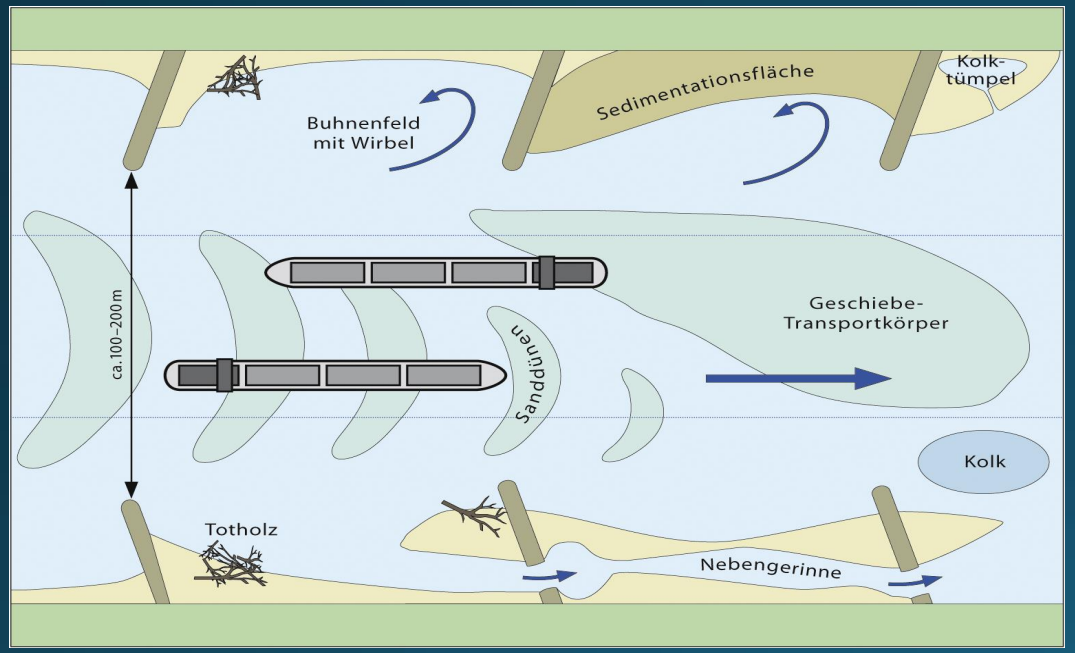
Human pressures on river corridors
Morphological alterations – impact processes and aquatic species

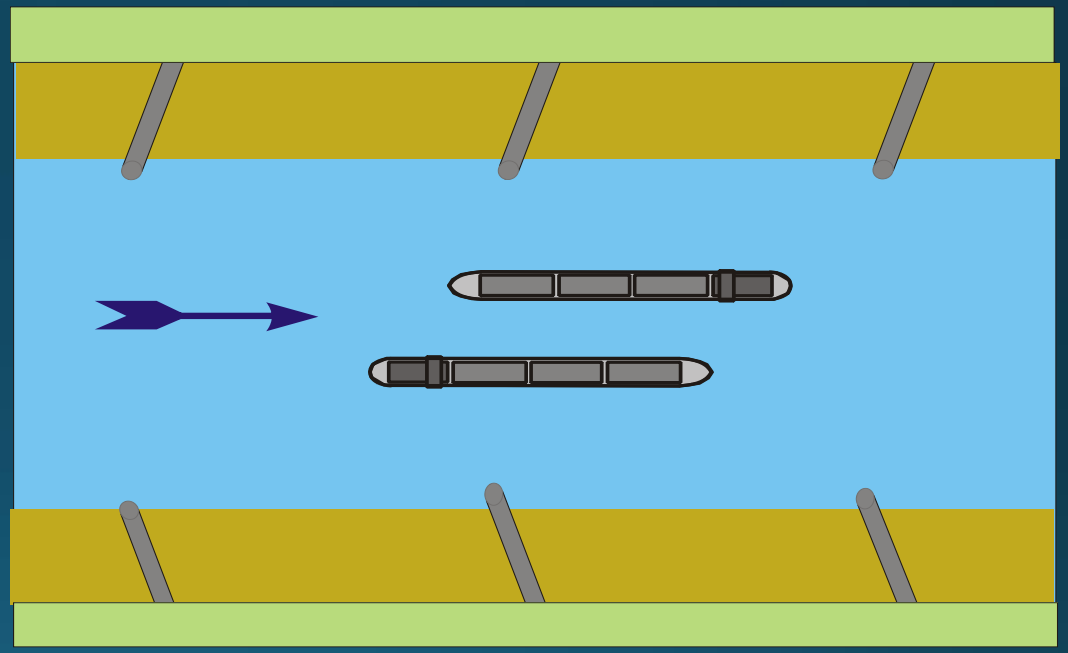
Dynamic riverine channel structures are focal sites of ecological functions…



Human pressures on river corridors
Morphological alterations – impact river functionality

Channelization – impacts rivers functionality → rivers lose their biodiversity and capacity to support human society with ecosystem services





Sediments, banks and floodplains represent part of the river system – essential for the conservation of aquatic biodiversity

Channel management for navigation can be adapted ecologically

Example of inter-sectoral management measures

Re-dynamisation of the Danube downstream of Vienna (Austria)

Before:

Inter-sectoral objectives:

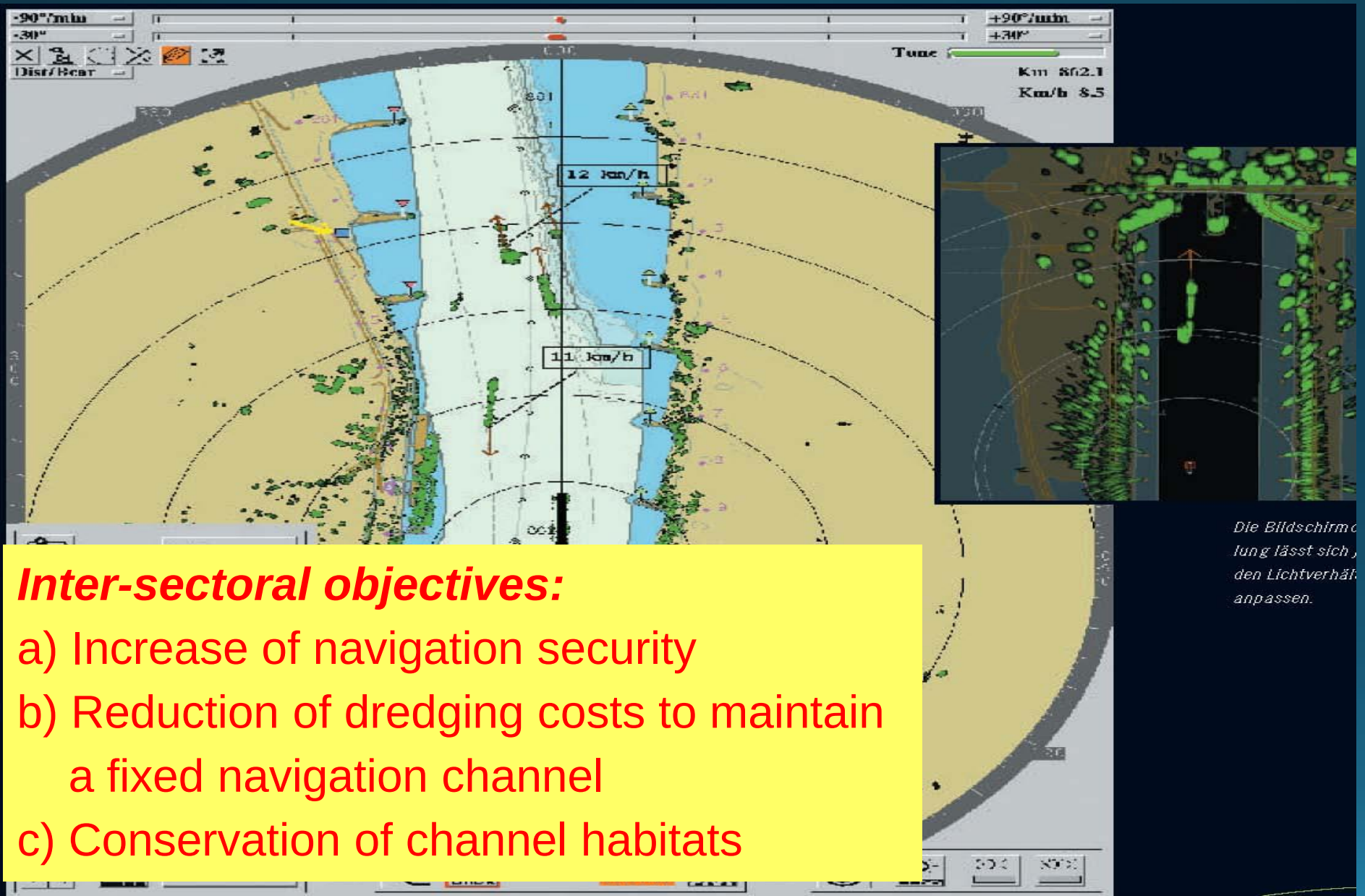
a) Prevention of further channel erosion

b) Securing river depth for navigation

c) Restoration of bank and floodplain habitats

After:

Examples of inter-sectoral management measures



Radar pilot

A digital map of actual river depths available to ship captains enables the co-existence of riverine morphodynamics with navigation

Inter-sectoral objectives:

a) Increase of navigation security

b) Reduction of dredging costs to maintain a fixed navigation channel

c) Conservation of channel habitats

Current situation of the Danube River

Channelization impact over long stretches on upper and middle Danube:

- Rectification
- Meanders cut
- Embankments, rip-rap
- Disconnection of side channels
- Dams, ship-locks

Consequences:

- Floodplains lose their capacity to provide ecosystem services
- River bed incision – impact on groundwater level
- Dramatic decline of biodiversity due to the loss of habitats
- Reduced capacity of rivers to cope with additional challenges (climate change, pollution, water abstraction)

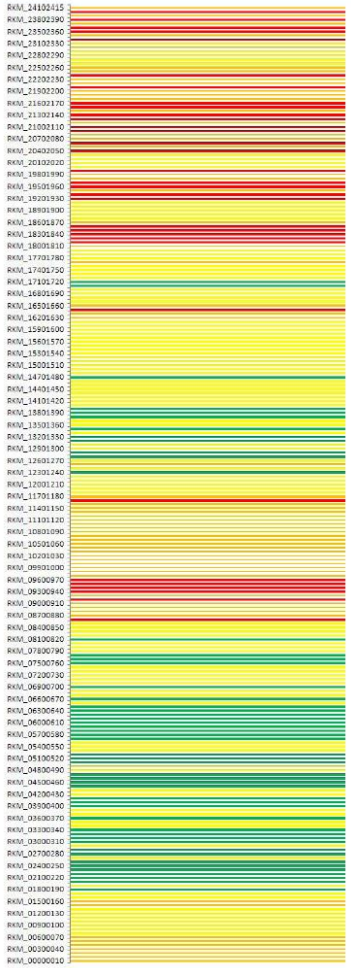
Hydromorphological assessment of Danube

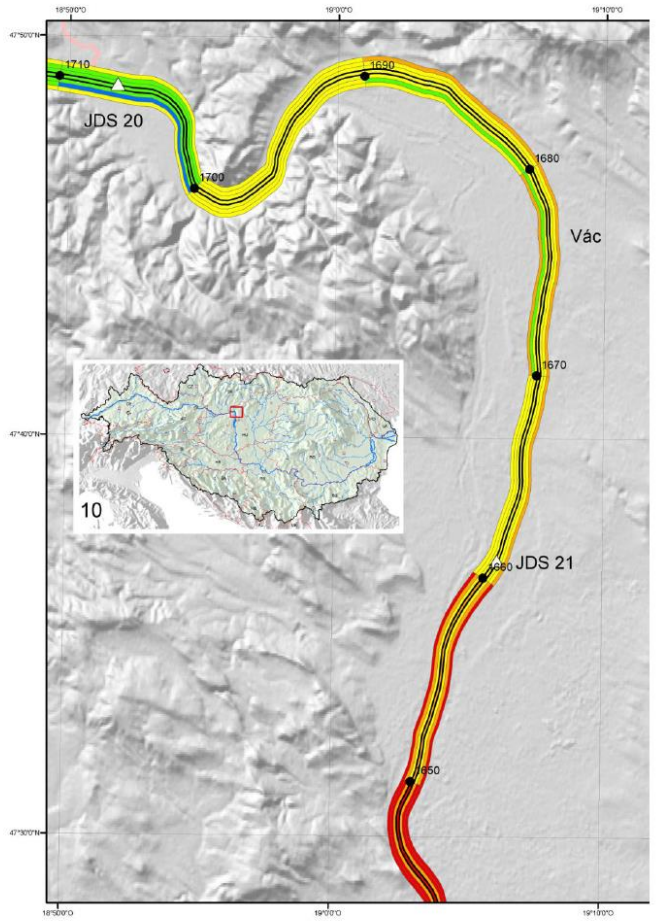
Danube Atlas
Hydromorphology

Joint Danube Survey 3

icpdr iksd
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

Date: 31.08.2014





Danube (rkm 0-2,400) still provides along about ¼ of its lengths or 600 rkm “Good” HYMO conditions, an outstanding value in comparison to other large rivers in Europe. Large tributaries, such as the Sava, reach even much higher values (up to 50% in critical sections).

Unfortunately navigation bottlenecks fall often in those ecologically valuable reaches.

Further over 50% of entire river course is protected under Natura 2000.

How can ecology and navigation coexist?

Dialogue between navigation stakeholders, river engineers and environmental experts **from early planning phases of technical measures**

Large ships cannot pass on small rivers – **adapt the ship size, improve multimodal connection**

High negative impact of waves on aquatic and semi-aquatic species (habitat destruction, displacement of adults and juveniles, eggs loss) – **limit speed**

Natural river banks, gravel and sandbars as well as dynamic floodplains are very valuable habitats for aquatic / semi-aquatic species – **should be preserved as such (Natura 2000 and river bio-corridors)**

Positive examples and **best practices** in river restoration/sediment and river engineering management (e.g Viadonau AT or partially Plovput RS) should be encouraged and **applied by other navigation authorities**

Healthy rivers are full of life – lets work together to preserve it!

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