

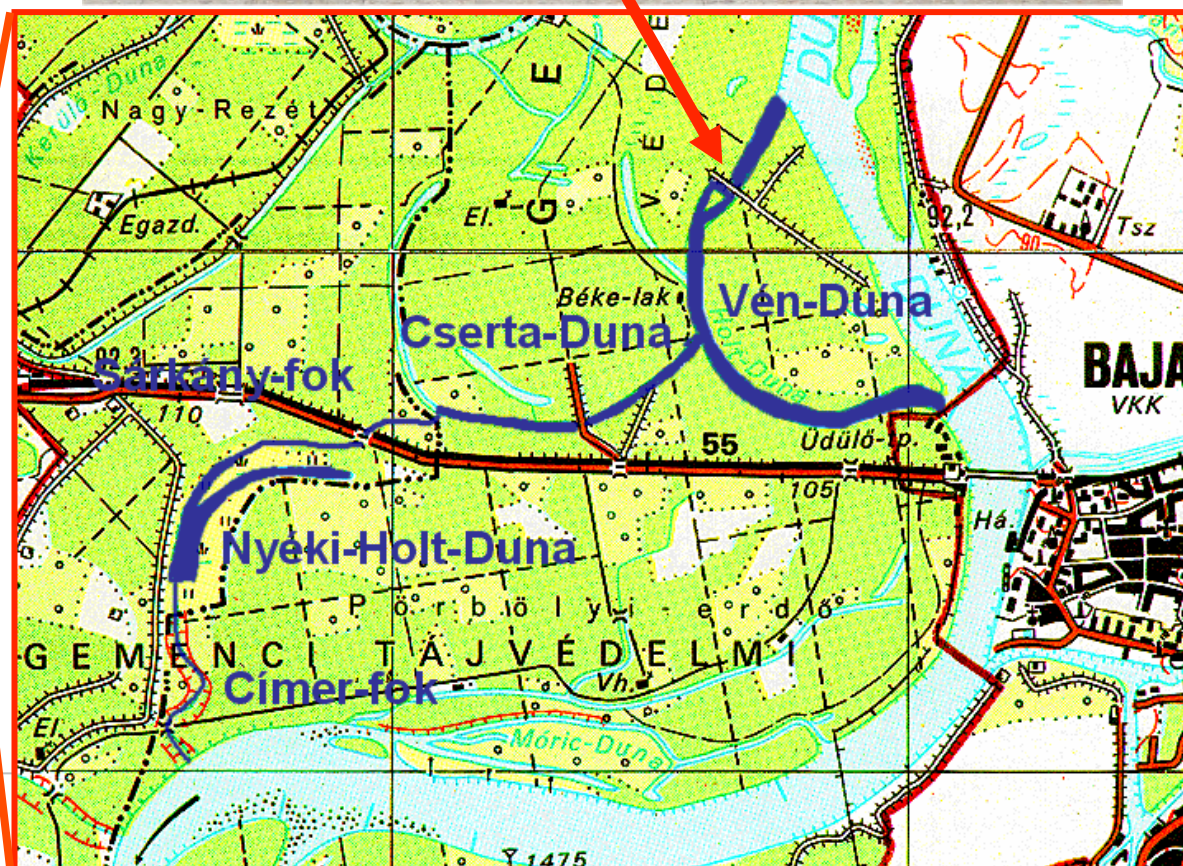
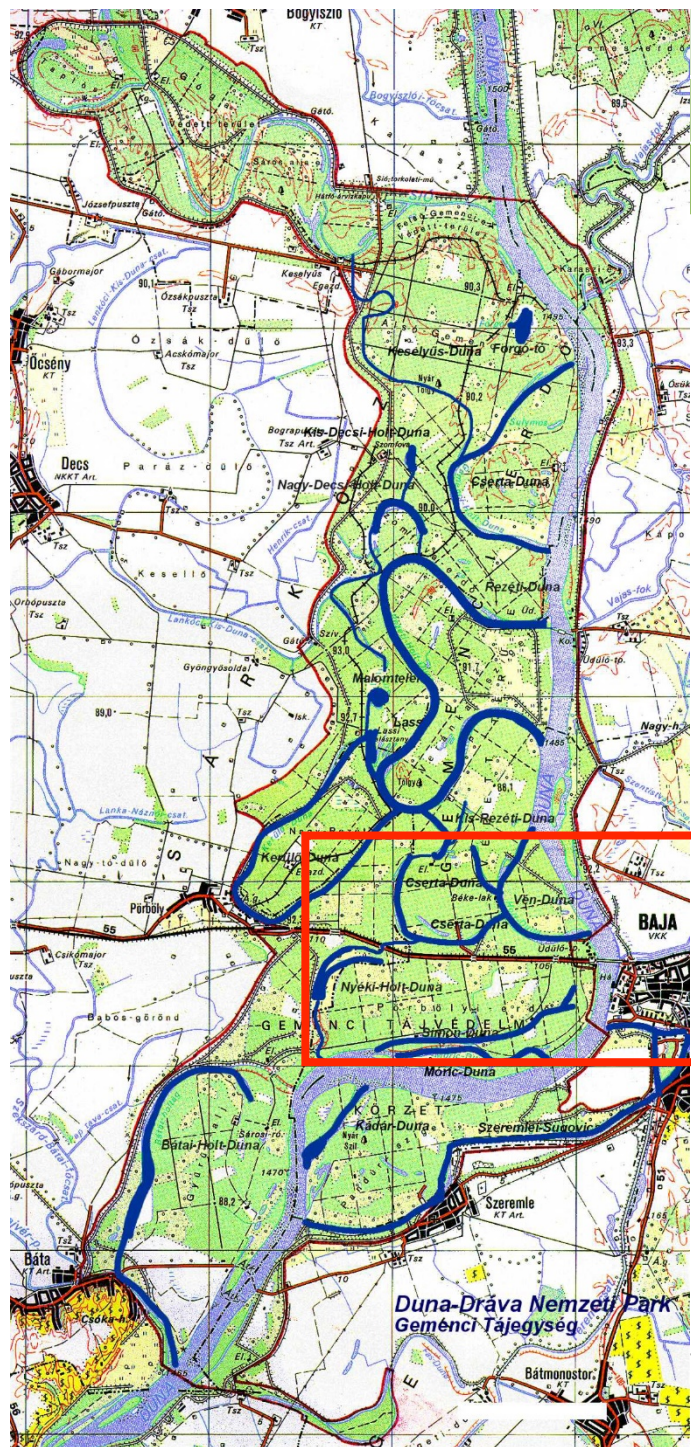
Side channels in large European rivers

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Fort Pannerden, 8 November 2018



Danube in Hungary near Baja

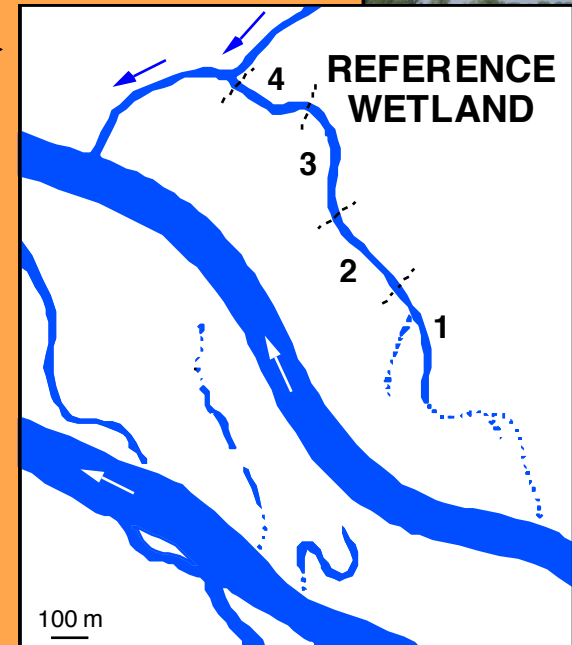
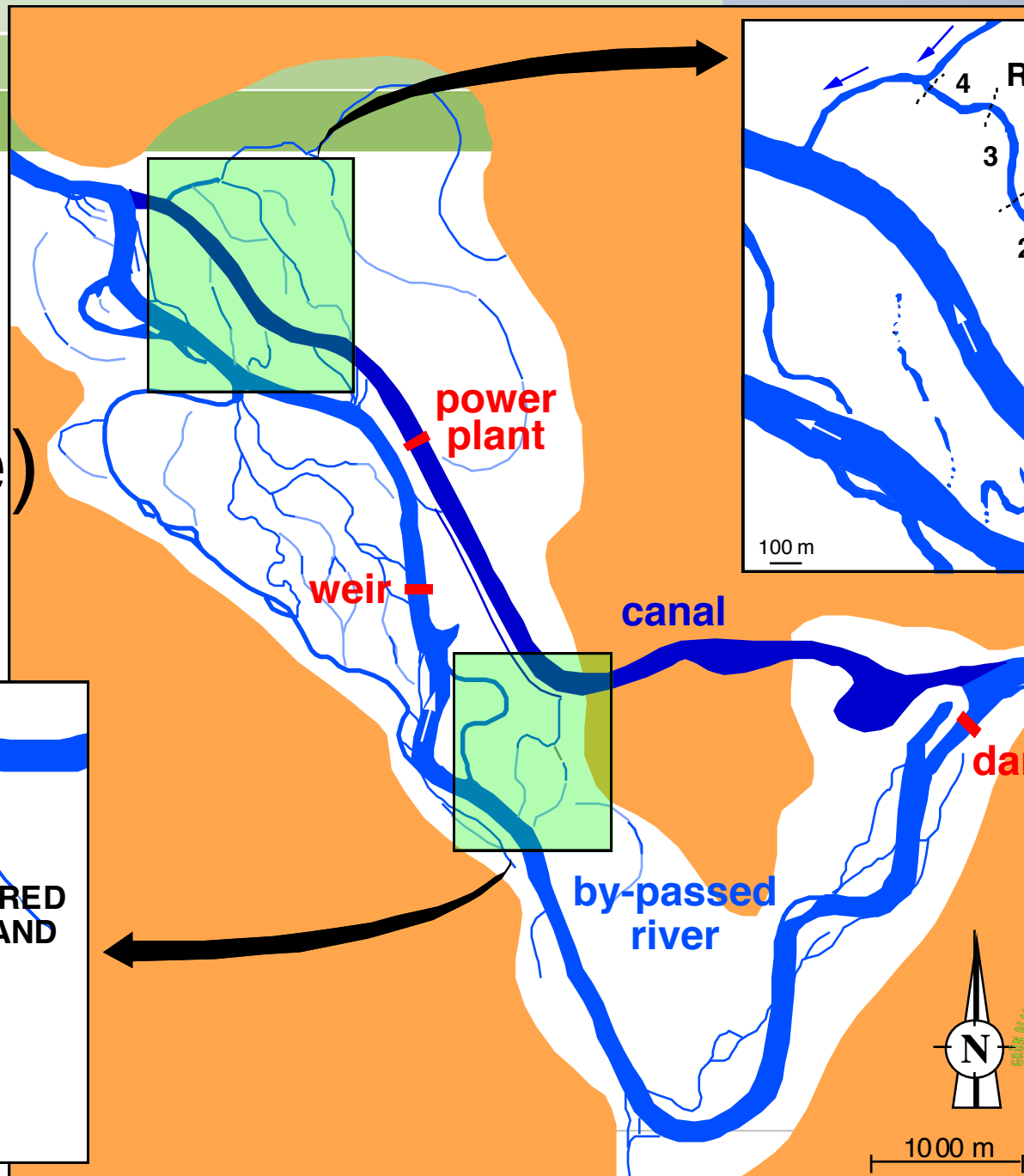
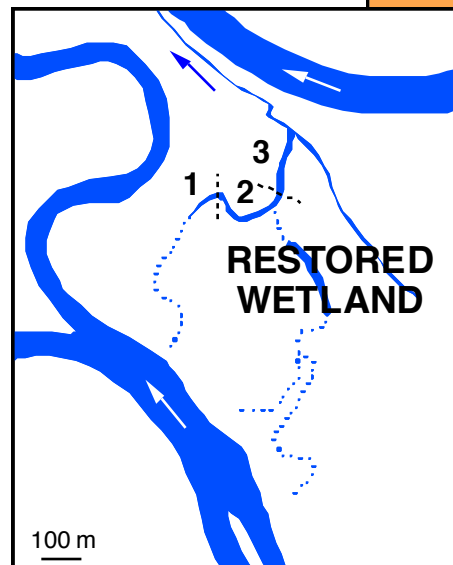


Before opening



After opening
(2000)

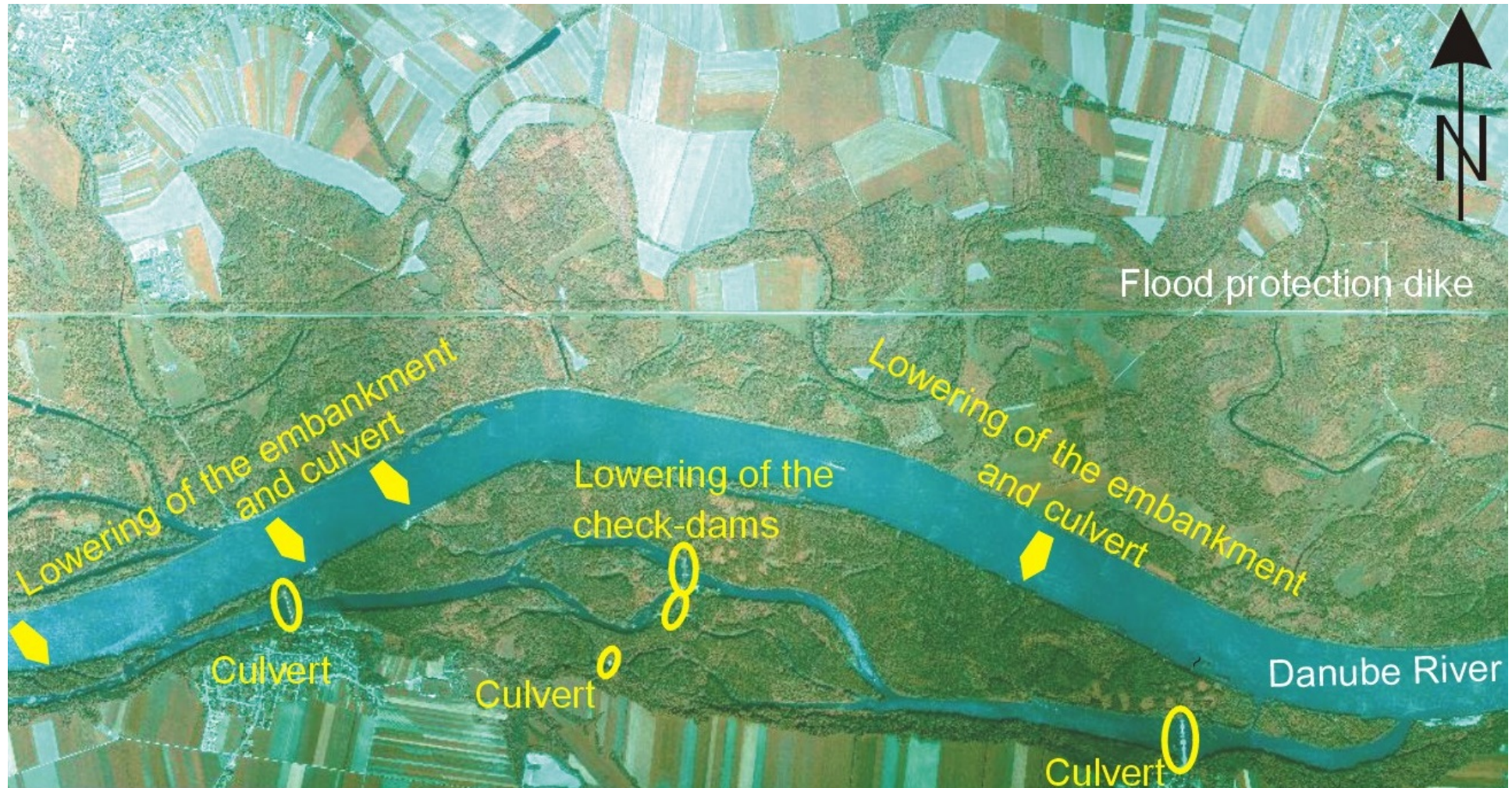
Rhône River (France)



1000 m

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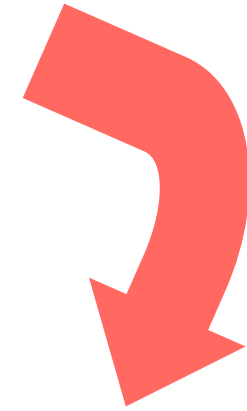
The „Regelsbrunn“ Project (Austria)



Re-opening Regelsbrunn side arm (Austria, Danube, 1998)

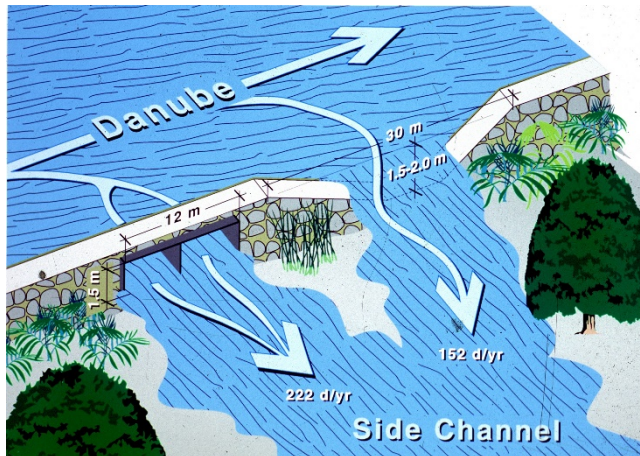


Solution within constraints: the compromise with navigation (threshold at midwater level) did **NOT** allow the return of rheophilic species



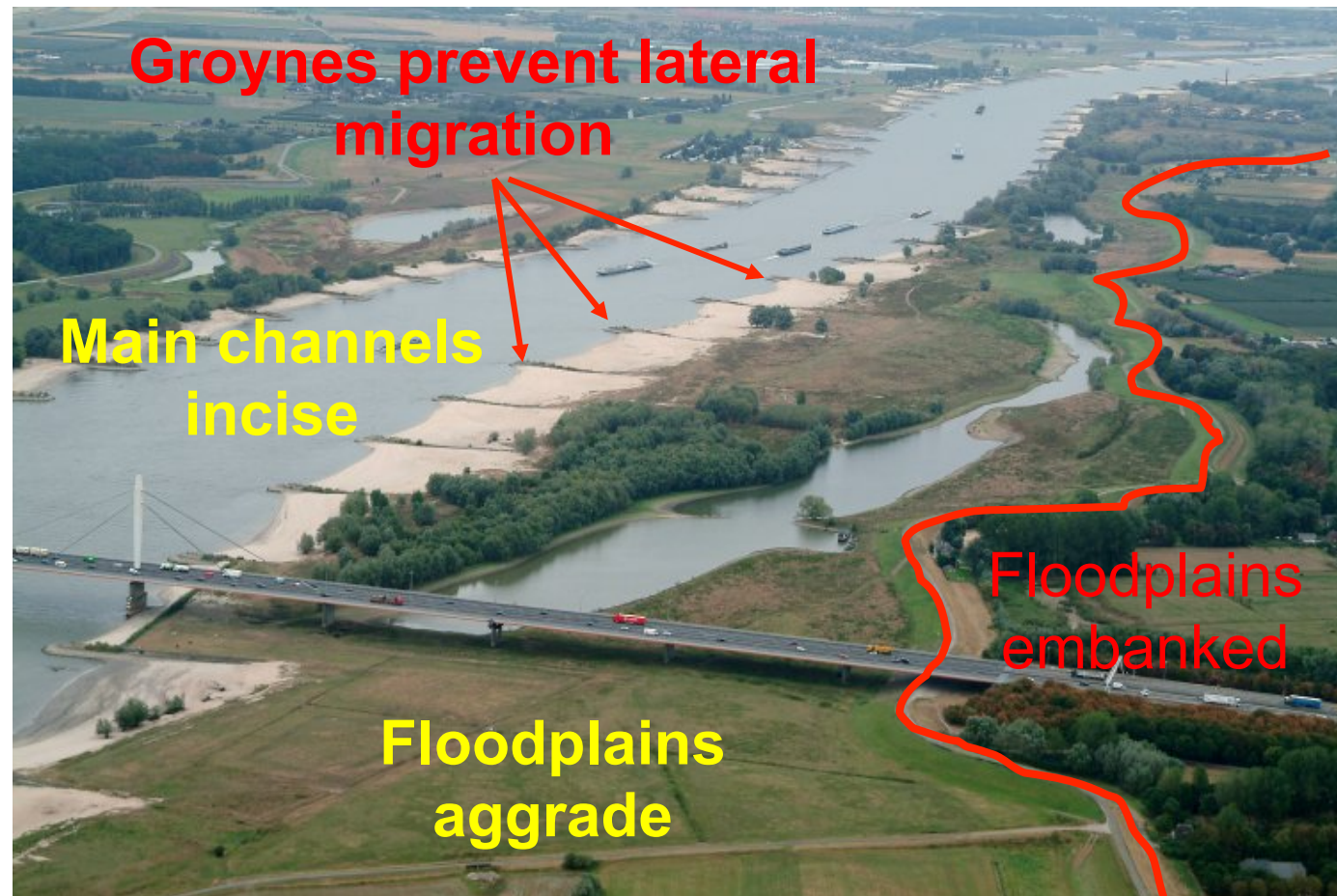
New projects got more freedom:

- less construction
- lower threshold



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River Rhine in the Netherlands



Main channel –
2 m

Floodplain
+ 1 m

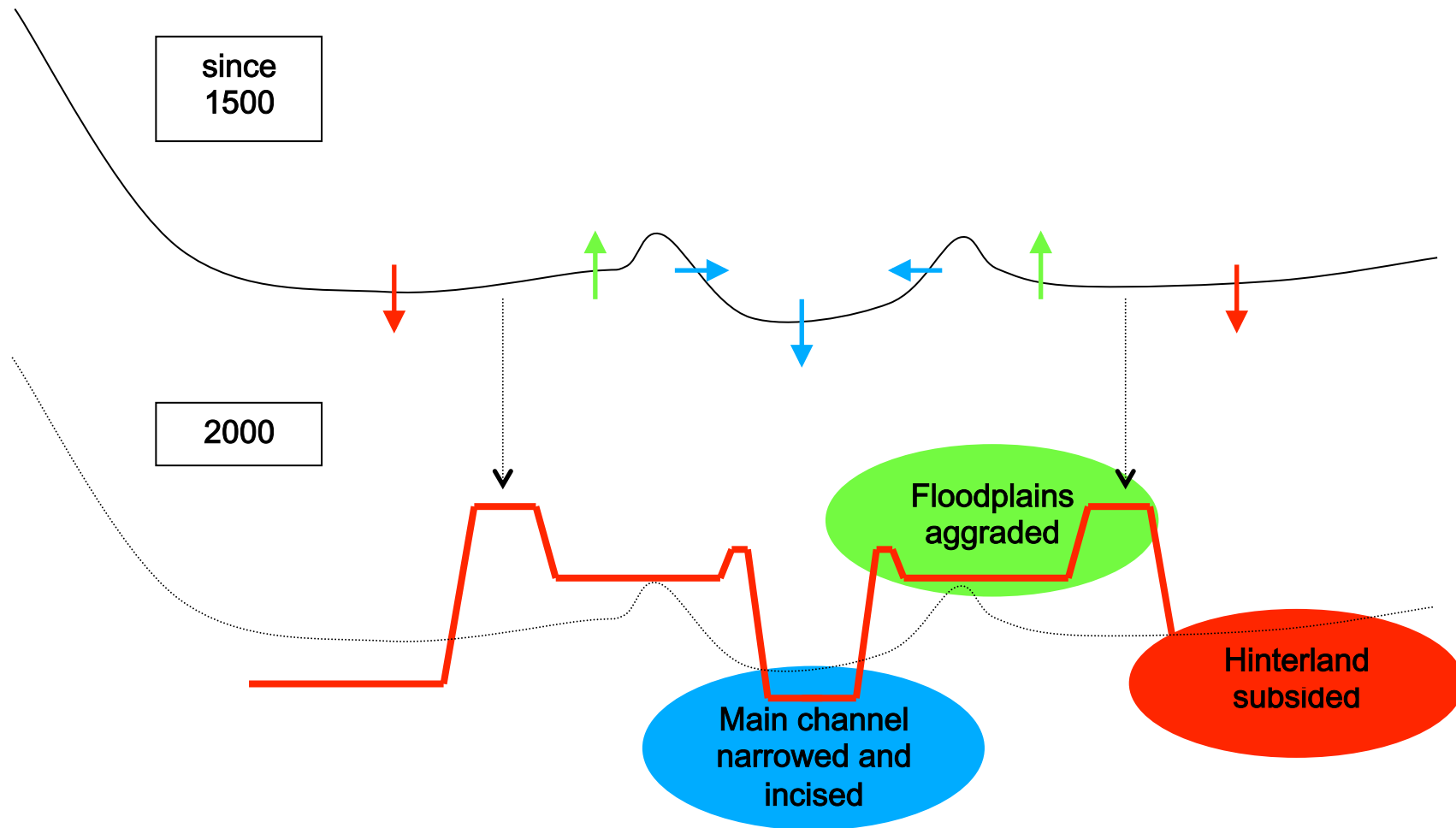
Steeper banks

Lack of
shallow flowing
habitats

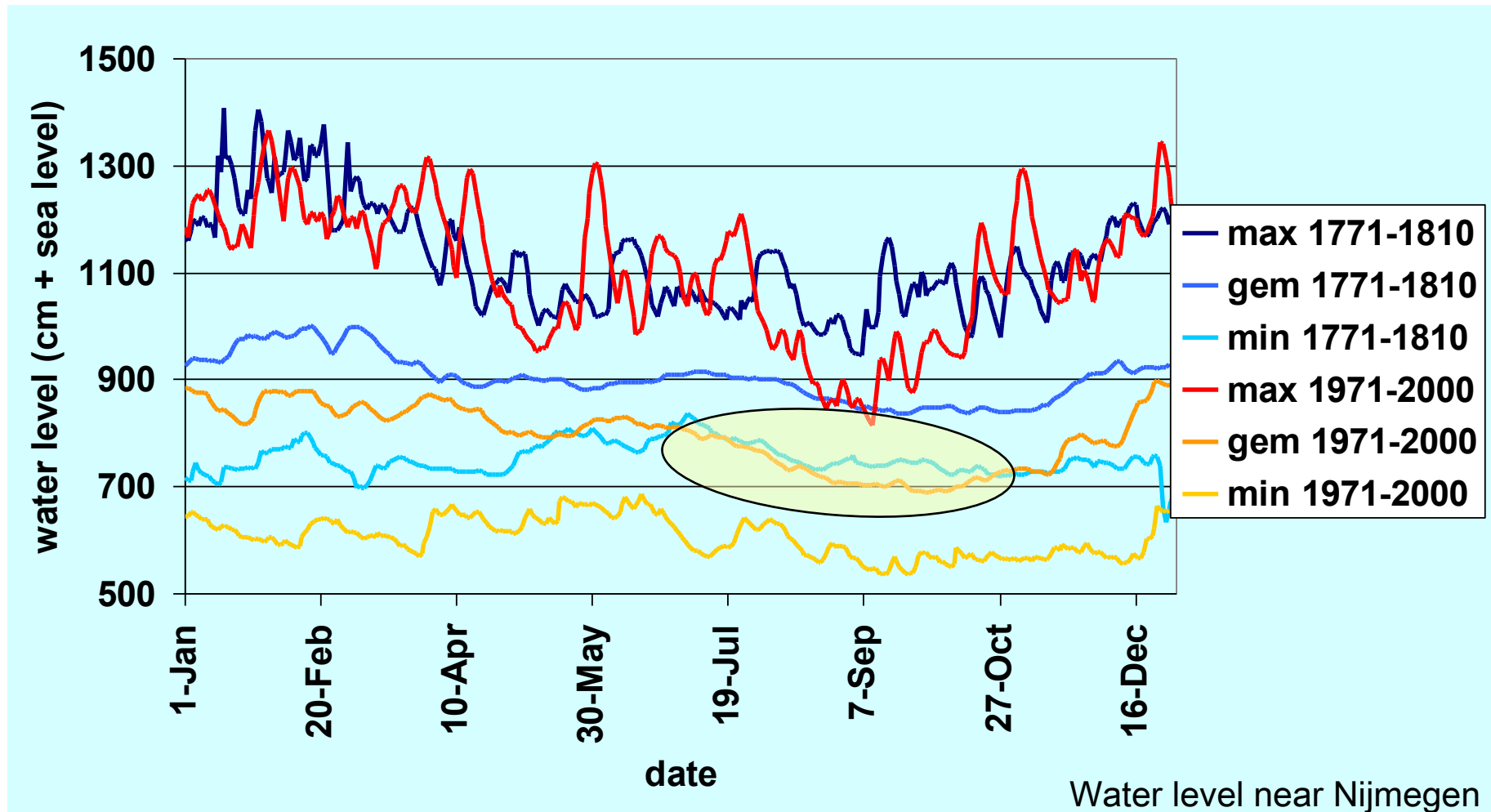


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The present river-floodplain landscape restricts and directs rehabilitation

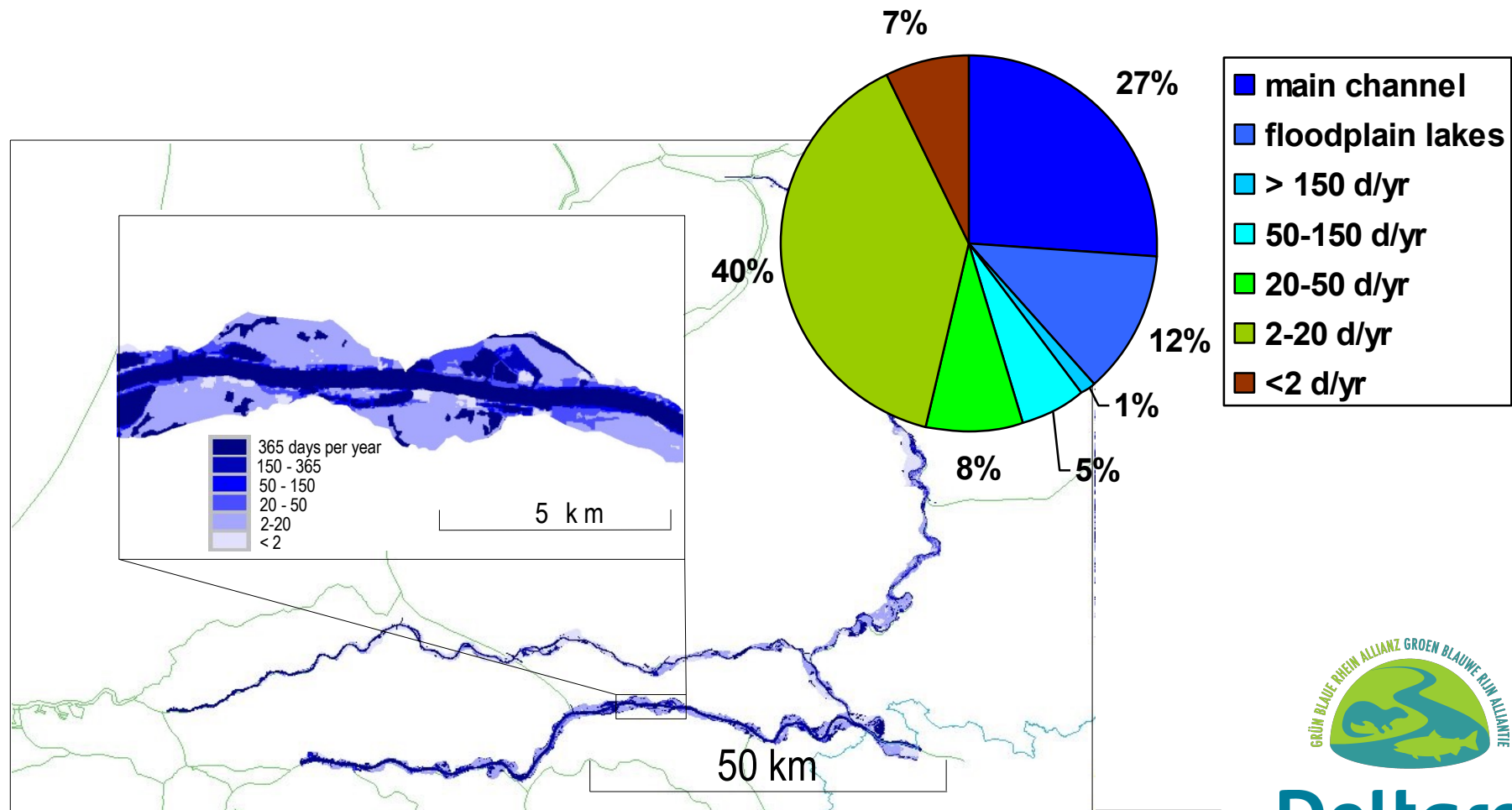


Mean water levels in summer are nowadays lower than low water levels in 1800, but at the same time floodplains aggradated



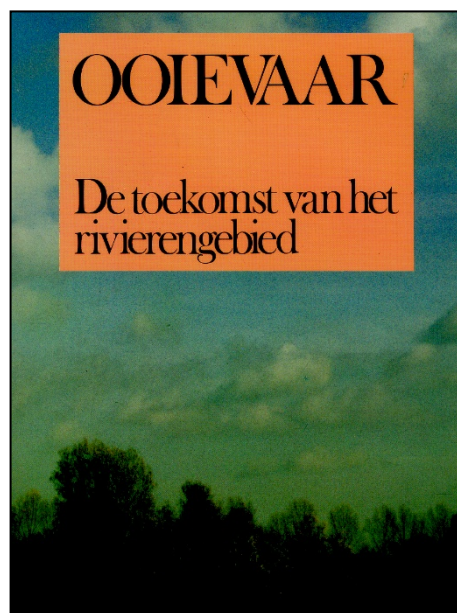
Water level near Nijmegen

The river-floodplain is now 39% water and 47% land that inundates < 20d/yr. There is little dynamic transition zone. Only 6% inundates > 50 d/yr



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Visions from NGOs and private sector 1980 – 1990s



1987 Plan 'Black Stork'

1992 WWF's 'Living Rivers'

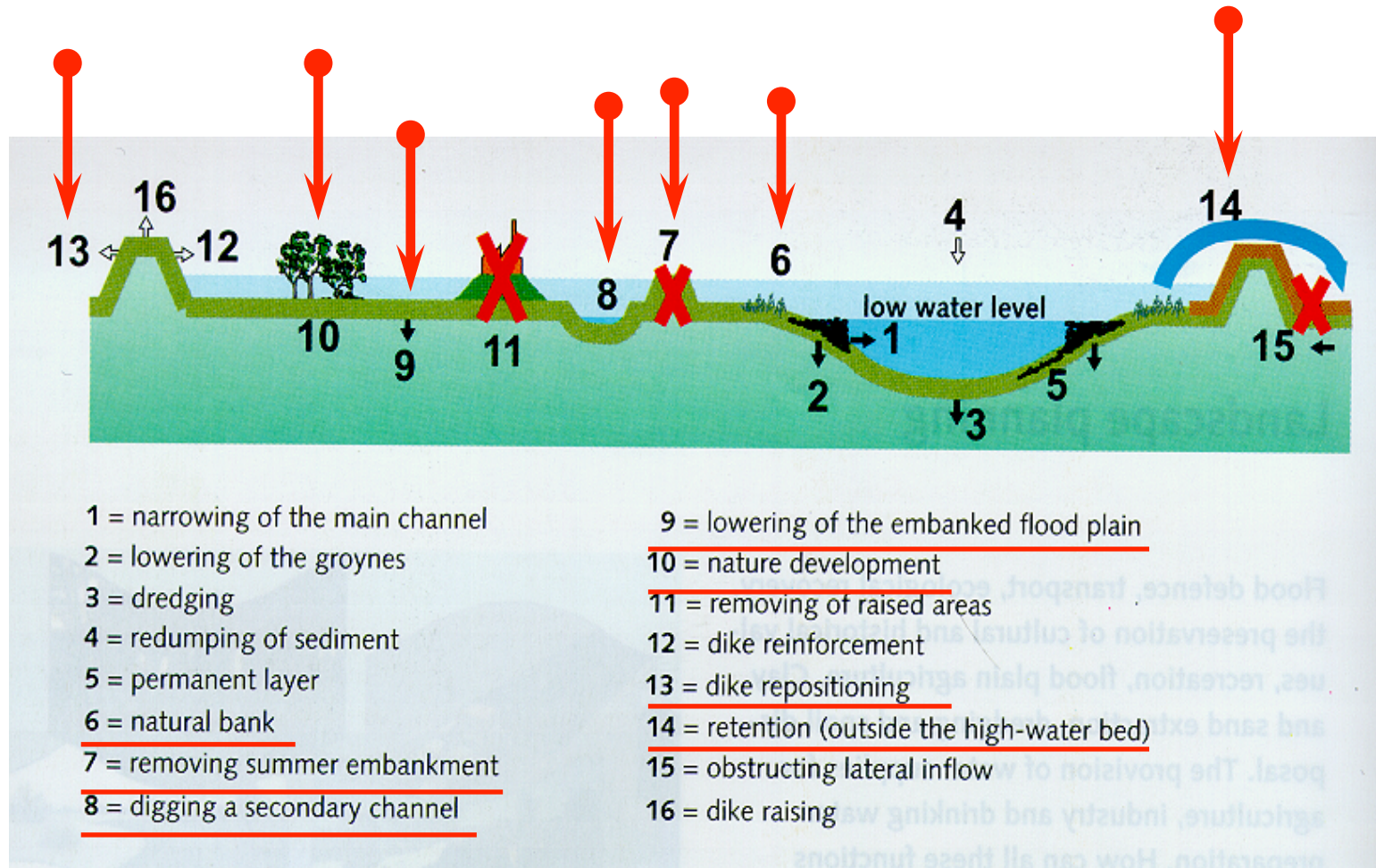
1993 / 1995 Floods

- More nature in the floodplains
- Agriculture in the hinterland
- Combining flood risk reduction with improvement of environmental quality



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'FLOOD RISK REDUCTION MEASURES' OFFERS ECOLOGICAL REHABILITATION OPPORTUNITIES



Example: Parallel dam Opijnen



- 1994
- Synergy with navigation
- Spawning and nursery habitat for rheophilic fish species



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Example: Beneden Leeuwen (1995)



- Culvert to control discharge
- Sand-mining pit to prevent siltation



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Example: Side channel - Gamberen



- 3 channels
- 1996 - 1999
- Synergy with flood protection
- Spawning and nursery habitat for rheophilic fish species



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Side channels along the Rhine



In conclusion ...



There is ambition and there is also international experience



**So let's us
cross the
side
channel**



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