



The reintroduction of the allis shad to the Rhine system - backgrounds, objectives and first signs of success

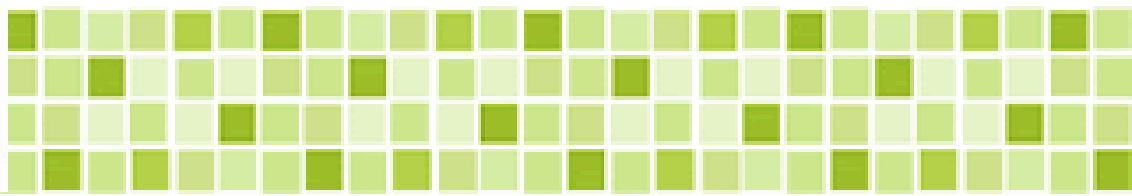


Dr. Andreas Scharbert, RhFV, Project management Life+ *Alosa alosa*



Landesamt für Natur,
Umwelt und Verbraucherschutz
Nordrhein-Westfalen

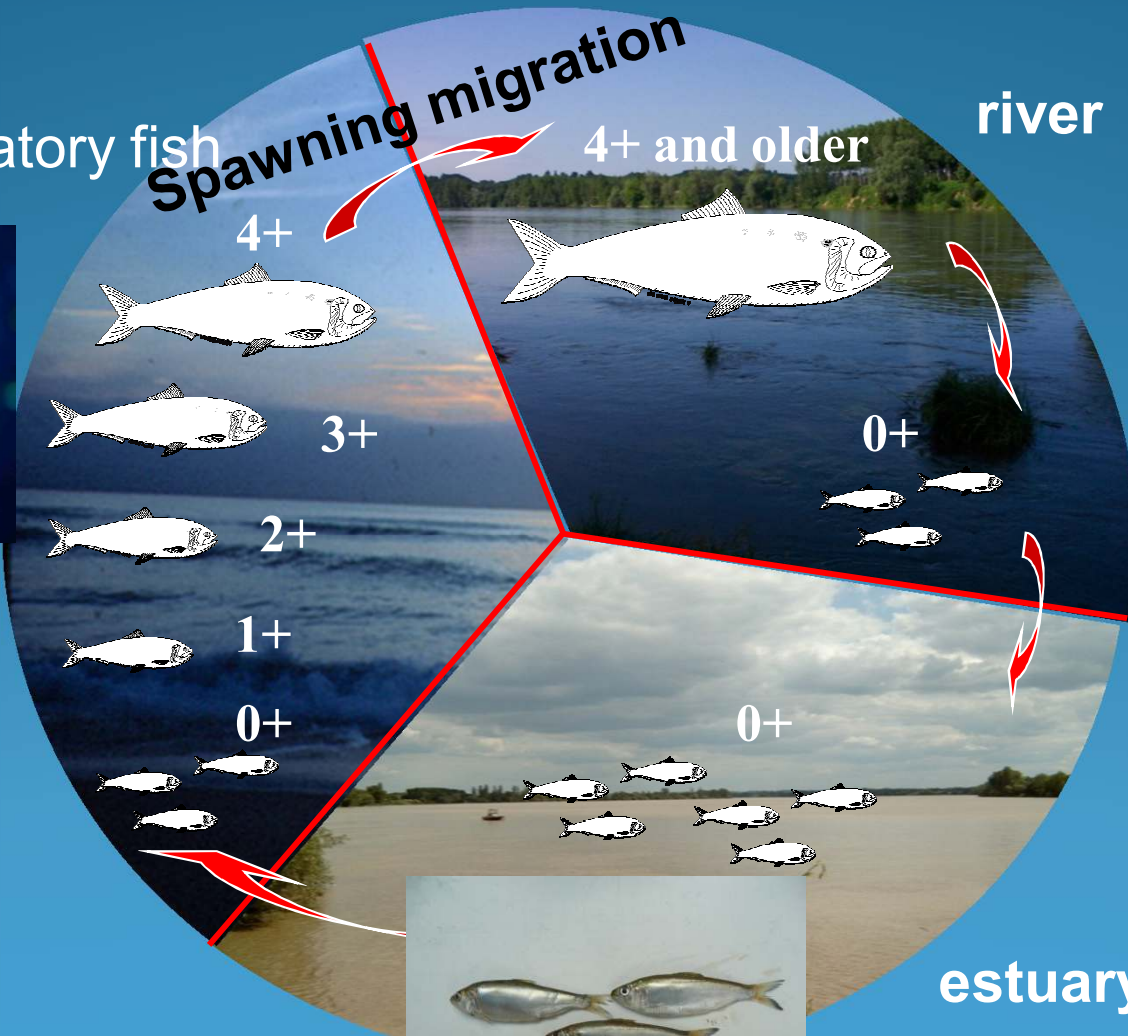




Allis shad *Alosa alosa* L.
 Family Clupeidae
 Length: ~60 cm
 weight: ~3 kg
 Anadromous migratory fish

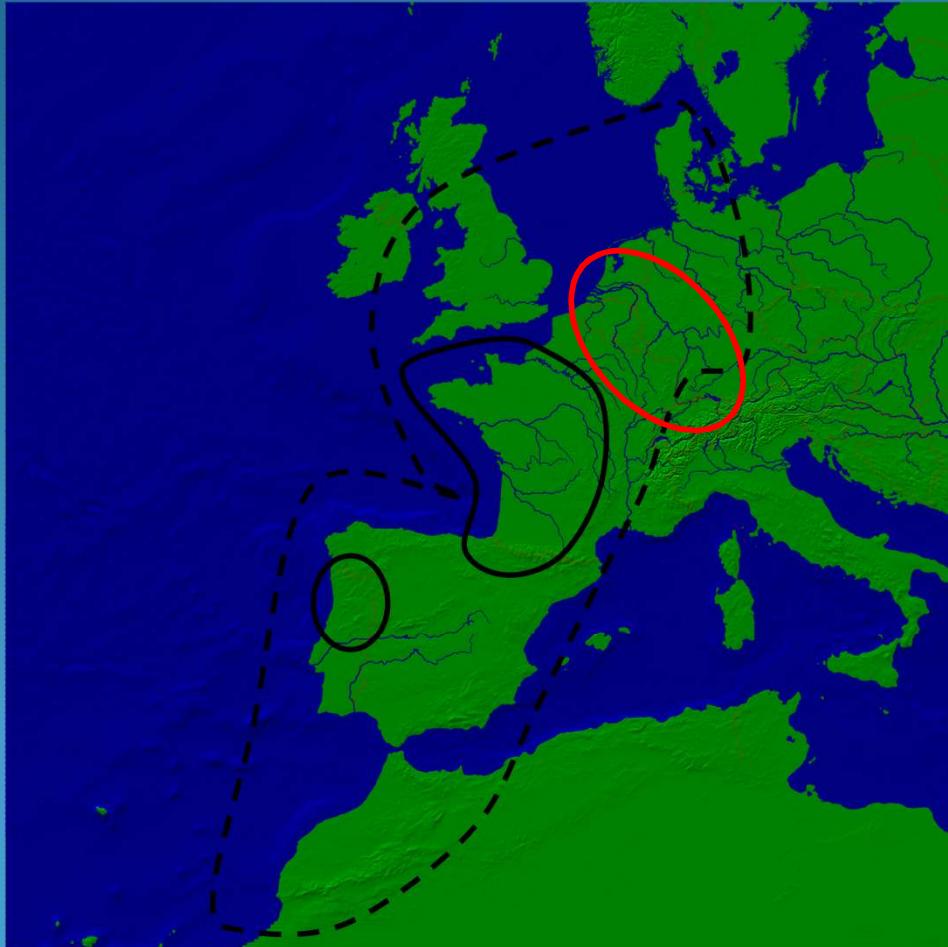


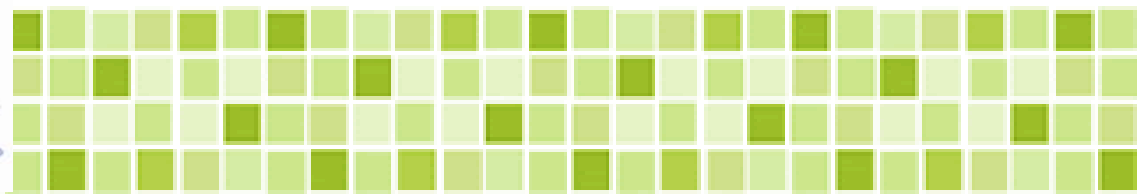
sea



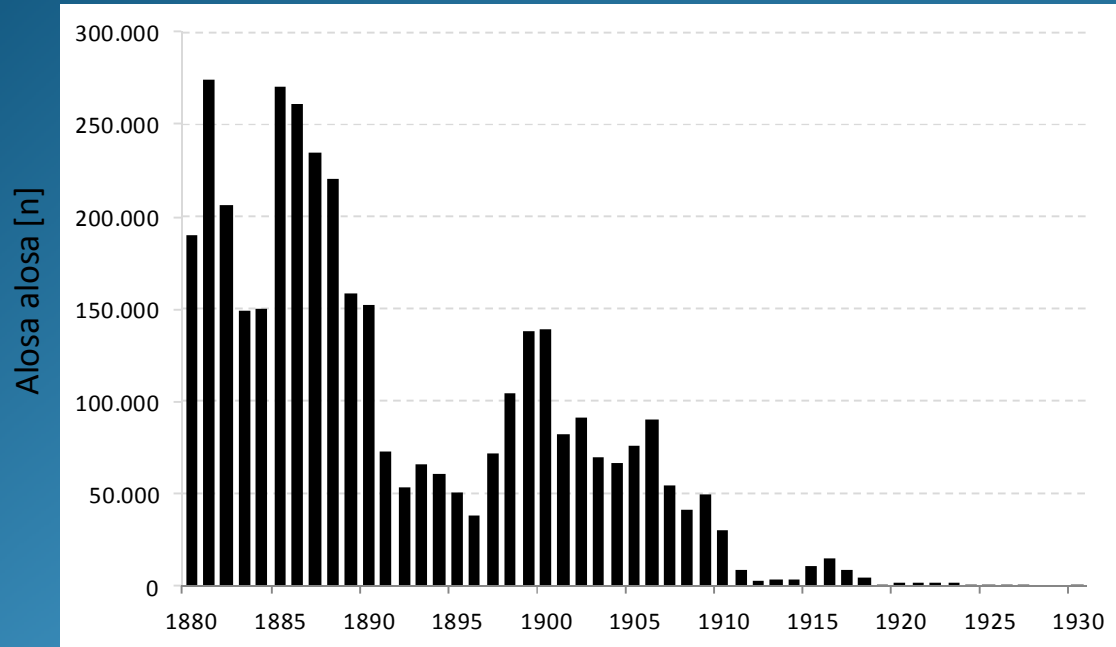


Historic and recent distribution range





•Collapse of the Rhine's Allis shad population in the early 20th century



Landings of Allis shad in the Dutch Delta Rhine around the turn of the century (after de Groot, 1992)

- Last notable yield 1949 near Xanten, afterwards some single records of single shads
- Since the inauguration of the fish pass of Iffezheim (Upper Rhine) regular proofs of migrating adult Allis shad (up to 10 /year),
- but: no proofs of successful reproduction, no development trend, recent proofs identified as strayer from the Gironde-Population
- Recent state in Germany RL 1, EU habitat directive annex II and V



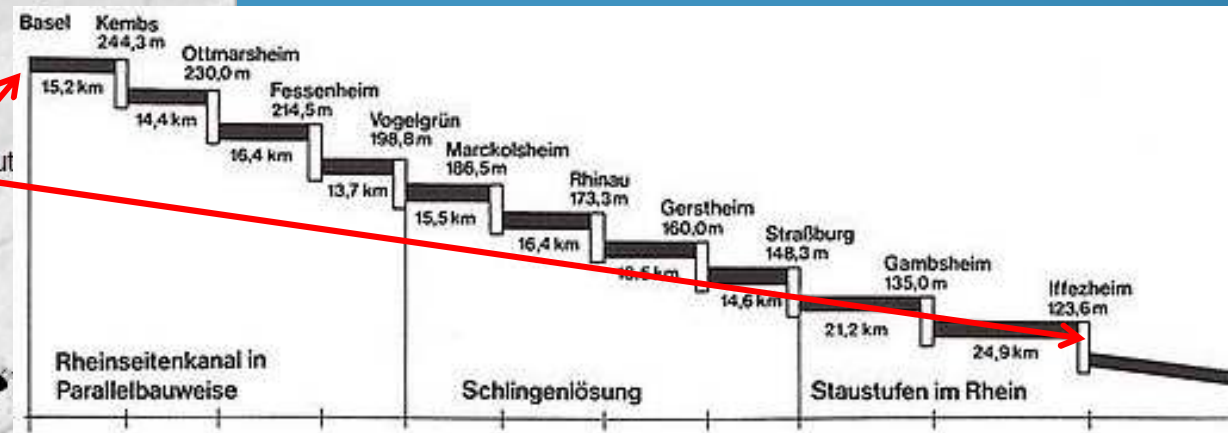
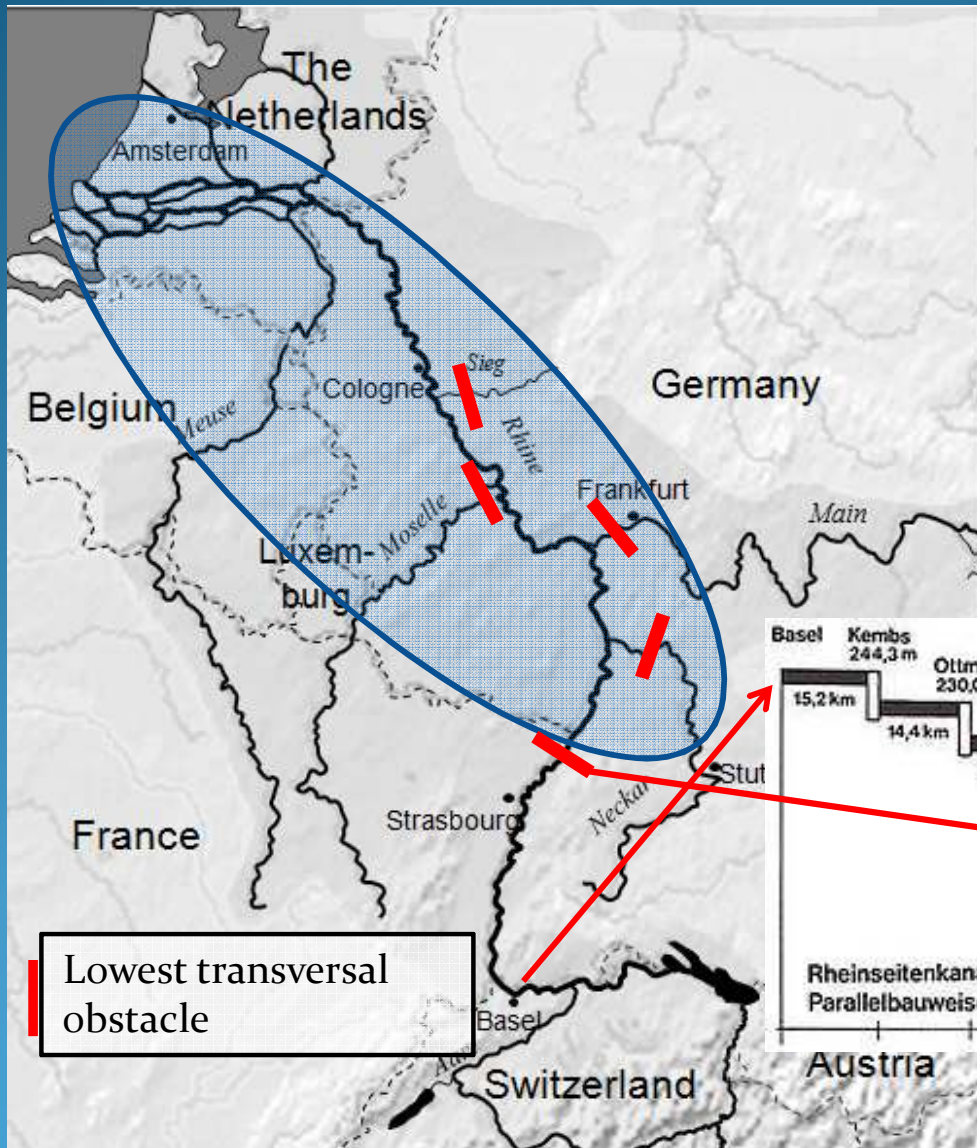
The Life-Project on „The reintroduction of the Allis shad in the Rhine system“ (2007-2010)

- Development of mass breeding and marking techniques for Allis shad
- Studies on the suitability of habitat conditions in the Rhine system (stocking, spawning)
- Initial stocking of up to 5 Mio. Allis shad larvae
- Accompanying monitoring measures



The Rhine

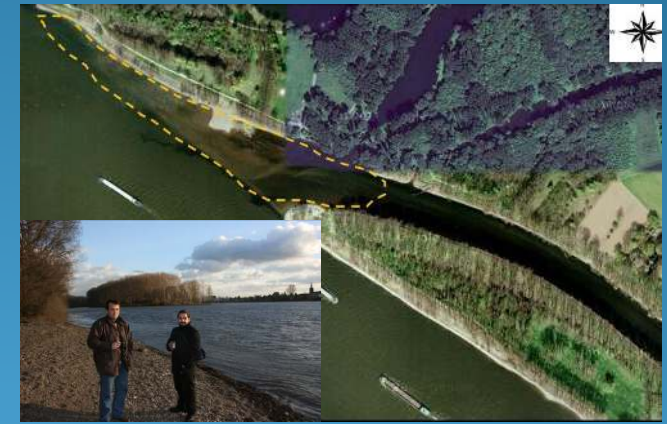
- Catchment: 218,000 km²
- Mean discharge: 2,300 m³ s⁻¹
- Length: 1,240 km
- free flowing stretch ~ 700 km





Suitability of habitat conditions

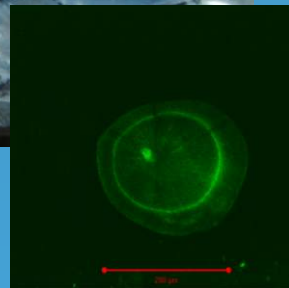
- 66 potential spawning habitats in the Rhine river alone (between Iffezheim and Rotterdam), further downstream of the first transversal obstacles in rivers Lippe, Sieg, Mosel, Main und Neckar



- Observations of larval behavior in mesocosms indicate behavioral adaptation to wash of waves as caused by the intensive navigation



Development of mass breeding and marking techniques





Since January 2011 LIFE+-Project

„Conservation and restoration of the Allis shad in the Gironde and Rhine watersheds“ (2011-2015)

Profile



Coordinating beneficiary:

Landesamt für Natur,
Umwelt und Verbraucherschutz
Nordrhein-Westfalen



Duration: 2011-2015

Budget : 1.605.827 €

EU-share: 749.414 € (49,16 %)

Associated beneficiaries and co-financers:



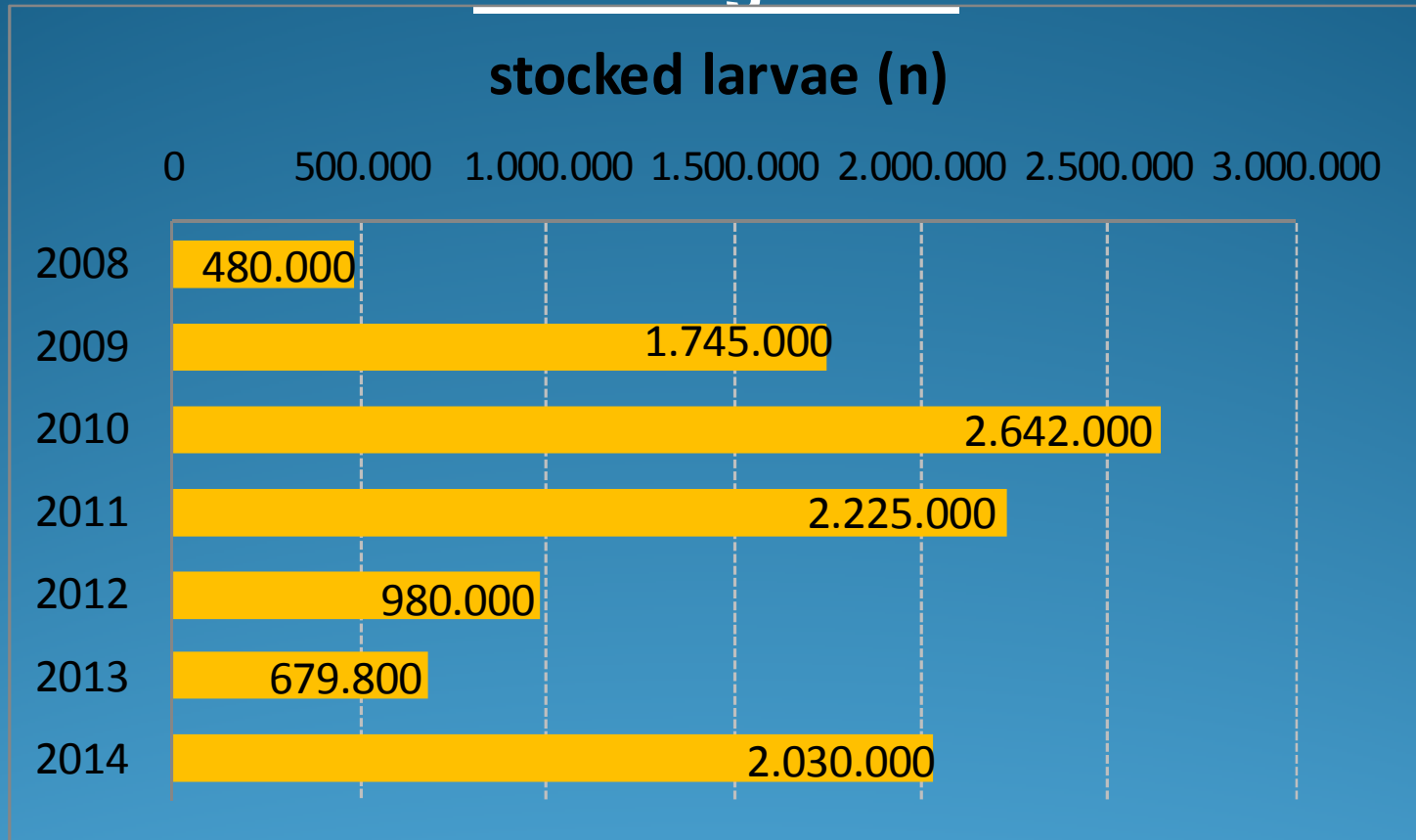
Hessisches Ministerium für
Umwelt,
Energie, Landwirtschaft und
Verbraucherschutz





Stocking effort

stocked larvae (n)





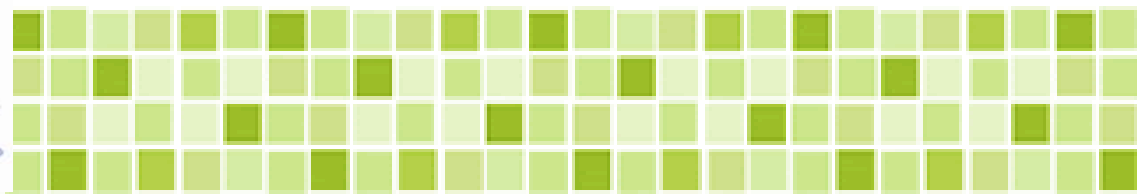
Stocking and monitoring measures



- In stagnant waterbodies (connected gravel-pits) release of the larvae in pelagic habitat or after dusk (kept and fed in round-channel tanks), avoidance of predation!



- Results of monitoring point to a downstream drift from the stocking site (during the dark) and occupation of habitats downstream
- In stagnant habitats active movement away from the bank and the surface



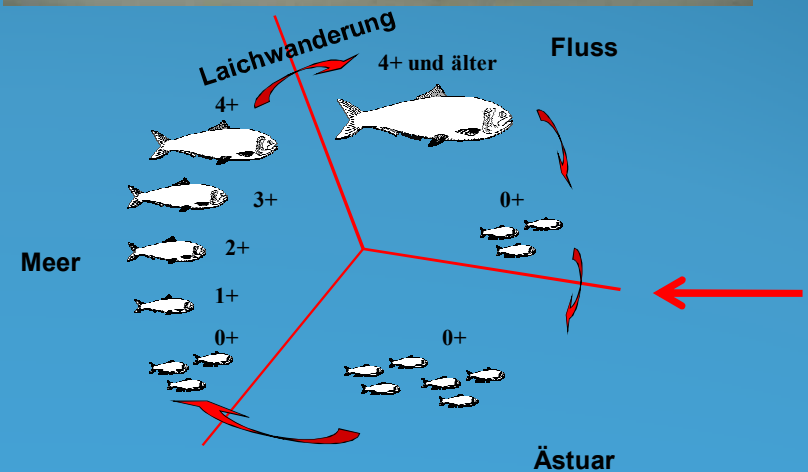
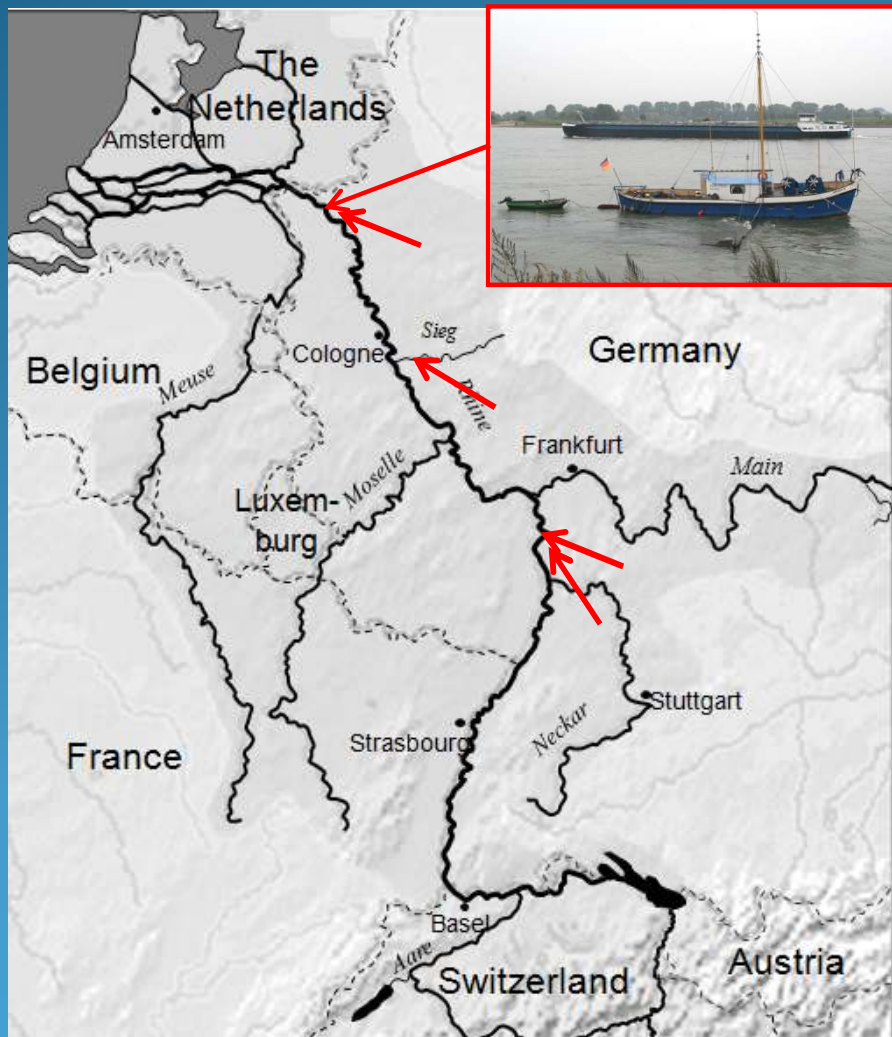
Continuation of stocking and monitoring measures in the Rhine system (1.5 – 2 Mio. larvae/year).

- Stocking in NRW and Hesse
- Accompanying studies to further improve stocking strategies (exchange with findings from YOY studies in the Gironde basin)



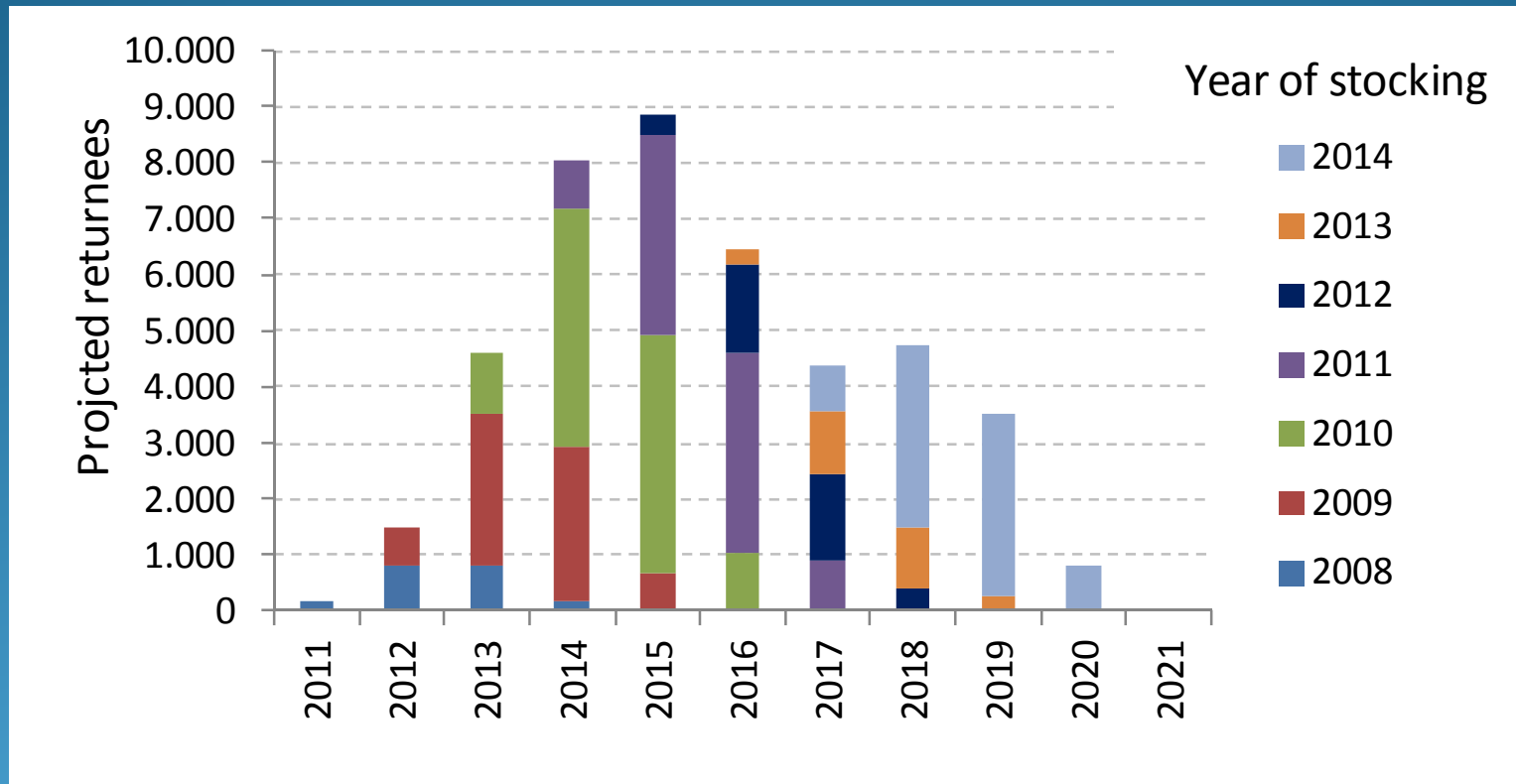


Detection of 30 juveniles on their seaward migration in September/October 2010 and 2011





Estimated numbers of returnees coming from the stocking measures so far



- Assumption 1: 1 adult returnee per 250 stocked larvae
- Assumption 2: Maturation at the age 3+ to 6+ (10%;40%;40%;10%)



First indications to the success of the re-establishing measures

- Adult allis shad (mature female caught in the river Lek/NL) (June 2012)
- Adult allis shad observed while ascending from the Rhine into the Moselle (July 2013)
- First proofs of natural reproduction - YOY juveniles in the screenings of cooling water intake of a power plant on the upper Rhine (September 2013)
- Catch of a (spawned!) female by a professional fisherman near Wörth on the upper Rhine (November 2013)

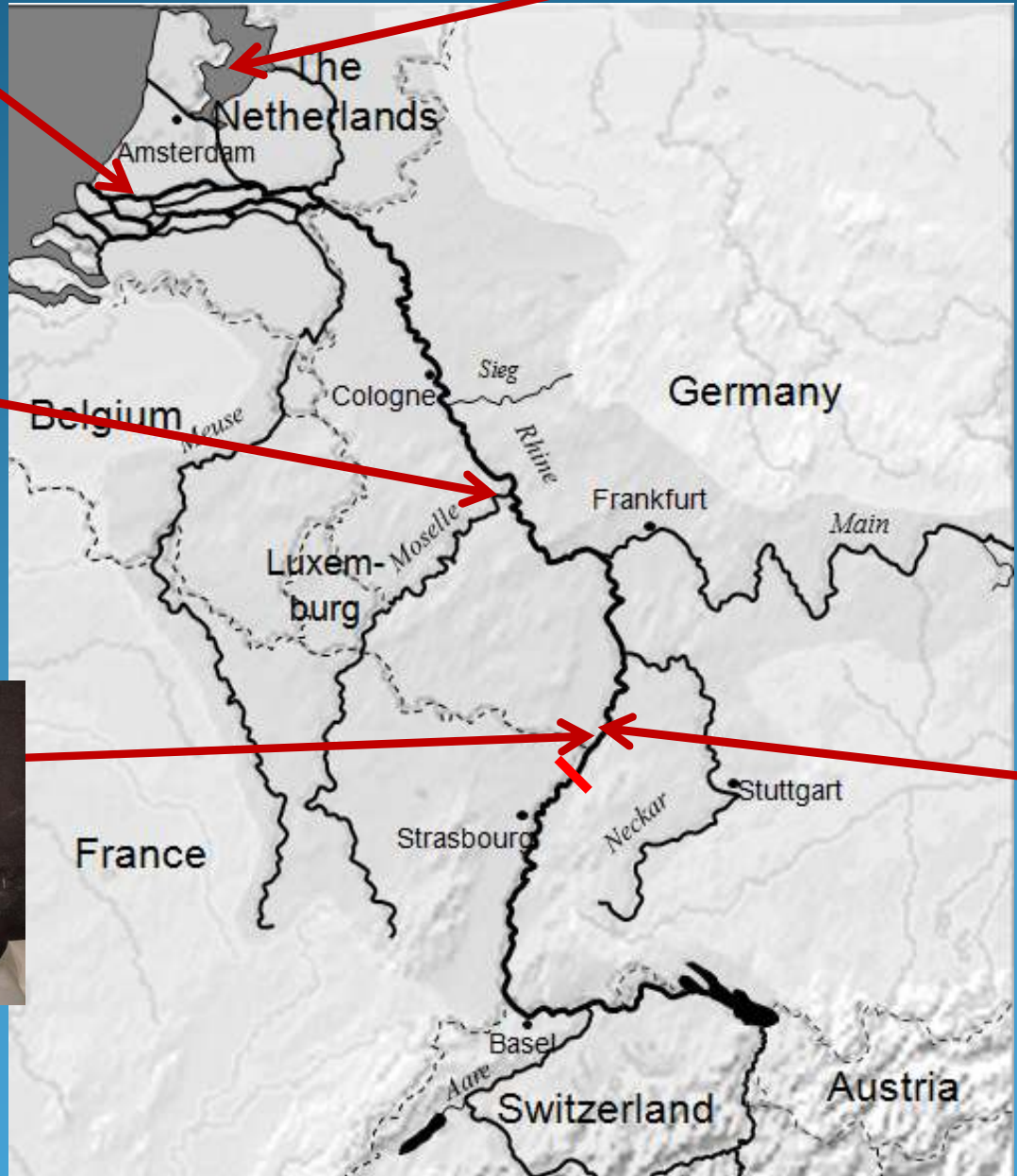


BfG Fishcounter Koblenz 2013-07-10 11:15:52





20.06.2012



10.07.2013

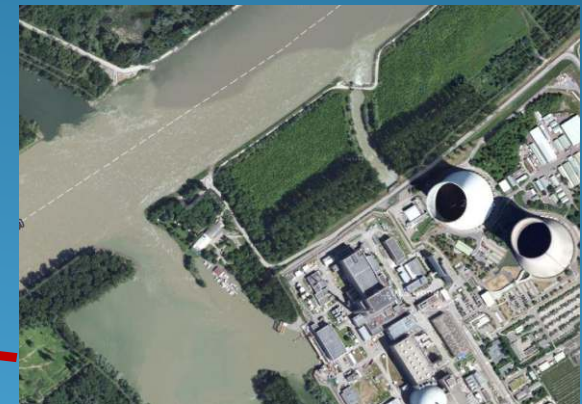


BfG Fishcounter Koblenz 2013-07-10 11:15:52

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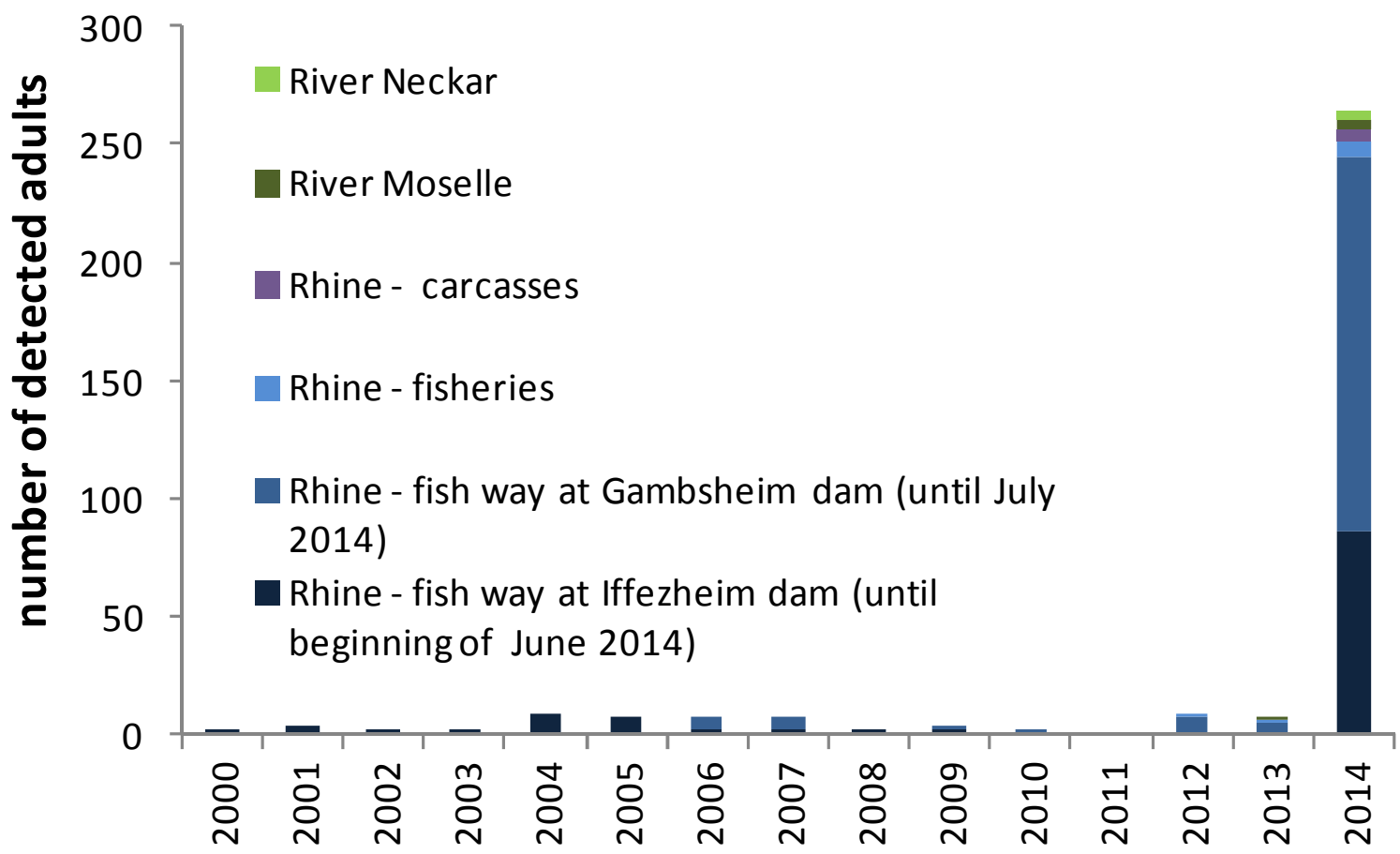


First proof of adult allis shad in the Lower Rhine in May 2014





Further indications to success





Pilot facilities for ex-situ stocks in Germany (Aßlar) and France (La Rochelle)



Objectives

- Optimization of rearing conditions in aquaculture
- Obtaining mature individuals in captivity
- Progressively breeding offspring without utilization of wild stocks
- Transfer of returnees/wild offspring to enhance adaptation to the system
- „living gene bank“

- Breeding shads in Germany



Thank you for your attention!