



Colloque international sur l'étude, la restauration et la gestion de l'alose
International symposium on restoration and conservation of shads

Production de larves de Grande alose sur le bassin Garonne-Dordogne et lâchers dans le Rhin.

Production of Allis shad larvae within the Garonne-Dordogne basin and stocking into the Rhine river



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Session 1 : Les actions du programme Life+ Alose / Results of the Allis shad project

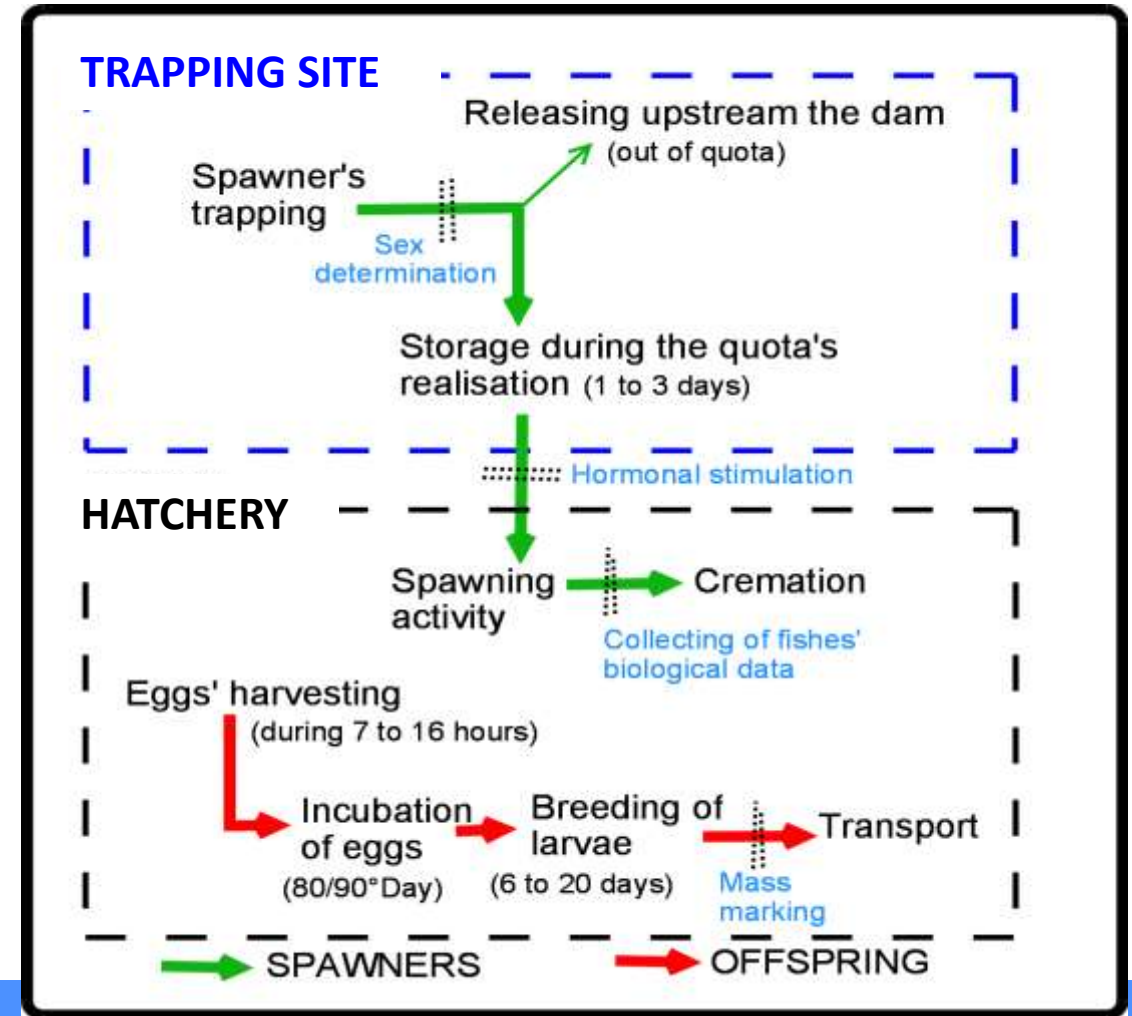
Bergerac
14-15 octobre 2015



GENERAL GUIDELINE FOR SHAD'S PRODUCTION IN AQUITAINE

Framework for stocking :

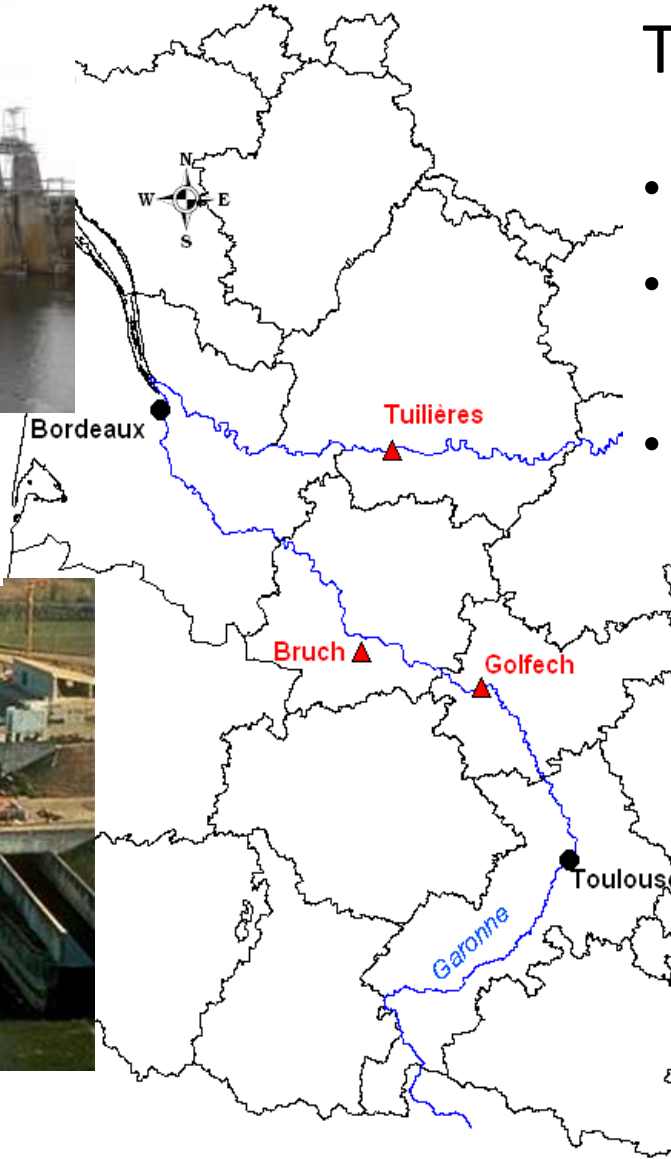
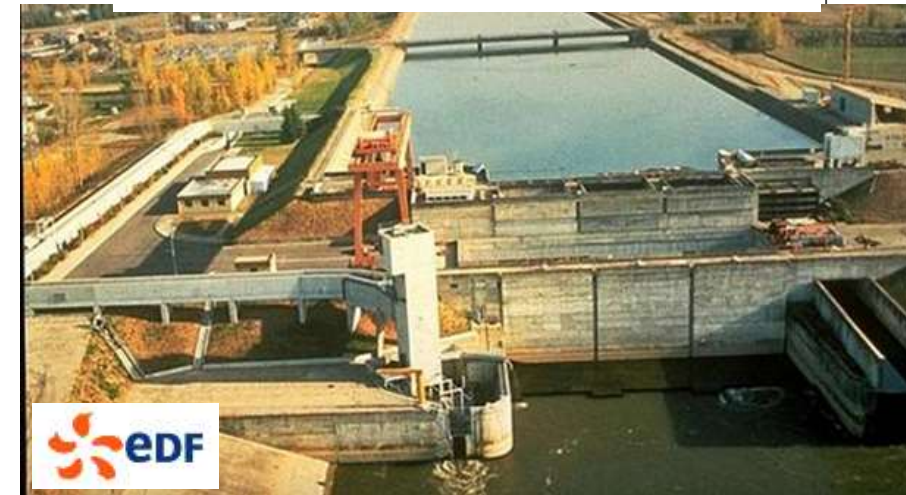
- When ?
=> The last solution ;
- Why ?
=> all background's work is done and natural colonisation may last for decades ;
- How ?
=> Following the fish and... guidelines.



Tuilère, on the Dordogne river

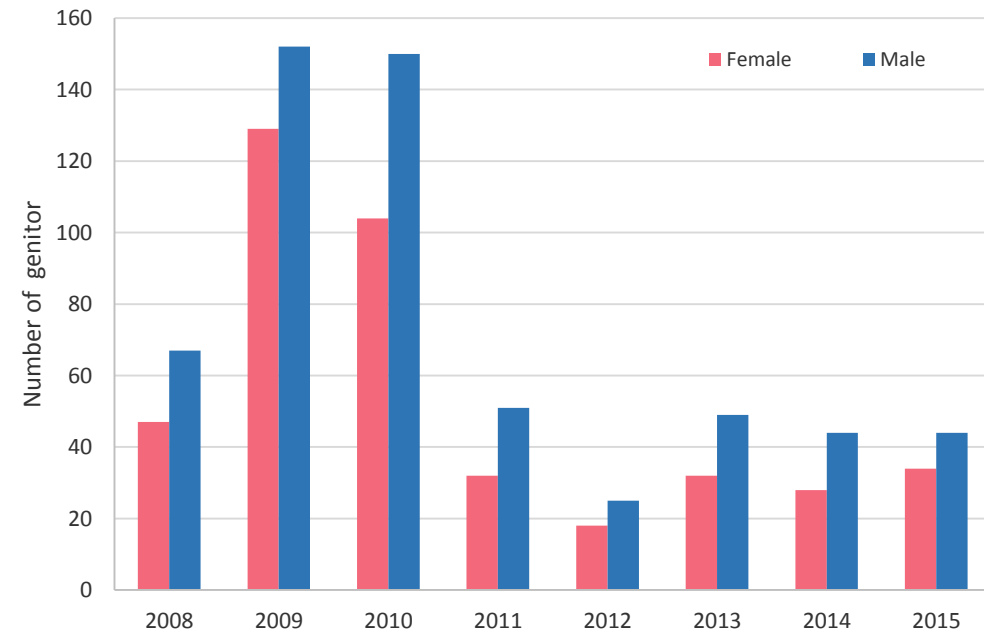


Golfech, on the Garonne river



Trapping of spawners:

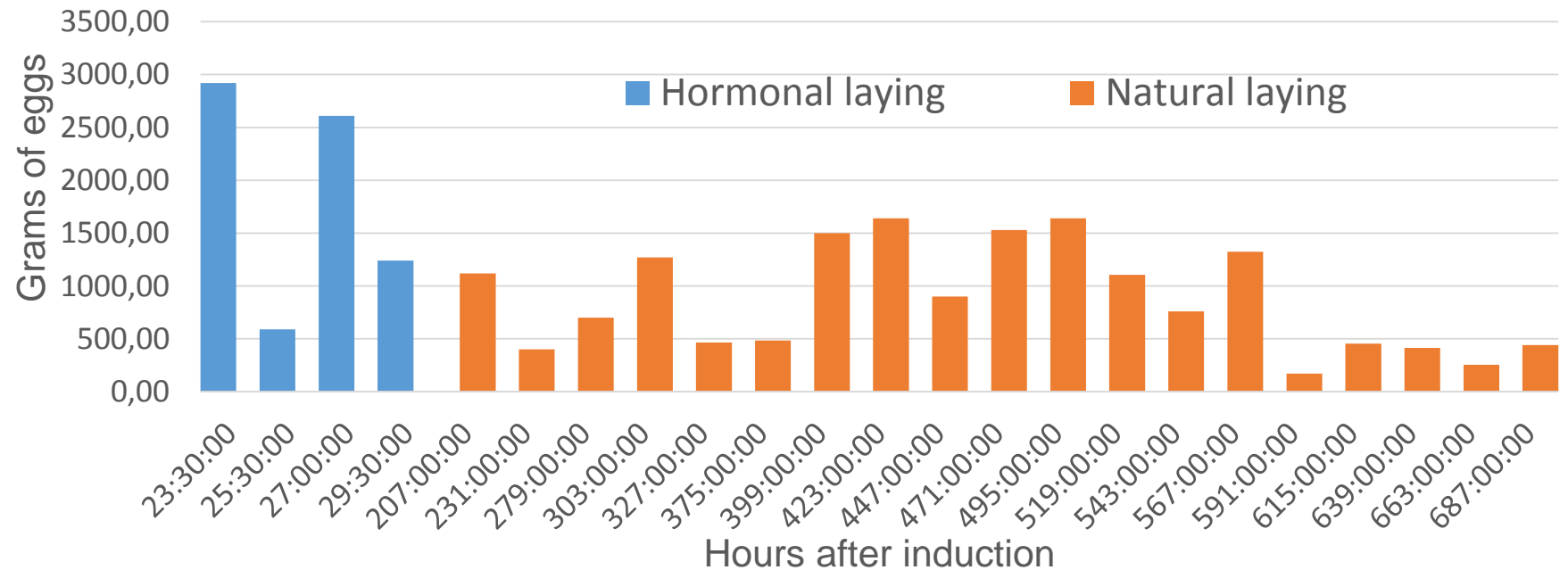
- Use of mobile cage to prevent injuries;
- Conservation on 40 genitors (3 males for 2 females) ;
- Transport to the Hatchery with a truck and a special tank (1-2 hours).





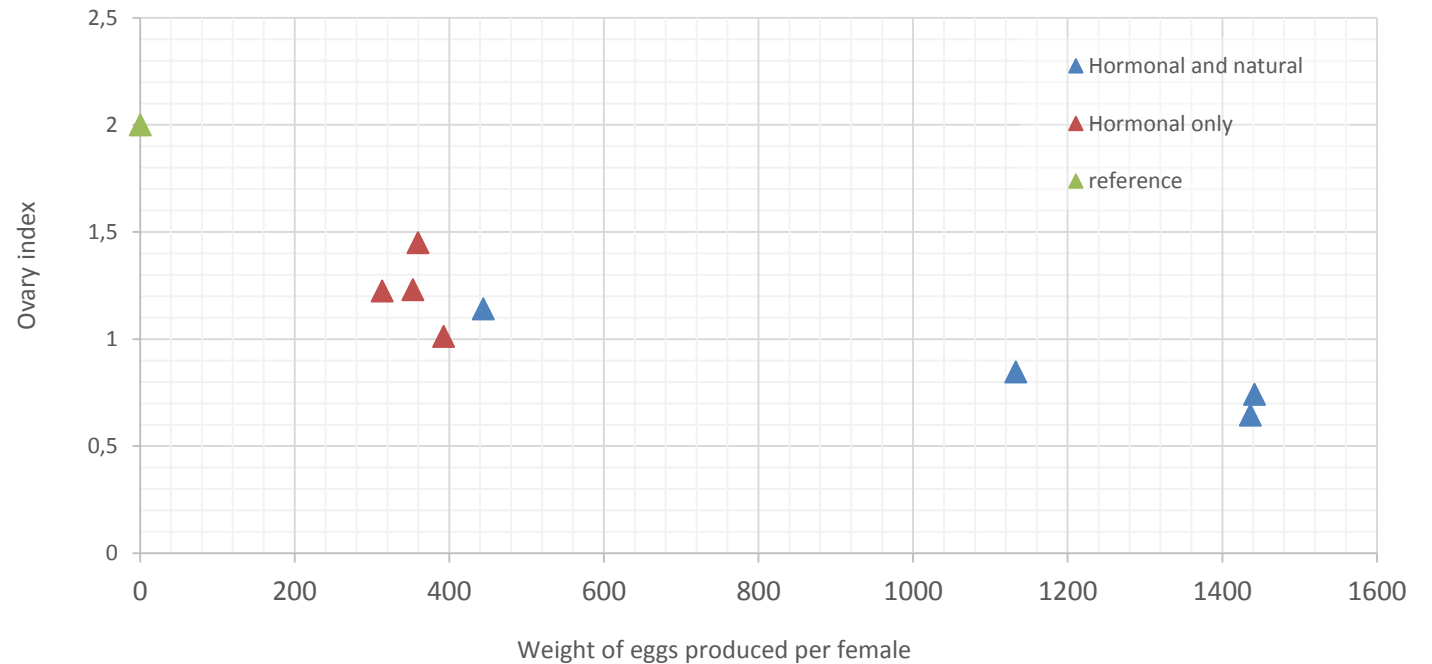
Reproduction and hormonal induction :

- Injection of all spawners with a solution of LHRH to synchronise reproduction => 0,1 mg/kg ;
- Grouping genitors in a same big tank for reproduction ;
- Pattern of response found in 2010 and set-up in 2011 with an answer in two phases => optimisation of the production of eggs.



Laying performance :

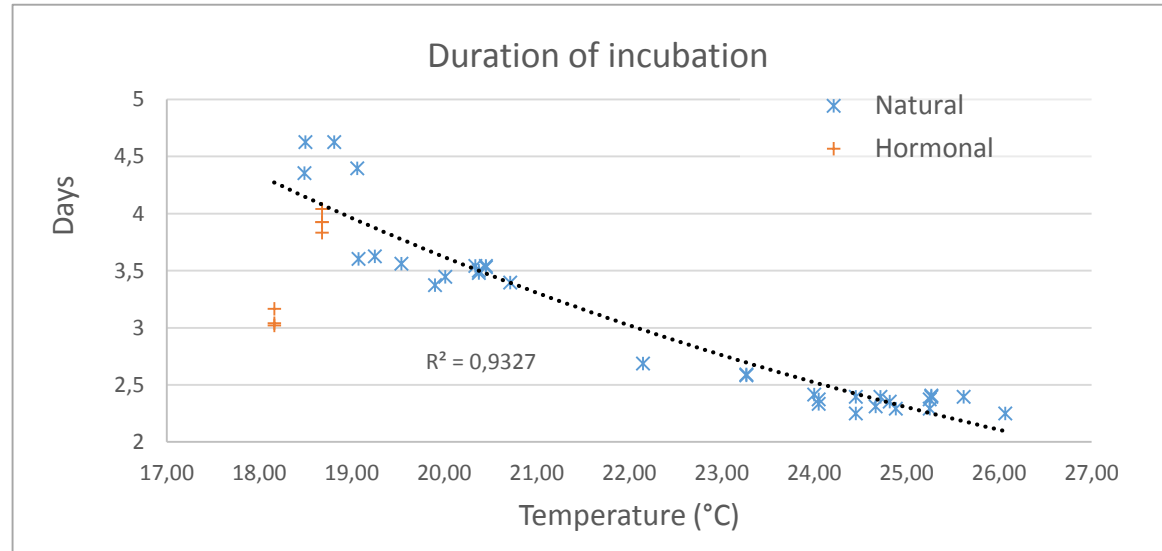
- Calculation of an ovary index considering remaining ovum of females and length ;
- Even with an optimisation of the laying protocols, some eggs are still not used (100 eggs / gram)



Correlation between mean weight of eggs produced per female and ovary index for each year

Eggs Incubation

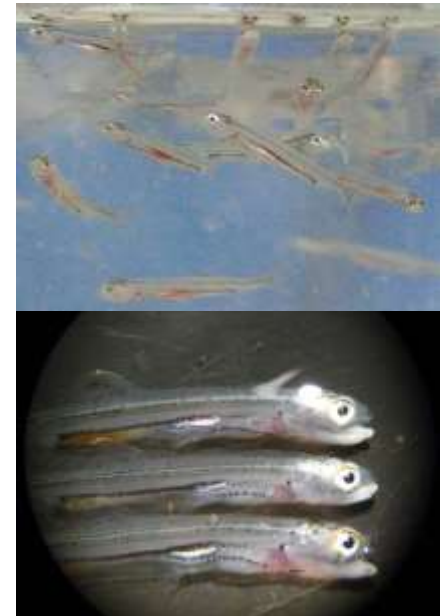
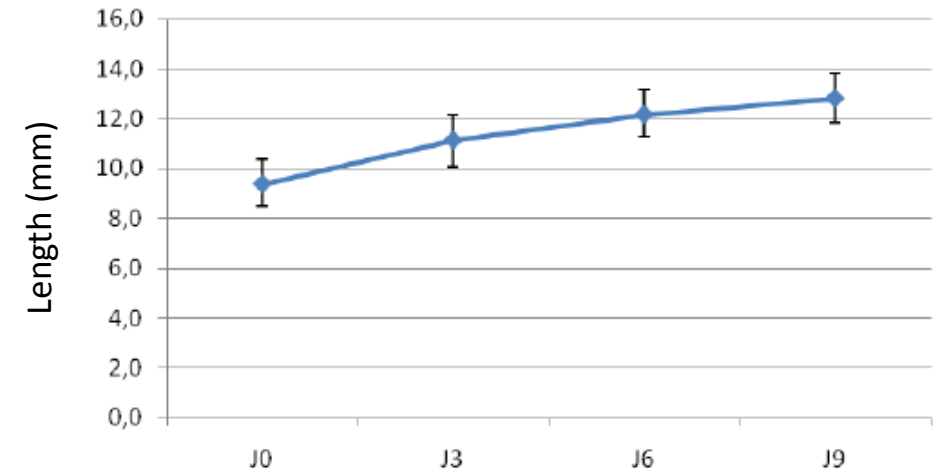
- Duration on eggs incubation is strongly correlated with temperature ;
- Eggs survival rate fluctuate between 0 and 95% (55% on average) ;
- Preferential thermal range between 17 and 26 °C ;
- Layings are incubated separately and treated 2 times a day.





Breeding of larvae :

- First feeding with alive prey, 36 h after hatching ;
- Size of prey 0,15 to 0,3 mm ;
- Good survival rates above 95% until 12 days old ;
- Mass marking with OTC bath.





Fishing, packaging and transport of larvae :

- Collecting larvae with bucket ;
- 10 000 – 15 000 larvae per plastic bag ;
- Bags filled with 80% oxygen and 20% water ;
- Transport with a truck in the dark and isotherm atmosphere.





Assessment of 8 years of breeding :

- Improvement of survival rate for eggs and spawners ;
- Improvement of the number of larvae produced per adult caught ;
- uncertainties remains within hormonal induction efficiency and weather (light) 2013 and 2015 batches.

Year	Female	Male	Sex ratio	Production of eggs (kg)	Amount of eggs (grams) per female	Survival rate of eggs	Larvae transported	Larvae produced per female	Remarks
2008	51	67	1,31	18,0	352,7	28%	480 000	9 412	Old hormone protocol
2009	128	153	1,20	40,1	313,0	42%	1 745 000	13 633	Old hormone protocol
2010	107	148	1,38	42,0	392,5	65%	2 642 501	24 696	Old hormone protocol
2011	32	51	1,59	46,0	1 436,3	64%	2 225 000	69 531	Maximum use of genitors
2012	18	26	1,44	26,0	1 441,7	61%	900 000	50 000	Maximum use of genitors
2013	32	49	1,53	11,5	359,4	62%	680 000	21 250	Trouble with hormone quality
2014	33	44	1,33	37,4	1132,7	71%	1 950 000	59 091	Maximum use of genitors
2015	34	44	1,29	15,1	444,1	26%	280 000	8 235	Trouble with genitors and eggs quality



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