Spawning kinetics of greater amberjack (*Seriola dumerili*) in response to multiple GnRHa injections or implants

Ioannis (Yannis) Fakriadis[1,2], Francesca Lisi[1,3], Irini Sigelaki[1], Maria Papadaki[1], Anastasios Raftopoulos[4], Constantinos C. Mylonas[1]

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[2]University of Crete
[3]University of Barcelona
[4]Argosaronikos Fishfarms SA

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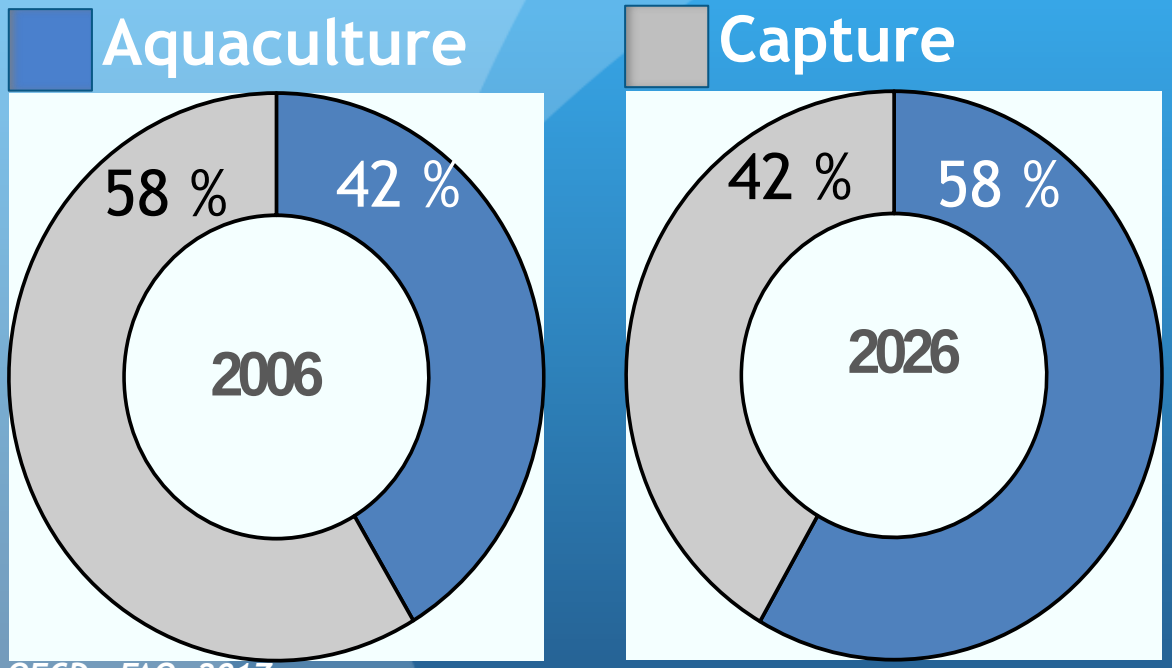
Why diversification?

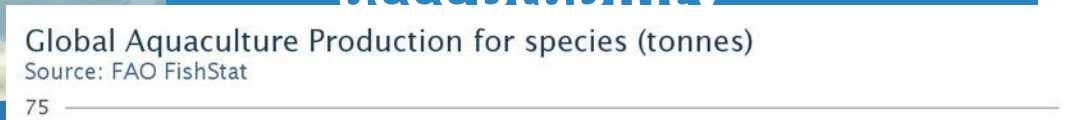


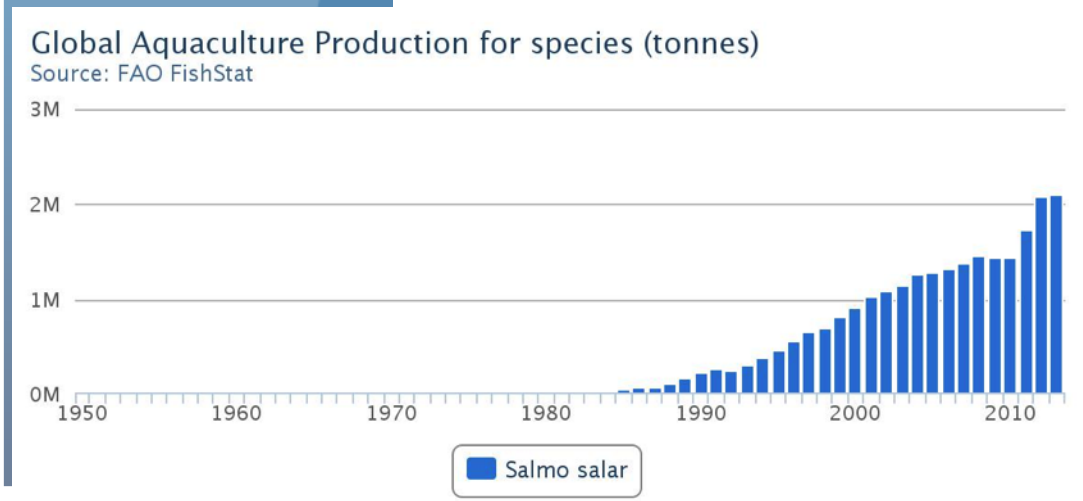
OECD - FAO, 2017

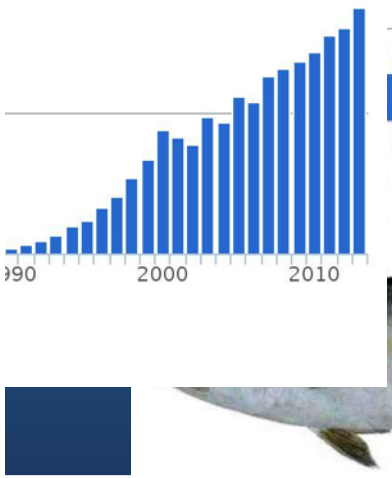
1. Increased production
2. New/emerging species

Why greater amberjack?

- ✓ Excellent flesh quality
- ✓ High consumer acceptability







Why reproduction?

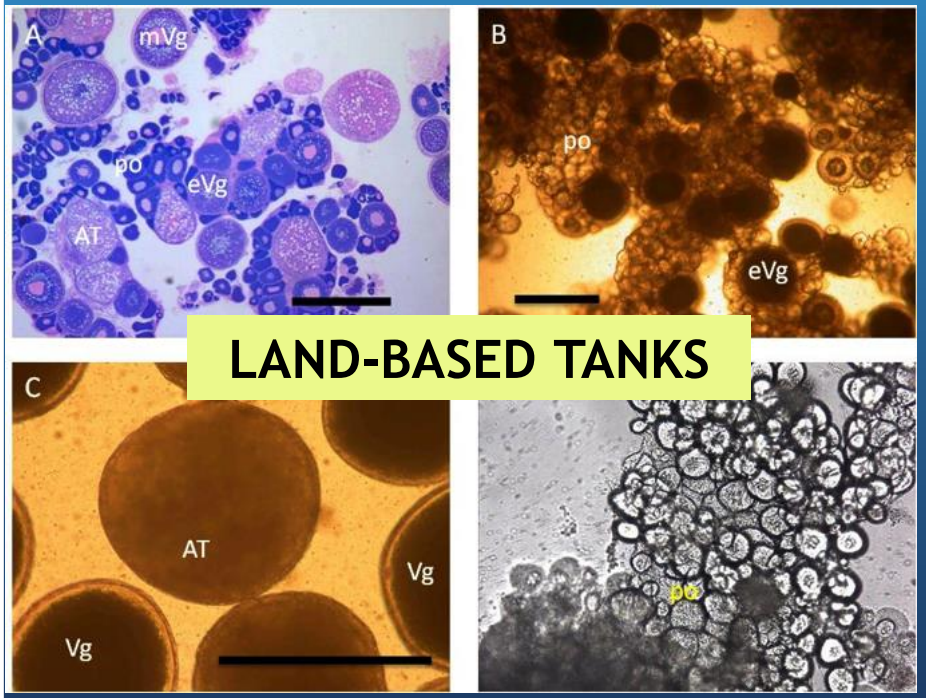
It is a major bottleneck…

Failure to undergo OM

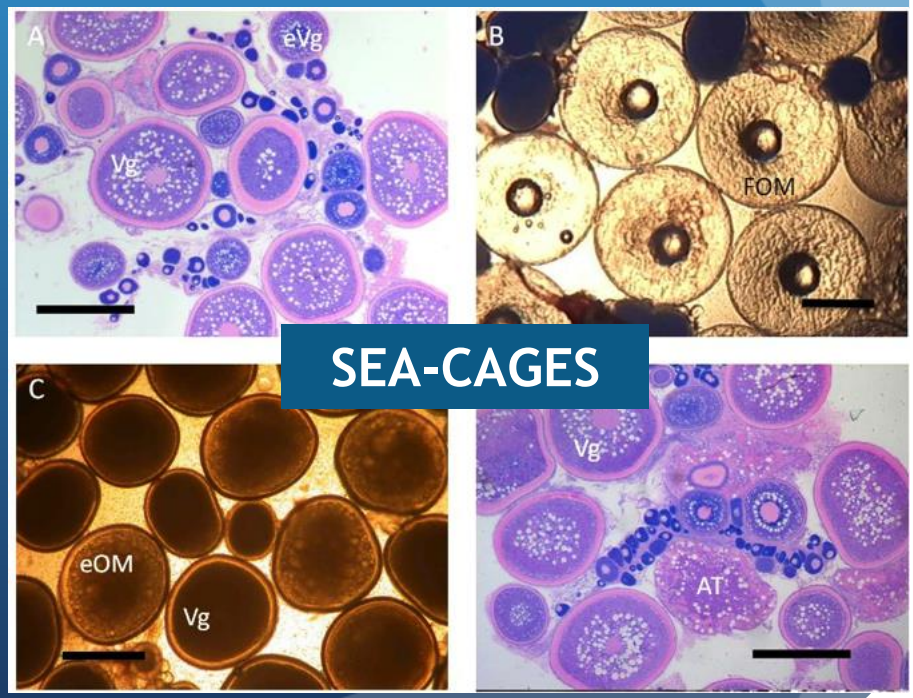
No or small quantity of milt

Sea cages vs land-based tanks broodstock maintenance…

- Females in tanks failed to undergo vitellogenesis
- Females in sea-cages in better reproductive stage

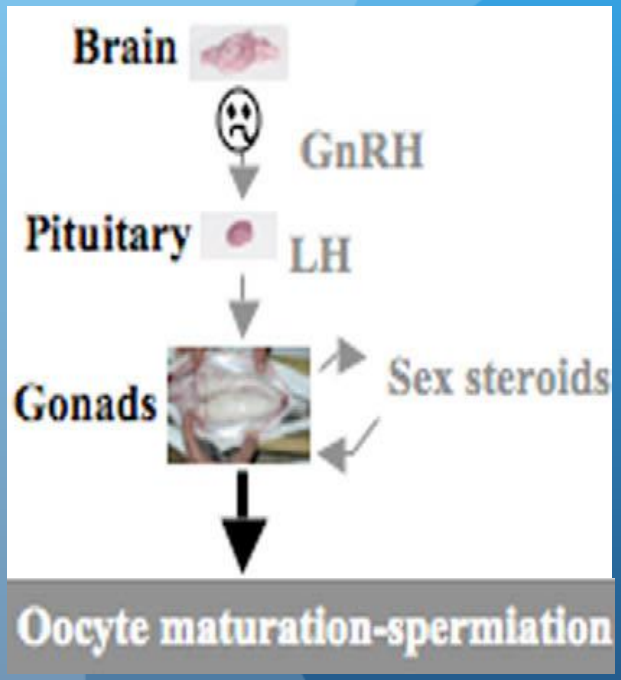


LAND-BASED TANKS



SEA-CAGES

How to overcome lack of spawning in captivity?



Mylonas et al., 2010, Gen. Comp. End.

GnRHa
(Gonadotropin Releasing Hormone agonist)

Liquid form (injection)

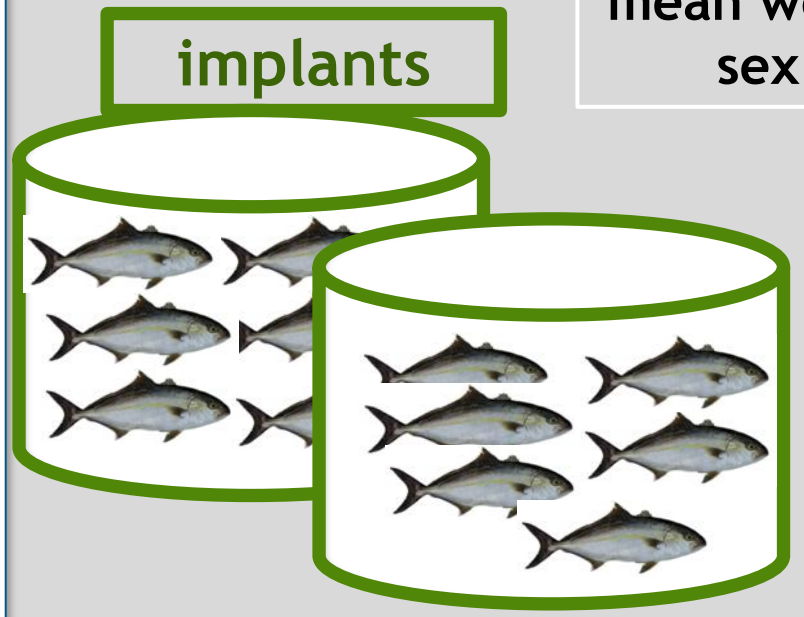
Delivery system (implants)

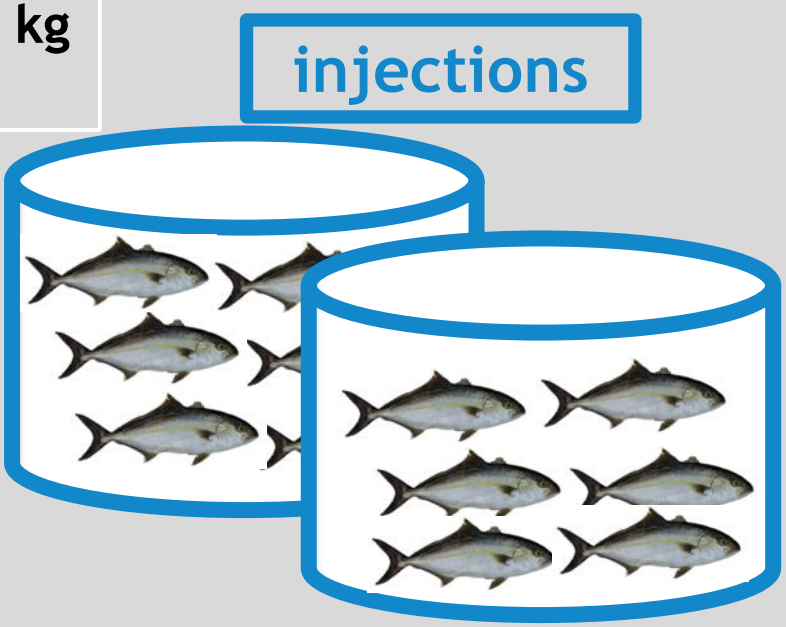
Spawning inductions…

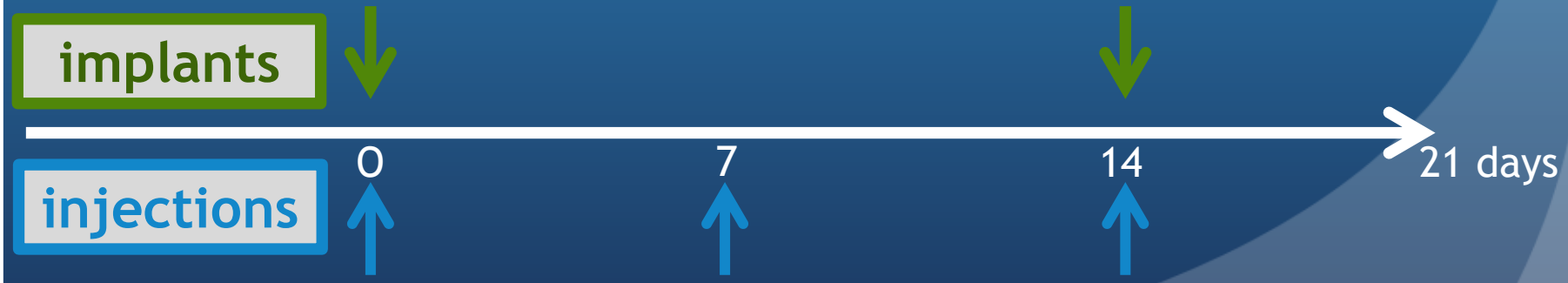
broodstock
treatment
protocol

Implants vs multiple injections...

mean weight 17±3 kg
sex ratio 1:1





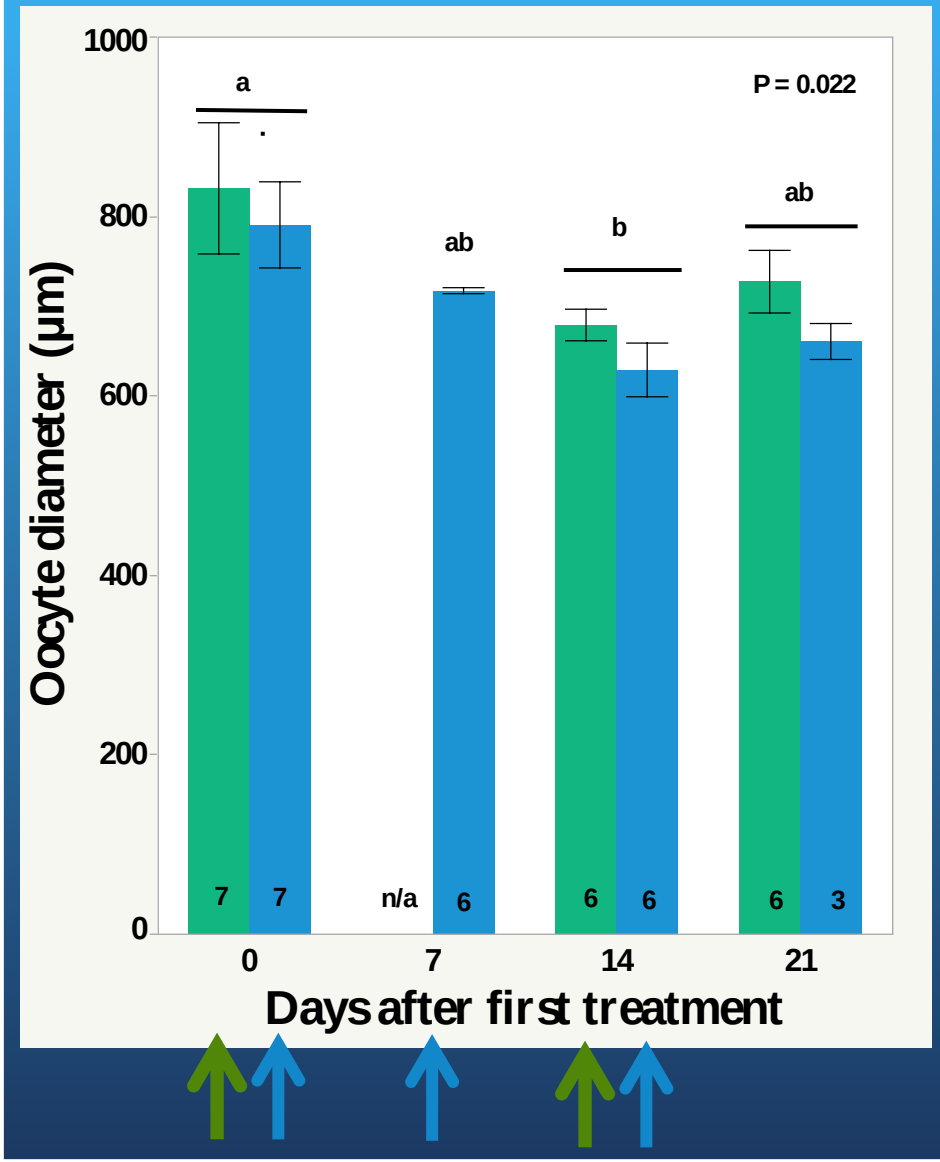


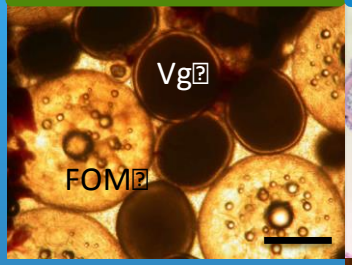
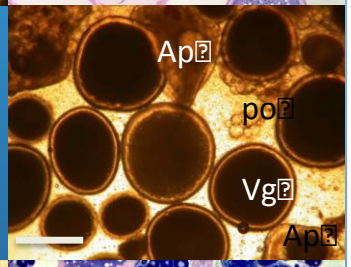
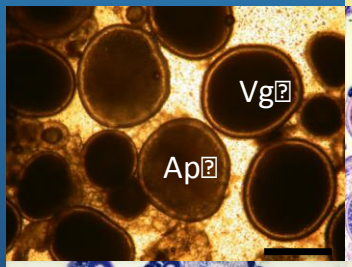
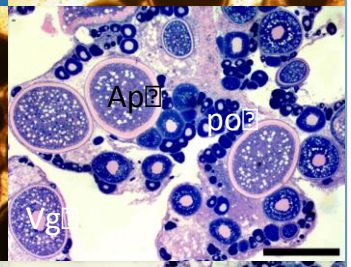
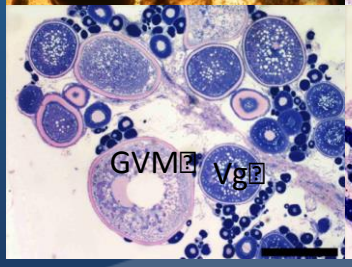
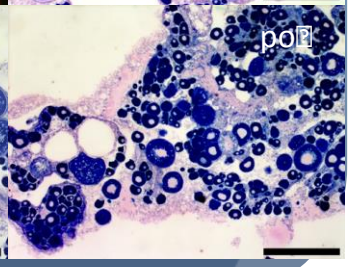
Data collection…

- Oocyte diameter
- Wet mount photos
- Histological processing
- Sperm evaluation

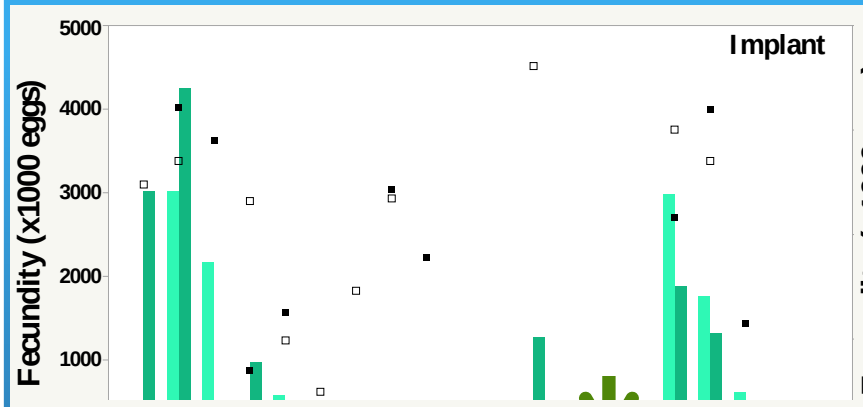
- Fecundity
- Fertilization
- 24h embryo survival
- Hatching
- 5d larval survival

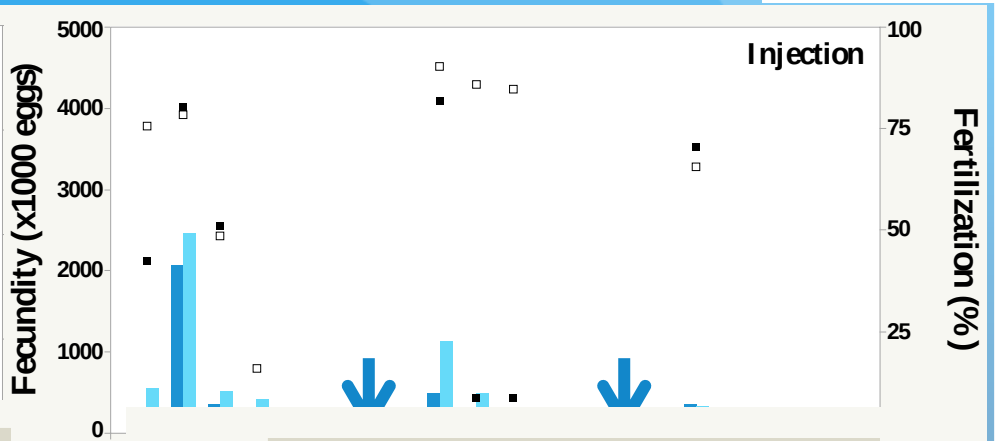
Results - Oocyte diameter…

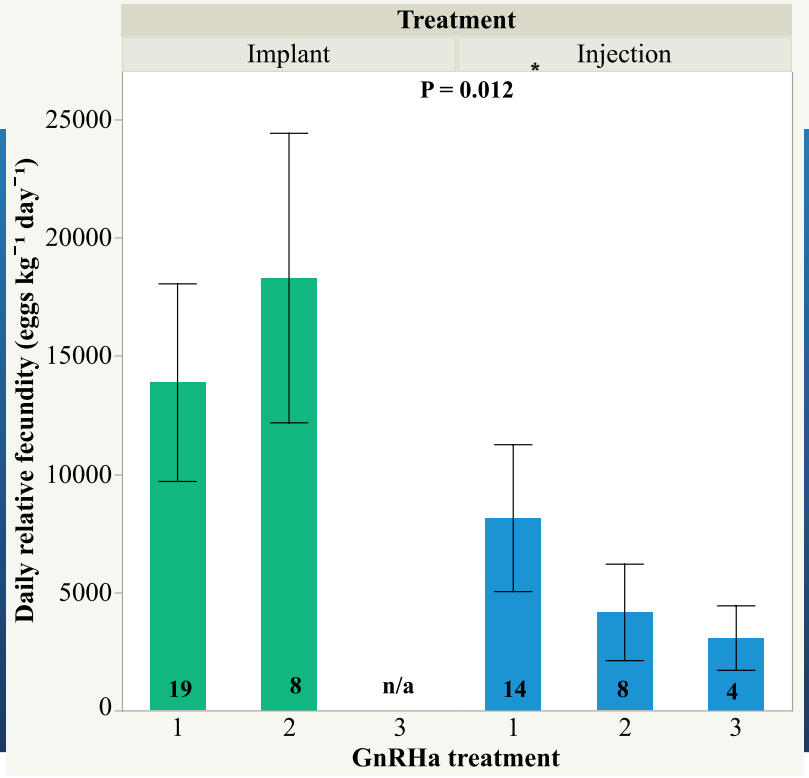


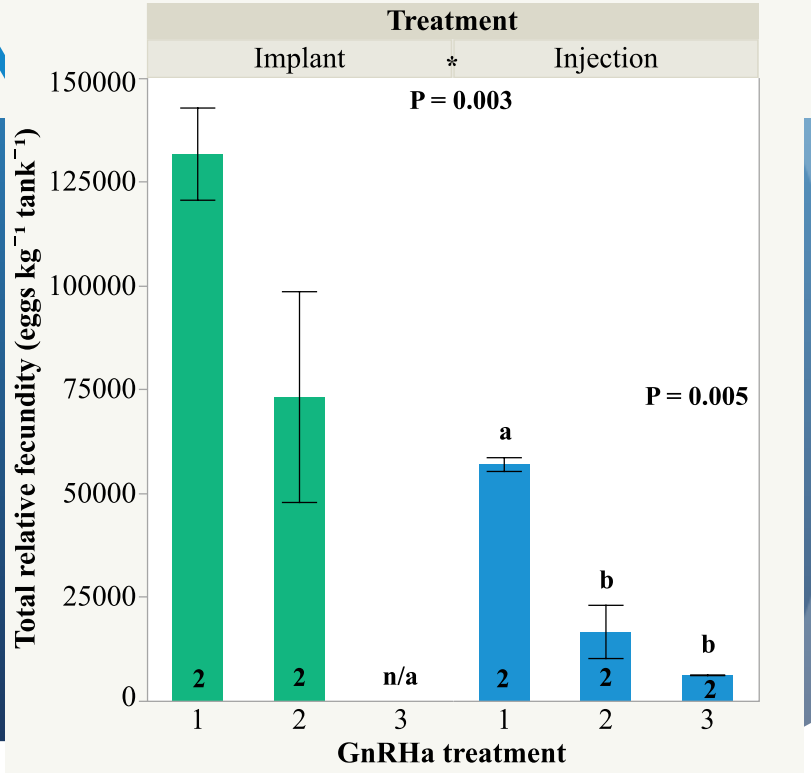
	implants	injections
Day 0		
Day 7	n/a	
Day 14		
Day 21		

Results - Egg production…

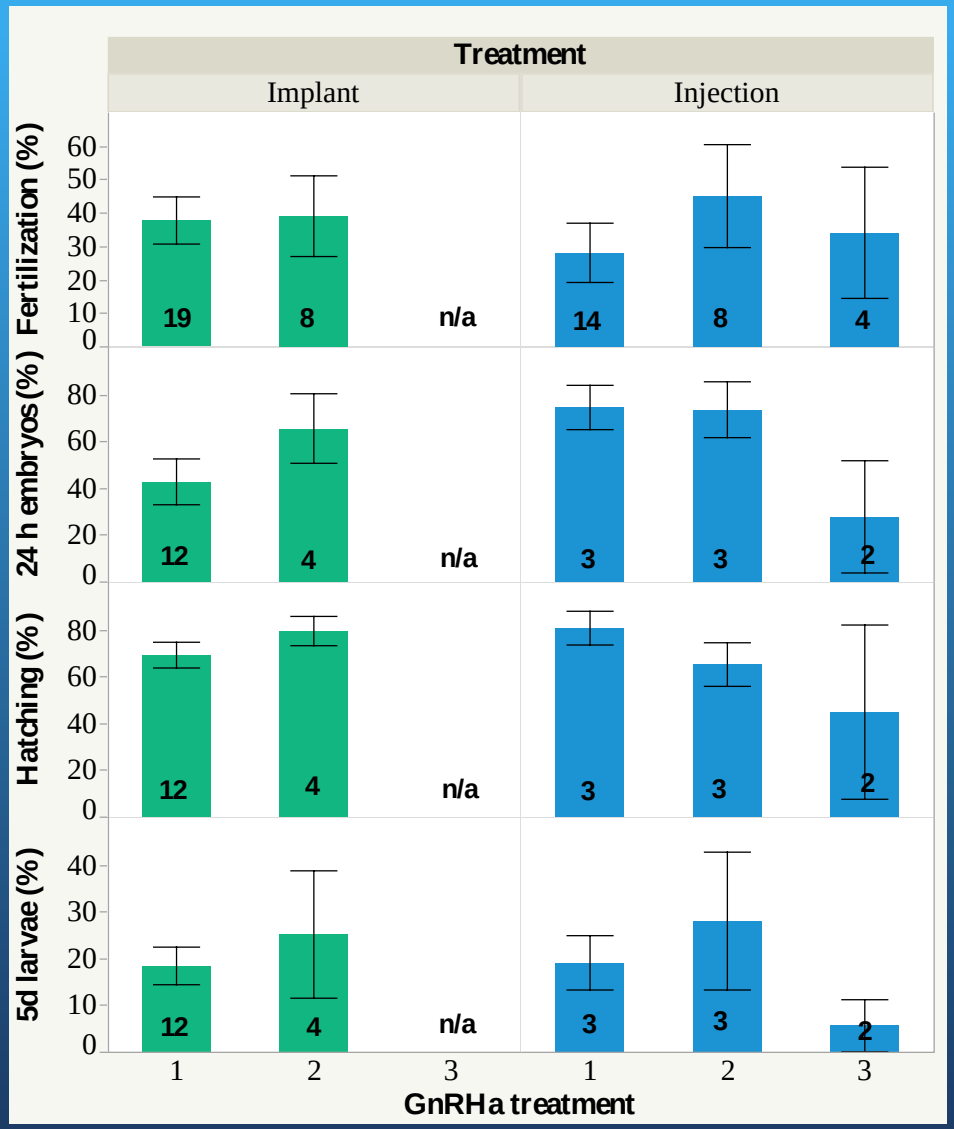








Results - Egg & larval quality…



36%

53%

70%

20%

To conclude…

implants	injections
27 million eggs	10.5 million eggs
15,230 eggs/kg	6,120 eggs/kg
13 spawns	13 spawns
Potential to produce more	Spent

>100,000 fish!

aquaculture

Thank you for your attention…

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