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# Broodstock management and spawning induction of greater amberjack *Seriola dumerili* in Greece

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# Reproduction in captivity

major bottleneck...objectives of the project:

- Broodstock management in tanks and sea cages
- Hormonal spawning induction
- Egg collection in tanks and cages

# Reproduction in captivity

major bottleneck... initial studies reported:



Arrested vitellogenesis or failure to undergo maturation and spawning

Low or lack of sperm production

ORIGINAL ARTICLE

The observed oogenesis impairment in greater amberjack *Seriola dumerili* (Risso, 1810) reared in captivity is not related to an insufficient liver transcription or oocyte uptake of vitellogenin

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RESEARCH ARTICLE

Comparative Study of Reproductive Development in Wild and Captive-Reared Greater Amberjack *Seriola dumerili* (Risso, 1810)

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Published online August 10, 2017

Rearing in captivity affects spermatogenesis and sperm quality in greater amberjack, *Seriola dumerili* (Risso, 1810)<sup>1</sup>

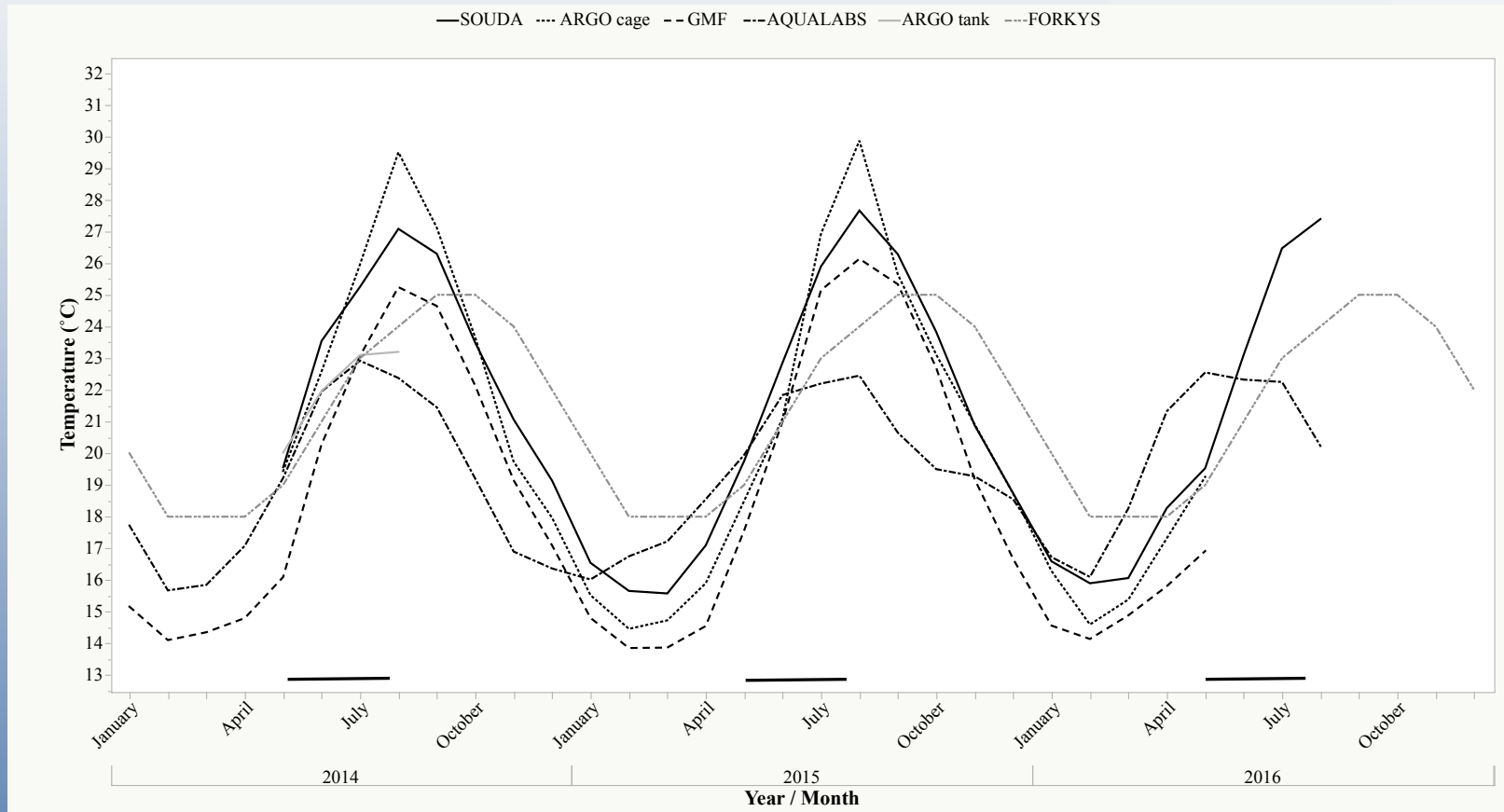
R. Zupa,\* C. Fauvel,† C. C. Mylonas,‡ C. Pousis,\* N. Santamaria,\* M. Papadaki,‡ I. Fakriadis,‡ § V. Cicirelli,\* S. Mangano,¶ L. Passantino,\* G. M. Licalandra,\* and Aldo Corriero\*<sup>2</sup>

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# Available broodstock

Stocks	Rearing method	Number of individuals	Size (kg)	Feeding
ARGO	sea-cages	49	7.1-16.0	raw fish (pellets)
GMF	sea-cages	28	6.3-15.6	live fish
SOUDA	sea-cages	12	7.4-14.8	moist pellet
AQUALABS	land-based	27	6.5-23.8	raw fish (pellets)
ARGO	land-based	9	8.1-11.1	live, raw fish
FORKYS	land-based	22	7.7-10.3	raw fish, squid

# Temperature profiles



# Initial design

- Fish in tanks during the year
- spawning induced at the expected spawning season
- egg collection

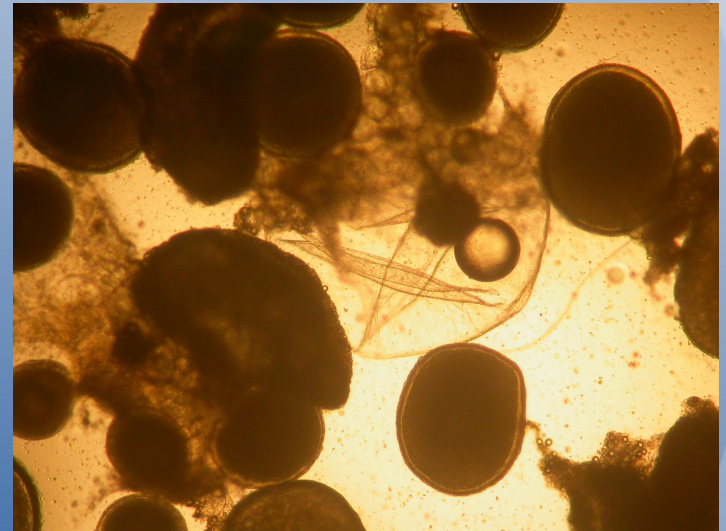
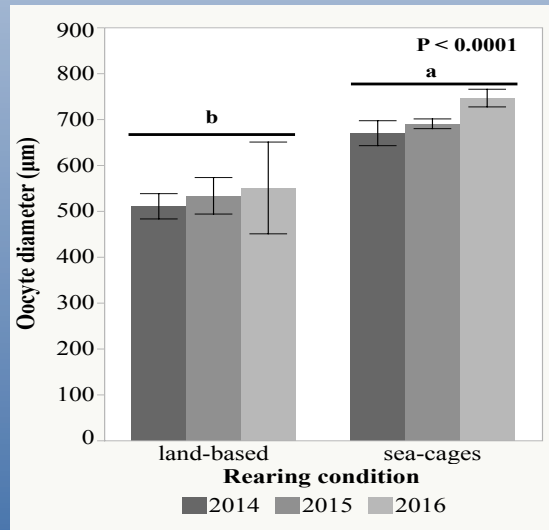
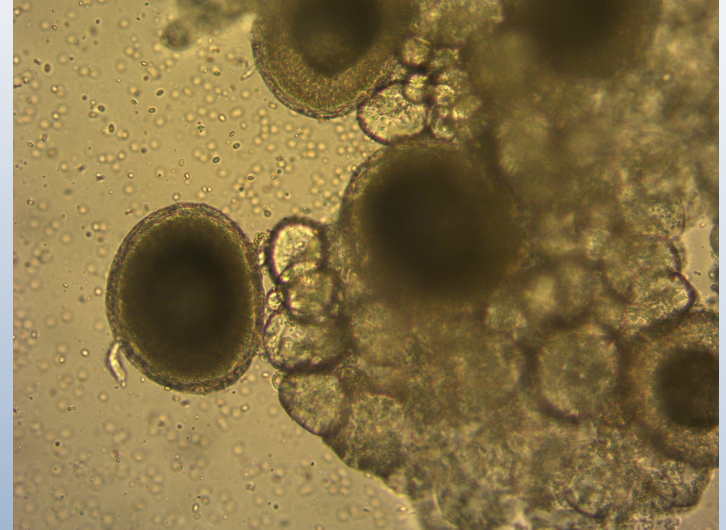


- Fish in cages during the year
- spawning induced at the expected spawning season
- egg collection in cages



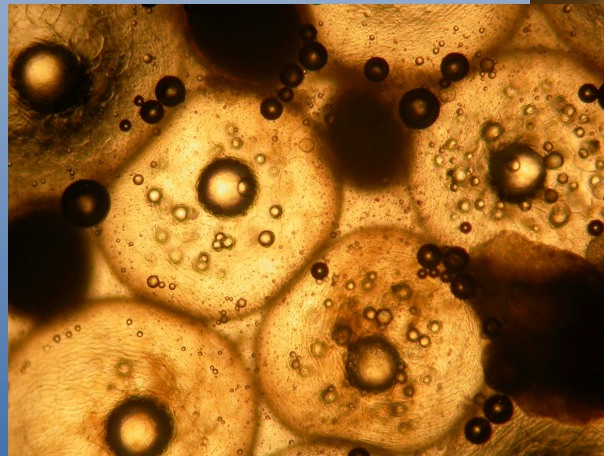
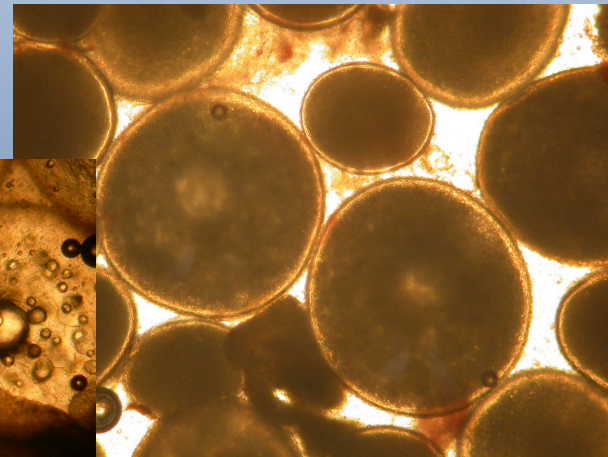
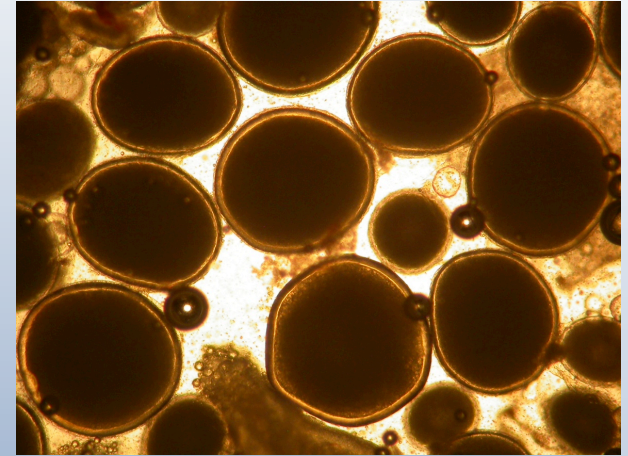
# Broodstocks in tanks

- Inconsistent-incomplete gametogenesis,
- Low or no sperm production
- Almost no production and very poor egg quality



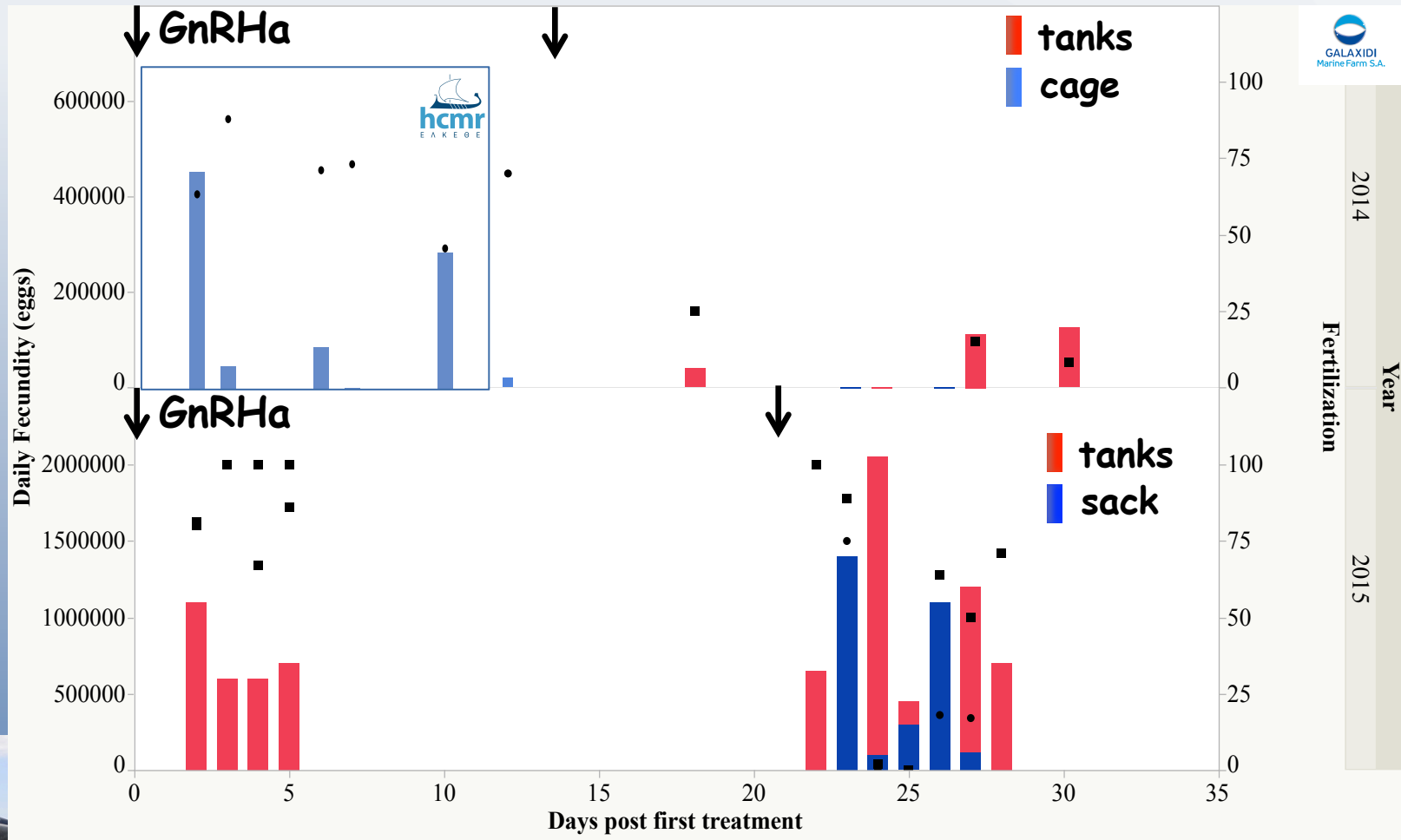
# Broodstocks in sea cages

- Consistent and complete gametogenesis (also maturation),
- Still relatively low sperm production and quality
- Limited collection, but very good egg quality





# Broodstocks in sea cages

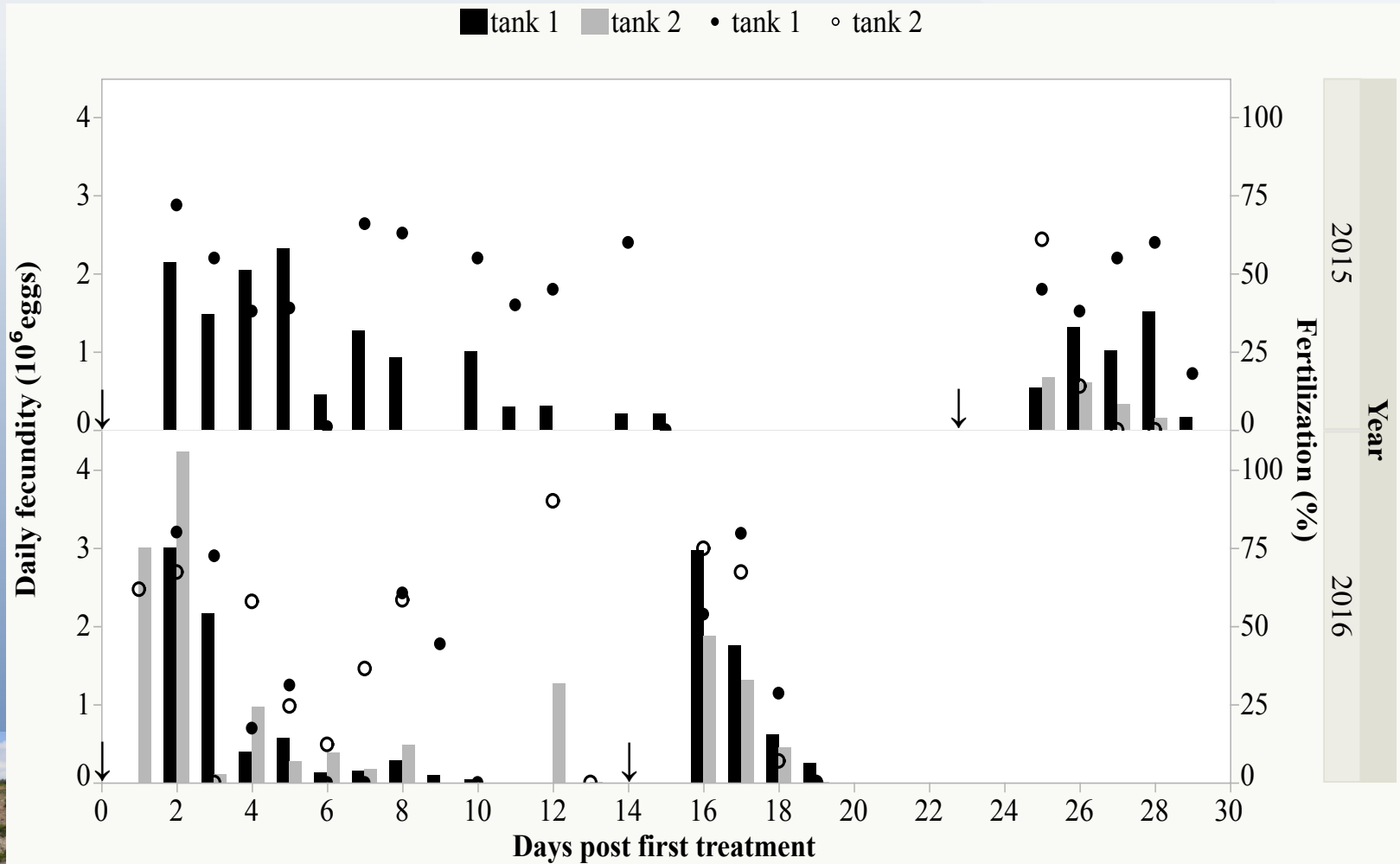


# Proposed approach

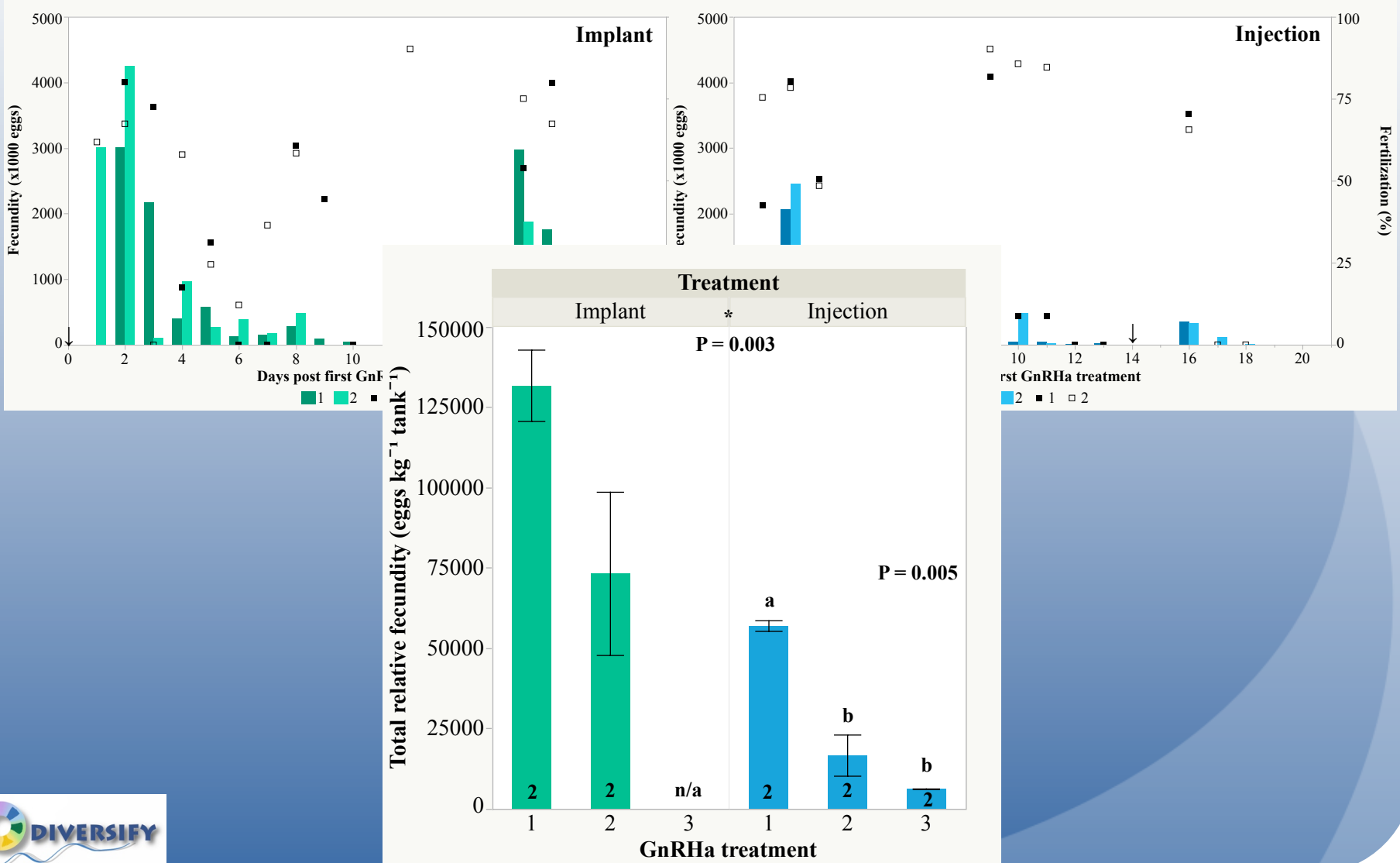
- Fish in sea cages during the year
- Spawning induced at the expected spawning season
- Transfer immediately to land-based tanks
- Egg collection in tanks



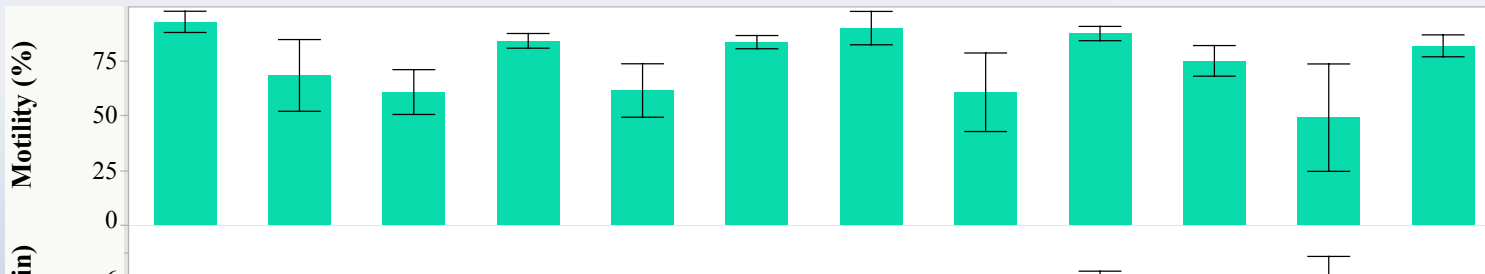
# Results of cage-to-tank approach



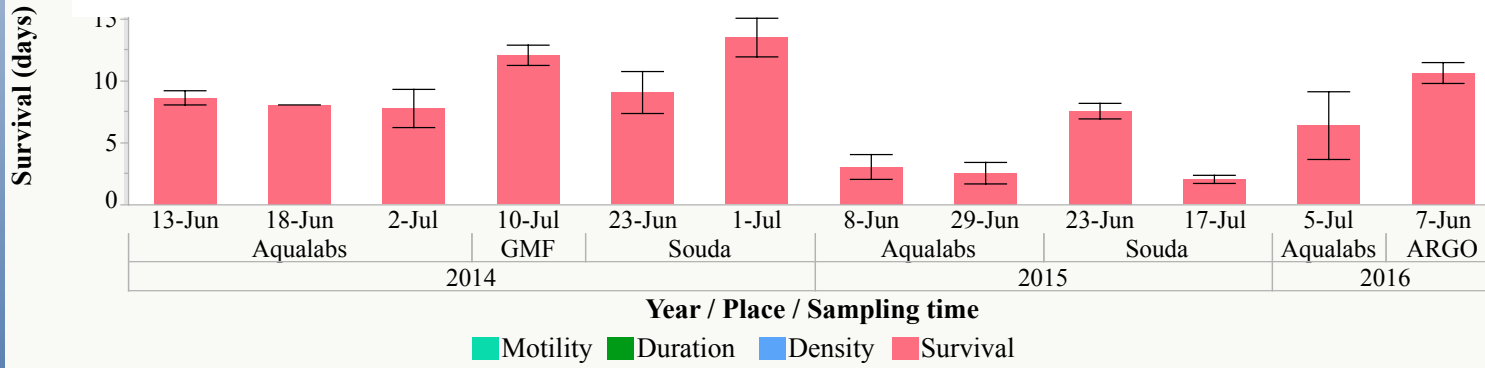
# Results of cage-to-tank approach GnRHa injections vs implants



# Sperm quality of greater amberjack



	N	Motility (%)	Duration (min)	Density (10 <sup>9</sup> szoa ml <sup>-1</sup> )	Survival (days)
<b>Tanks</b>	<b>27</b>	<b>72±6</b>	<b>2.84±0.35*</b>	<b>28.4±1.5</b>	<b>6±1*</b>
<b>Sea-cages</b>	<b>49</b>	<b>80±3</b>	<b>4.13±0.30**</b>	<b>30.3±2.8</b>	<b>9±1**</b>





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