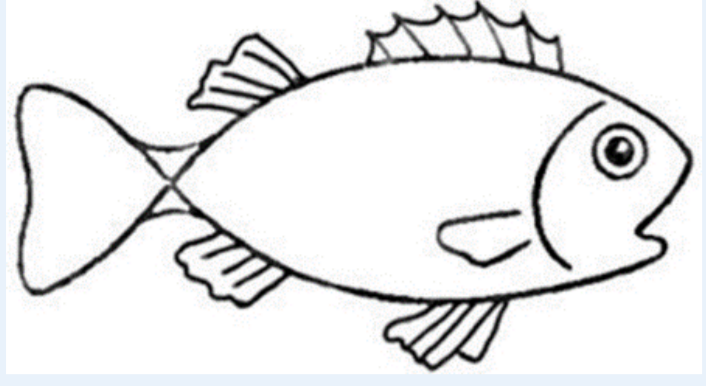


Background

Factors contributing to successful spawning in captivity

Fish-related



- Sexual maturity
- Nutrition
- Health

Environment-related



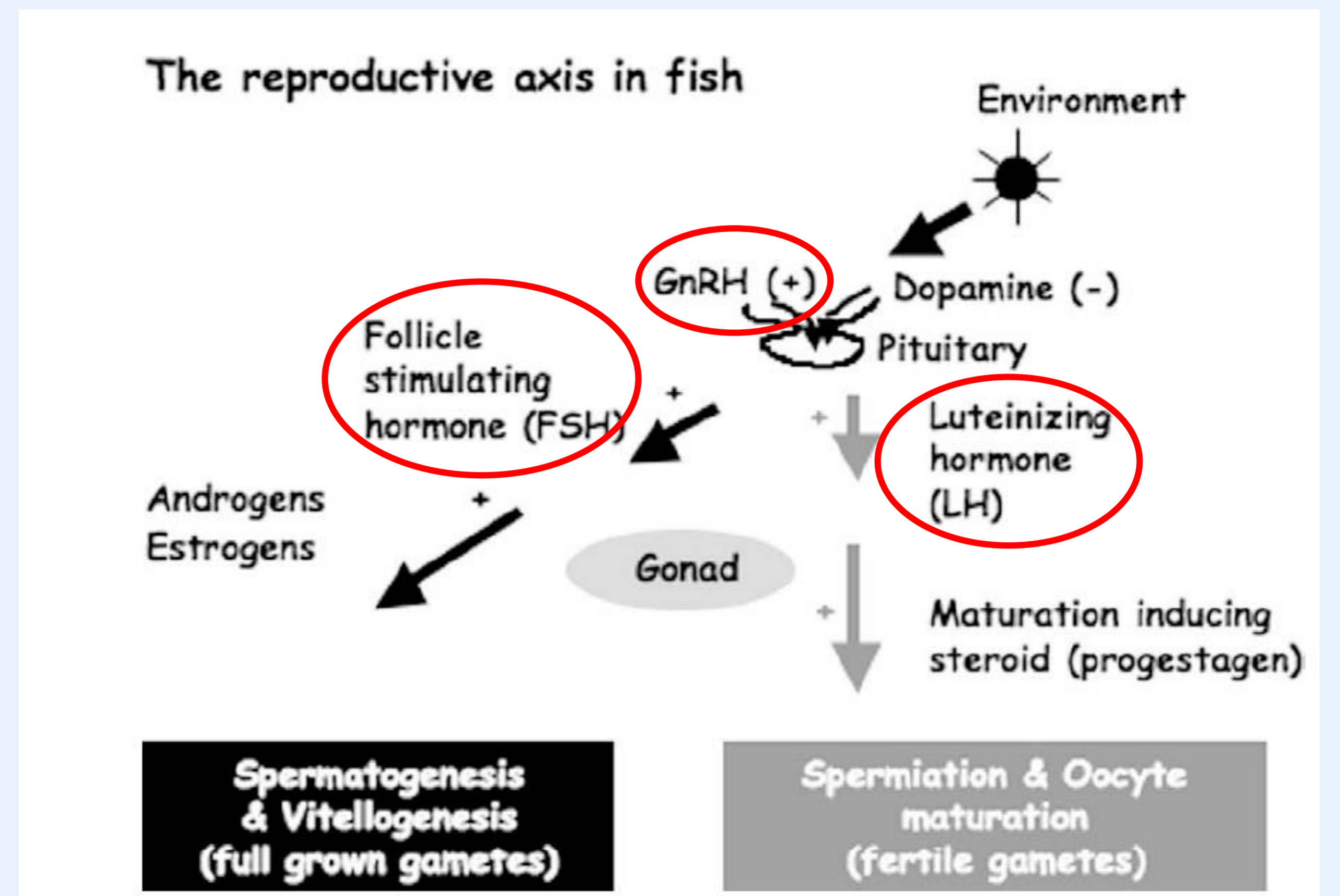
- Water quality
- Photoperiod
- Tank size
- Water volume
- Water flow rate
- Stocking density
- Spawning substrate

Procedure-related



- Type of hormone
- Hormone dosage
- Hormone preparation and storage
- Fish handling
- Fish injection techniques
- Sterile needles, syringes and saline water

The brain-pituitary-gonad (BPG) axis in fish



Mylonas et al., 2009

Induced spawning of cultured tropical finfishes



Asian Seabass (*Lates calcarifer*)

Asian seabass (aka barramundi) is a tropical marine finfish commonly farmed in Singapore and the SEA region.

Suitable biological attributes for aquaculture:

- ✓ Euryhaline (can be farmed in fresh, brackish and marine conditions)
- ✓ Relatively hardy
- ✓ High fecundity (up to 2-3 million eggs per female per spawning)
- ✓ Grow rapidly
- ✓ Flexible harvest size (700 g – 3 kg)

Hormone: LHRH-a; **Injection method:** intra-muscular;

Dosage: Male: 20 µg /kgBW; Female: 40 µg /kgBW



Broodstock holding tanks



Sex checking by cannulation



Hormone injection

Pompano (*Trachinotus blochii*)

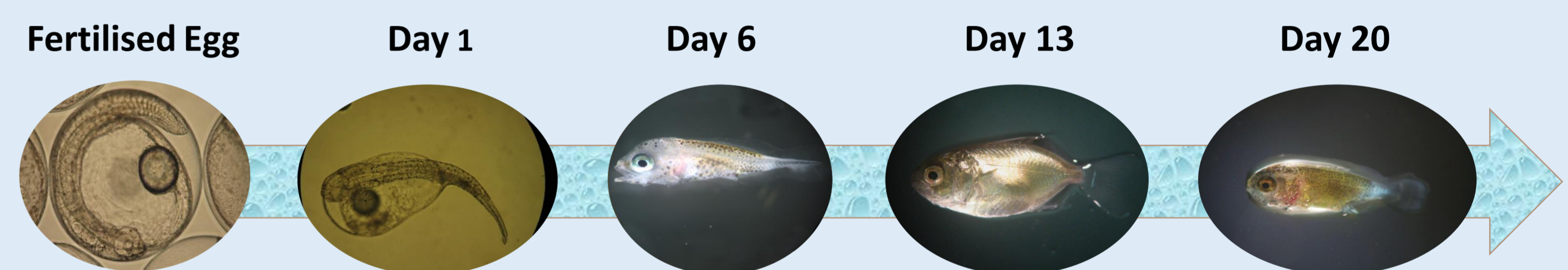


- MAC recorded its 1st successful spawning of pompano in 2011.
- Project won Minister's Team Award 2012.
- MAC worked with a local hatchery to transfer the technology and developed a pompano breeding programme for the farm.

Hormone: LHRH-a + HCG; **Injection method:** intra-muscular;

Dosage: Male: 187.5 IU hCG/kgBW + 7.5 µg LHRH-a/kgBW

Female: 250 IU hCG/kgBW + 10 µg LHRH-a/kgBW



Spawning and larviculture methods are developed and transferred to local hatcheries



Cobia (*Rachycentron canadum*)

MAC had assisted a local farm to develop cobia spawning and larviculture protocol.

Hormone: LHRH-a; **Injection method:** intra-muscular;

Dosage: Male: 10 µg /kgBW; Female: 15 µg /kgBW



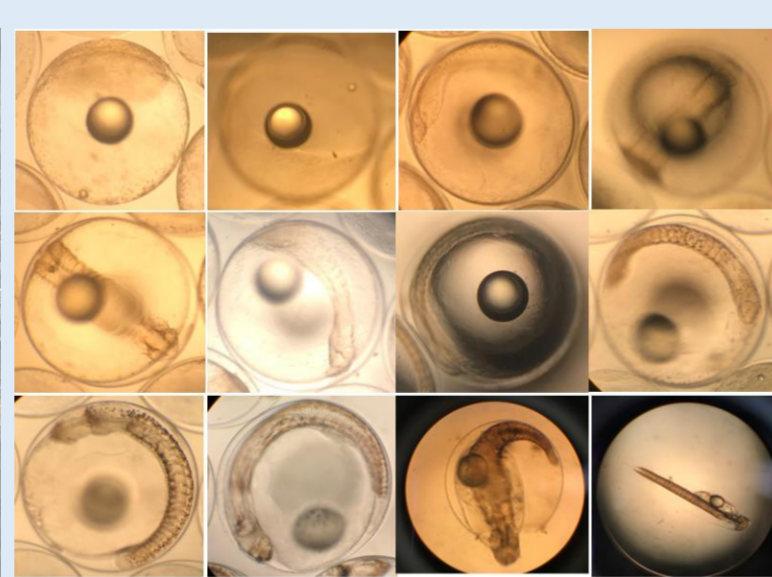
Broodstock selection



Hormone injection



Fertilised eggs



Larvae development

Jade Perch (*Scortum barcoo*)



- Jade perch is a freshwater finfish species native to Australia.
- It is hardy and is a fast grower (reaches market size in 7 months).

Hormone: Ovaprim; **Injection method:** Intra-peritoneal;

Dosage: 0.5 ml /kgBW for both male and female



Male (top) & Female (btm)



Cannulation



Stripping

CONCLUSION

- Closing the reproductive cycle of farmed species would eliminate the reliance on wild stocks for brooder fish or fingerlings and hence improve the sustainability of commercial aquaculture production.
- Hormonal manipulation of reproductive function in cultured fishes is a reliable way to produce fertilized eggs all year round according to hatchery operation plans.