

PRECOCIOUS FEMALE MATURATION IN SEACAGE POPULATIONS OF EUROPEAN SEABASS (*DICENTRARCHUS LABRAX*) IN CYPRUS

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Background

- The potential for the release of fish from aquaculture through spawning in seacages has already been noted in other species
- Female European seabass are considered to mature after two years of age and, therefore, unlikely to spawn during the typical seacage stage of 18 months.
- However, precocious maturation of females has been noted in harvested fish in Cyprus.

Methods

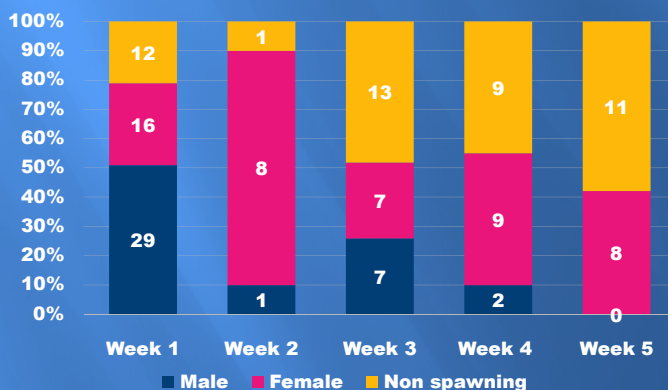
- 151 seabass were sampled randomly from a single seacage (harvested at 19 months age in March 2014)
- Fish were weighed and sex identified by abdominal pressure to release sperm or with a catheter inserted into the ovary duct to extract eggs. In the absence of eggs or sperm fish were classed as non-spawning (NS).
- Complete ovaries were also collected for histological analysis.

Results

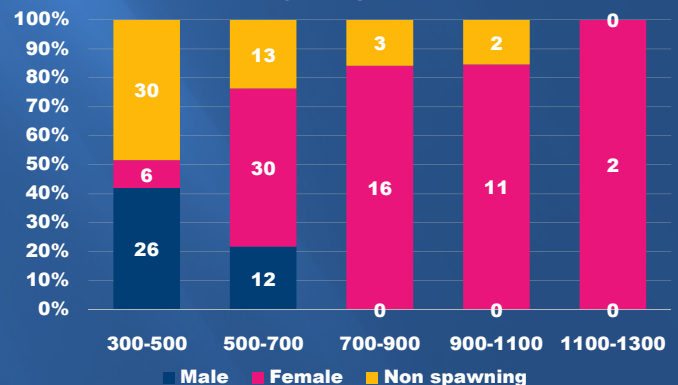
- In this single seacage, the sex ratio was found to approximate a 40:60 male to female ratio.
- Weekly measurements indicated that female fish were mature (with eggs) for a longer period than the male fish.

- Egg-bearing female fish were found at body weights from 350g to over 1kg, whereas no male fish were found above a weight of 650g.
- At larger sizes (>700g), far fewer non-spawning fish were noted.

Sex Ratio Over Time

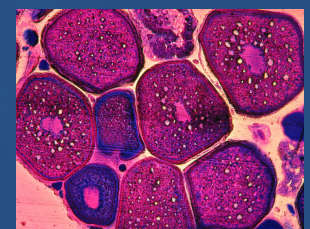
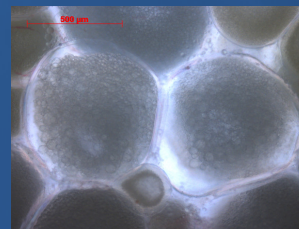


Sex by Weight Class



Conclusions

- Seabass are capable of reaching sexual maturity under normal seacage operations in Cyprus
- Mature egg bearing females were found in all size classes with larger females spawning longer
- Total egg production from a seacage is potentially over 3000kg* of eggs or over 2 billion hatched larvae (*assuming 20% egg productivity by weight)



Eggs in the late stages of vitellogenesis collected from females of 350g as seen in a squash slide (left) and stained section (right)

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