Fish Reproduction – Anything Goes! Chap 20

- Male vs. female reproductive effort:
- Female gametes costly female reproductive success limited by # gametes she produces
- Male reproductive success limited by number of available mates
- When is it better to be male or female?
- What type of males are likely to be monogamous?
- When are males likely to give parental care?
- Why do female fishes give less parental care?









Mating Systems

- Polygamous 3 types
- A) Polygyny sculpins, sunfish, darters, cichlids, anglefish, damselfish, wrasses, etc.
 - 1) males defend territories/nests damselfishes, some cichlids
 - 2) males have harem of females- bluehead wrasse
 - 3) leks- display areas
 Cyrtocara eucinostomus











CASE STUDY: Caribbean bluehead wrasse Thalassoma bifasciatum

- Initial phase coloration mostly yellow female
- Terminal males = distinct coloration, territorial, get 40-100 spawns/day
- Sneaker males rush females in group aggregations typically get 1-2 dilute matings/day;
- Small vs large reefs



Gender Roles in Fishes

 3) Parthenogenic-Mexican livebearers, *Poeciliopis spp.* need sperm to activate fertilization, some sperm incorporated, others the male genes are lost in the next generation



Mary Hirsch, Artist





SPAWNING Site

- Water column- often in large groups, many eggs released
- Substrate- males territorial
- Sperm released immediately-paternity assured
- Lots of sites for nests: hard substrate, algae, shells, grunion, spraying characin



- includes: making a nest, burying eggs, chasing predators, oxygenating, cleaning, carrying eggs inc. live birth and oral brooding, trophic provisioning (some catfishes and cichlids)
- Males are often primary caregivers
- No paternal care when internal fertilization
- How does external fertilization promote paternal care? Paternity assurance, males can get multiple mates, females prefer males with eggs, caring is costly-less foraging, predatory attacks, fewer eggs



