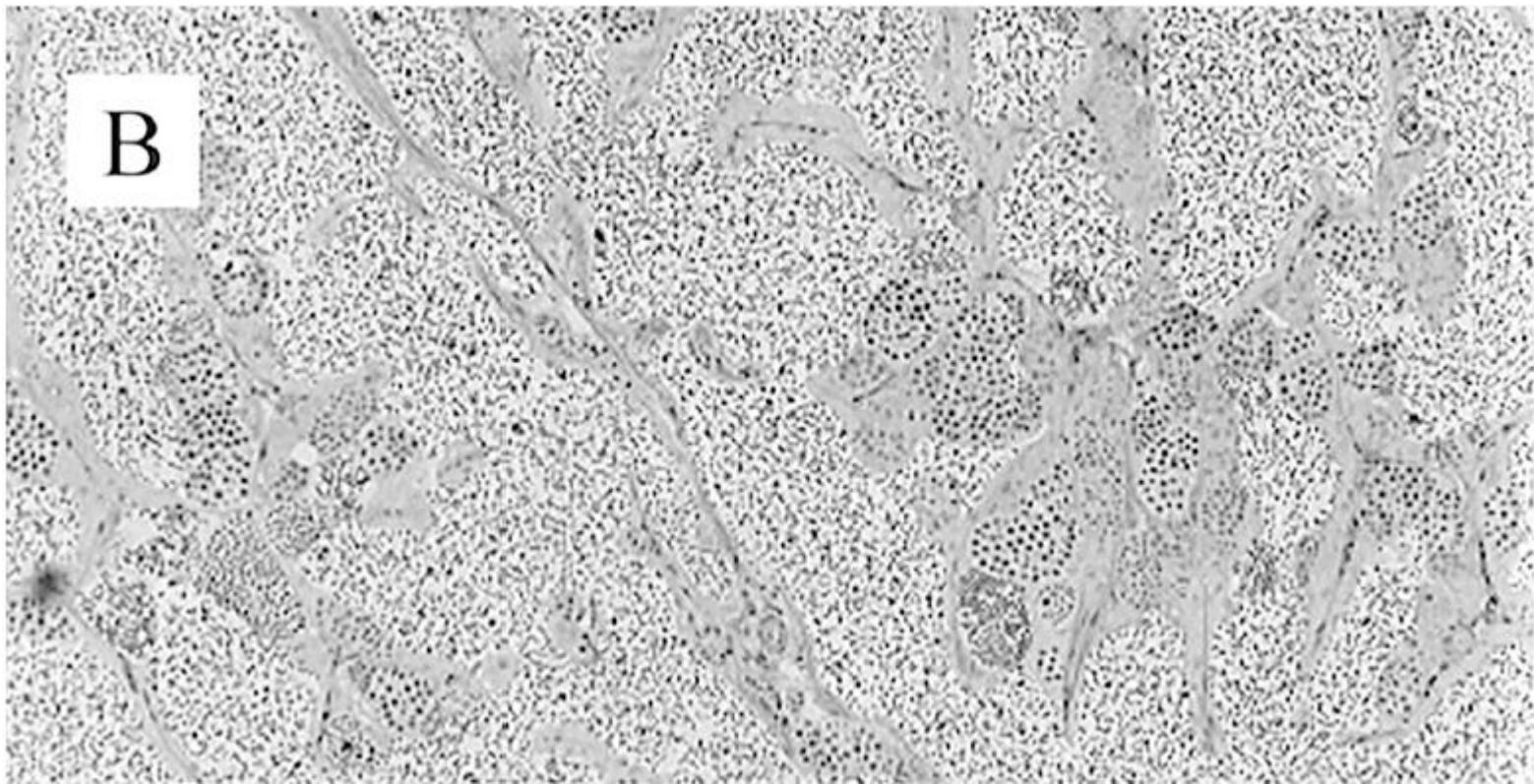


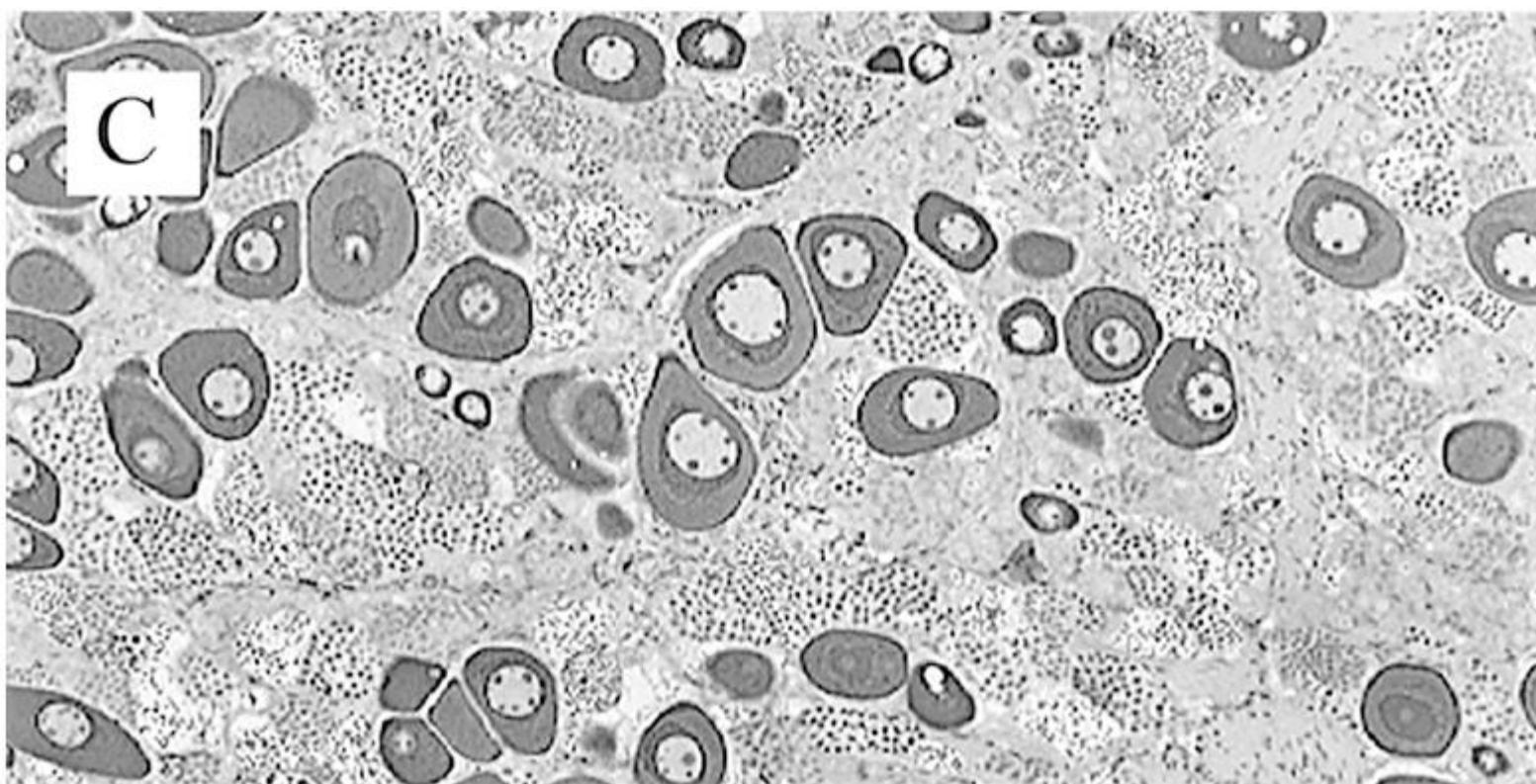
A close-up photograph of a large fish, likely a grouper, swimming in an aquarium. The fish has a reddish-brown body with white spots and a wide, open mouth. In the background, several smaller, silver-colored fish are visible.

Biology and Behavior in fish

Male reproductive development



Quirks in reproductive assessment



Maternal effects

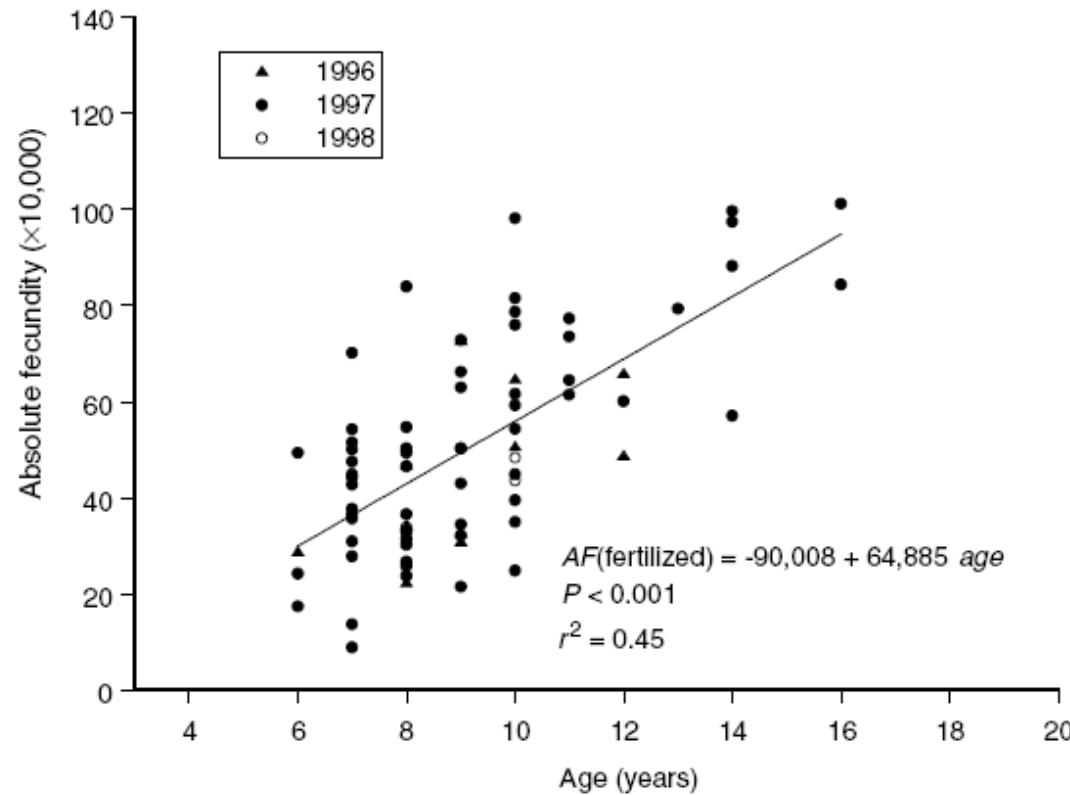


Figure 7

Scatter plot of black rockfish absolute fecundity (AF) (based on fertilized eggs) on age by year (1996–98) with a fitted regression line from pooled data.

Maternal effects

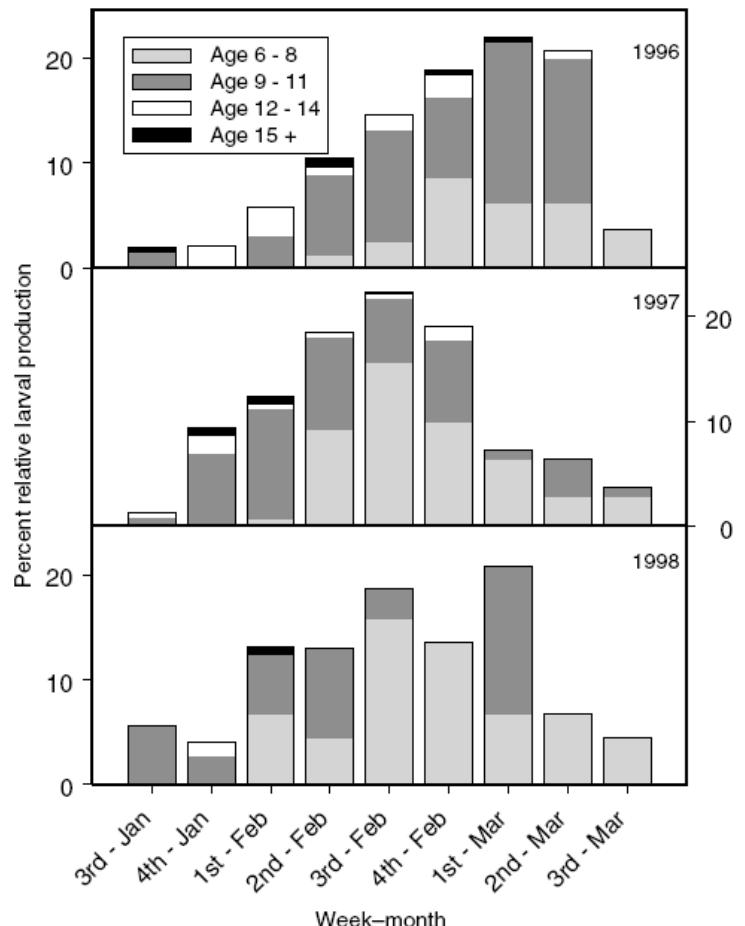
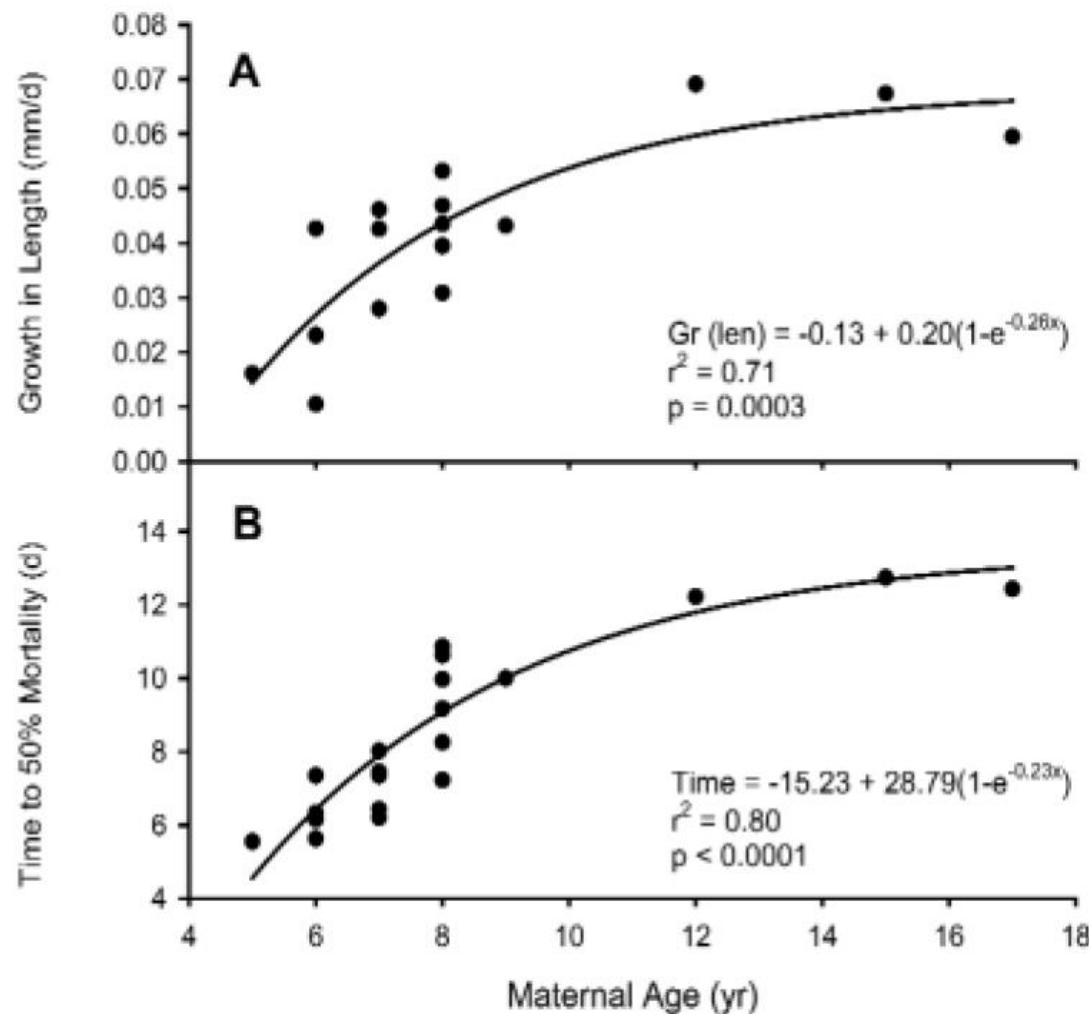


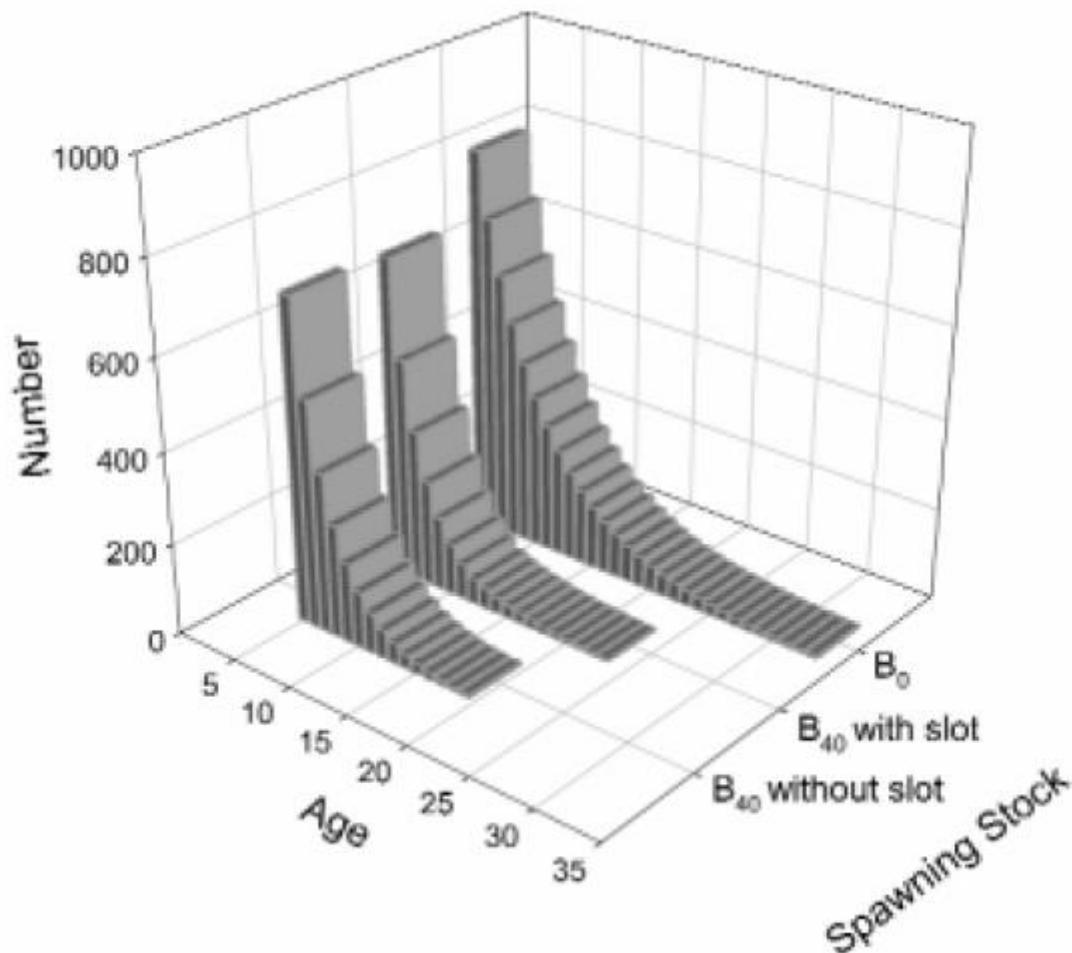
Figure 11

Percent relative larval production estimated from observations of larval development and age-group-specific absolute fecundity (based on fertilized eggs) for all mature females belonging to each age group of black rockfish collected in Oregon during 1996–98.

Maternal effects



Maternal effects



Berkeley et al 2004

Male mating strategies

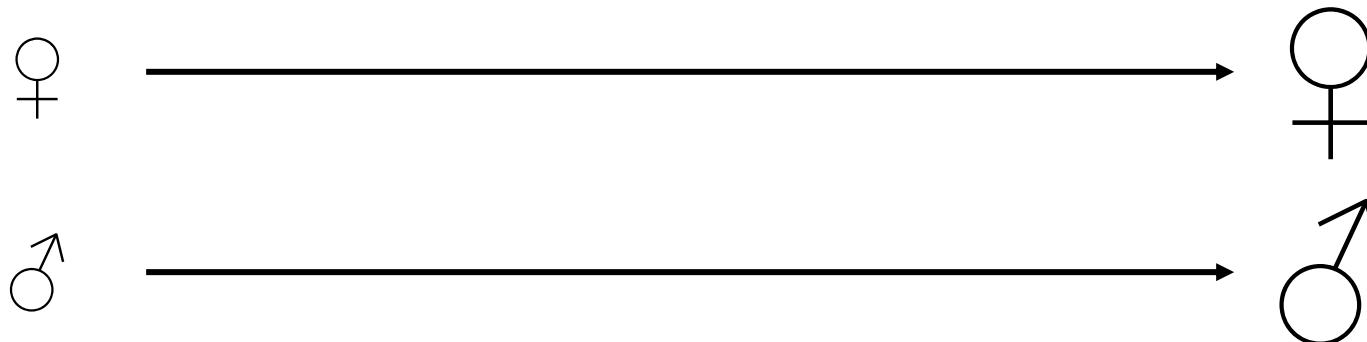
- Group spawning –Sperm competitors
- Territoriality –Mate competitors
 - Leks
 - Nest guarding
- Sneaker, streakers, and satellite spawners

Nest guarding –Lingcod



Phase shifts in male reproductive tactics

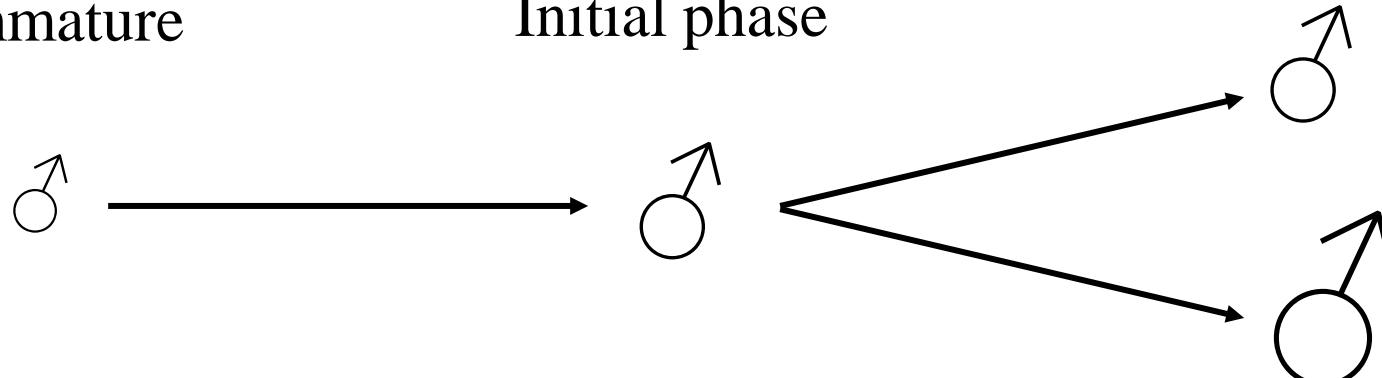
Immature Mature



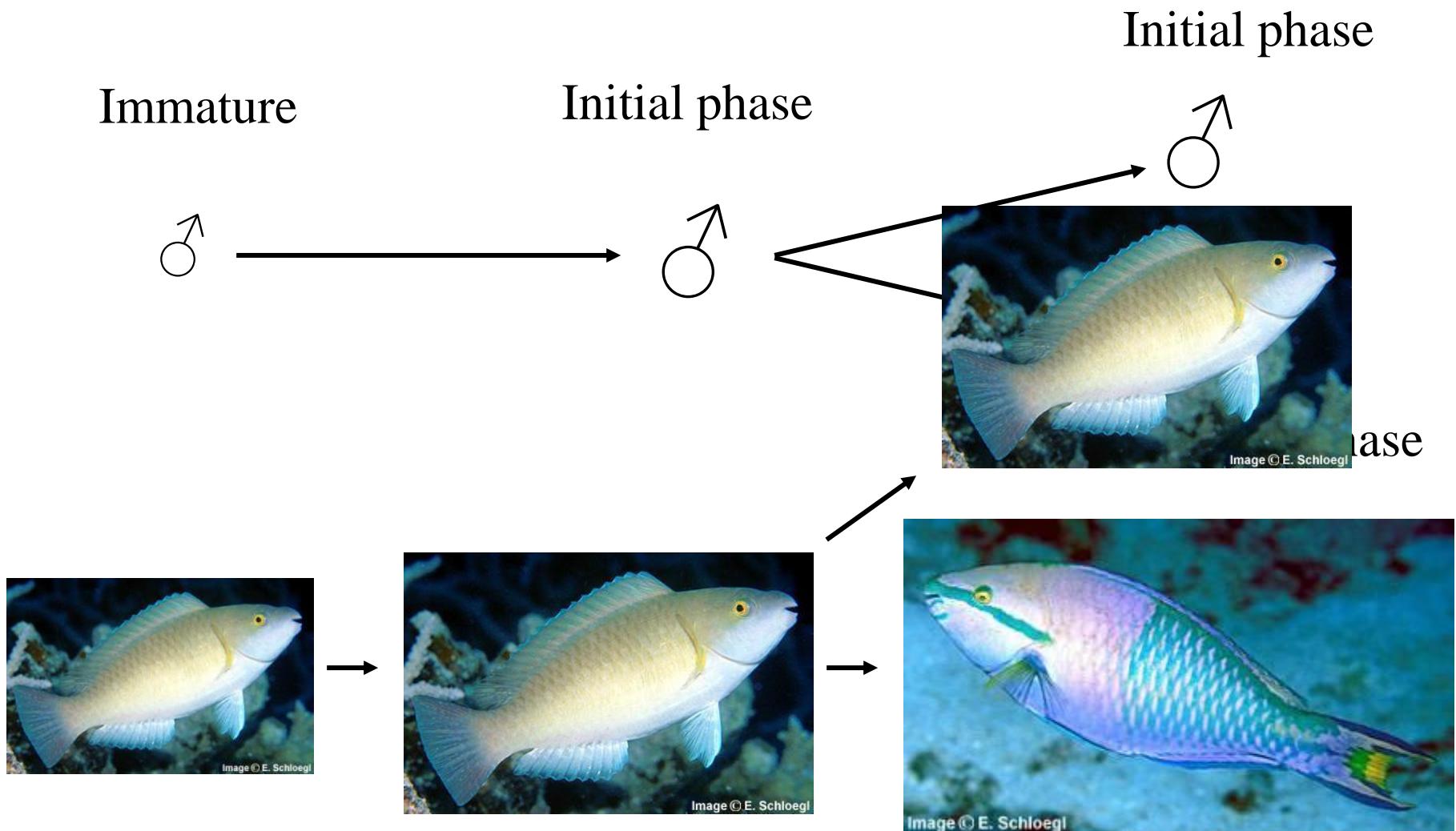
Initial phase

Immature

Initial phase



Terminal phase



Group spawning



Group spawning



Territoriality



Territoriality



Sex change



courtesy NOAA