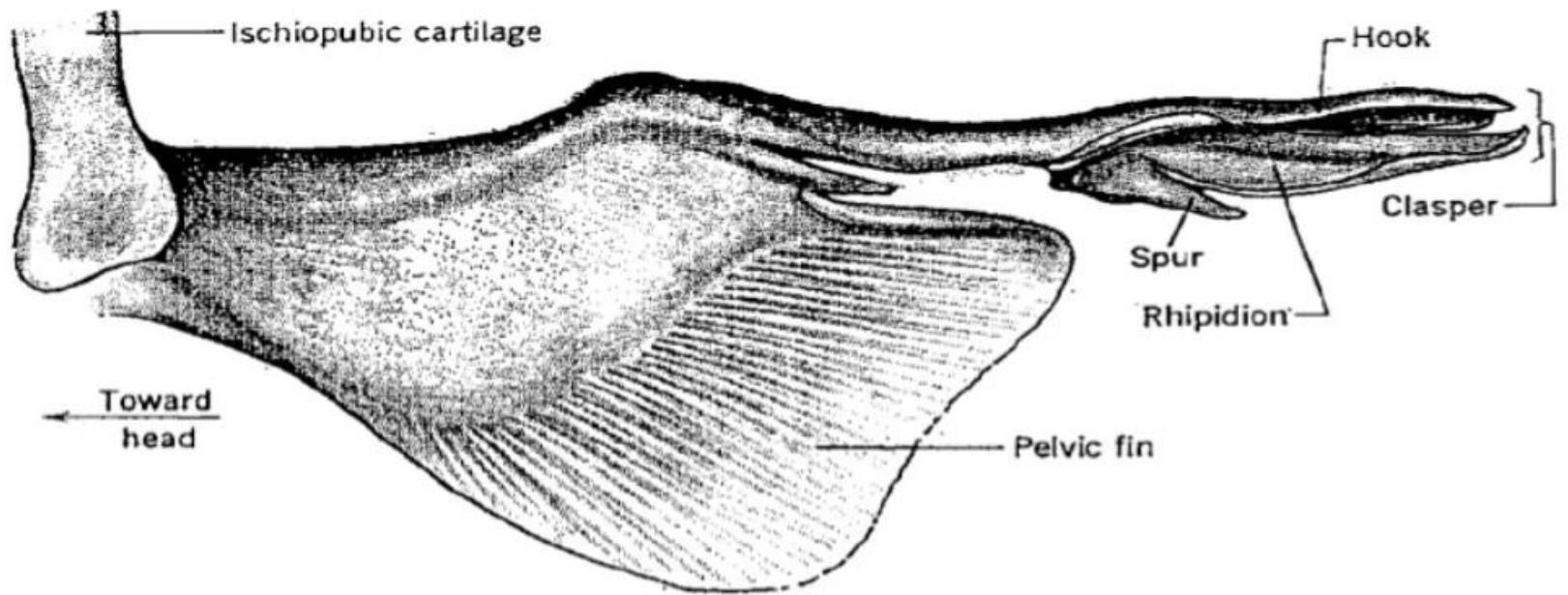
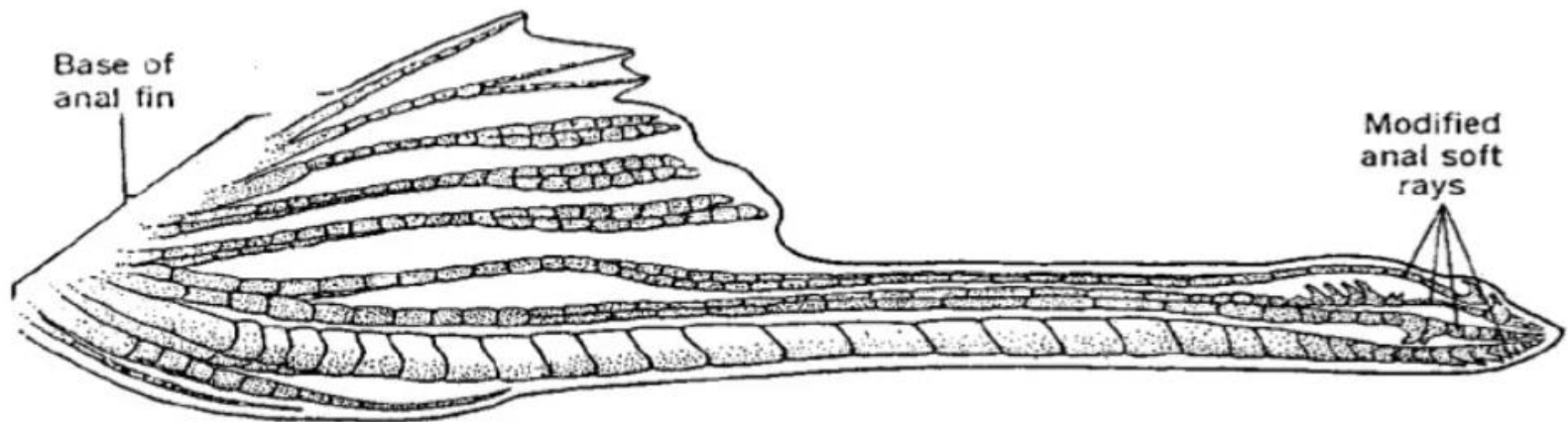


Reproductive strategies in fishes



(a) Shark clasper (myxoptergium)



(b) *Gambusia* gonopodium

The guppy (genus *Poecilia*) is the best known case of *ovoviviparity in fishes—the eggs are fertilized within the egg follicles of the ovary where they develop for some time.*

PARENTAL CARE

- Some marine forms and many more freshwater forms retain their eggs after they are laid, that is, they practice **parental care. Parental care takes on a host of different modes, from simple to highly complex**

Forms of parental care:

A. Male parental care: sea catfishes (*Ariidae*), sticklebacks (*Gasterosteidae*), pipe fishes (*Syngnathidae*), and greenlings (*Hexagrammidae*)

B. Female parental care:

1. Oviparity with post-spawning care: the cichlidaegenus *Oreochromis*

2. Ovoviviparity without post-spawning care: rockfishes, genus *Sebastes*

3. Viviparity without post-spawning care: Elasmobranches, livebearers (e.g., Genus *Poecilia*), surfperches (*Embiotocidae*)

C. Biparental care: bullheads (*Ictaluridae*), several cichlid genera (e.g., *Cichlasoma* and *Symphysodon*)

D. Juvenile helpers: some African cichlids (e.g., genus *Lamprologus*)

Reproductive strategies

several males to each female (Salmoniformes, lampreys)

several females to each male (Gobiidae)

single-pair matings (guppies)

Reproductive strategies

non-guarders

- pelagic (broadcast) spawners

 - semi-buoyant eggs

 - high fecundity

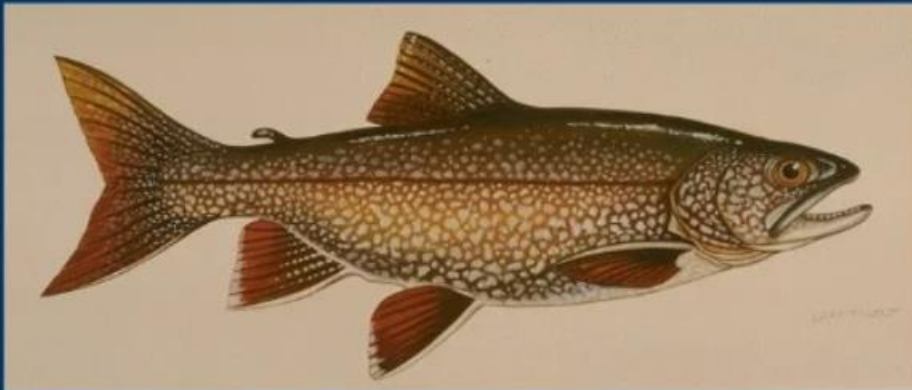
 - egg and larval 'migrations'



Reproductive strategies

non-guarders

- pelagic (broadcast) spawners
- benthic spawners
 - on coarse substrates (lake trout)
 - on vegetation (carp, perch)
 - on fine substrates (smelt)



Reproductive strategies

non-guarders

- pelagic (broadcast) spawners
- benthic spawners
- brood hiders:
 - build redd on coarse substrates (salmon, lamprey)



Reproductive strategies

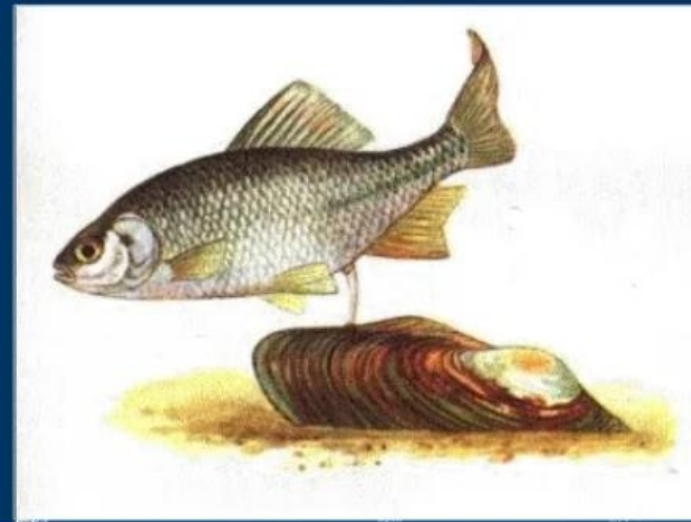
non-guarders

- pelagic (broadcast) spawners
- benthic spawners
- brood hiders

build redd on coarse substrates (salmon, lamprey)

beach spawners (grunion)

use another species (bitterling)



Reproductive strategies

guarders

- nest builders (largemouth bass)



Reproductive strategies

guarders

- nest builders (largemouth bass)

 - rock and gravel (like a lentic redd - sunfishes)

 - plant material (sticklebacks)

 - holes, crevices, cavities (gobies, sculpin, blennies)

 - froth (bettas)

 - anemones (clown fish)

