

APPENDIX I

Pictorial Guide to Families of Fish Larvae in the Gila River Basin

Pictorial Guide to Families of Fish Larvae in the Gila River Basin

This is a modification of the pictorial guide to families of fish larvae in the Ohio River drainage by Wallus et al. (1990) for only those families found in the Gila River Basin. It is supplemented at the end with a comparable account for the family Cichlidae with representative illustrations of yolk-bearing and later larvae from Fryer and Iles (1972) and McGowan (1988), respectively.

Larvae with yolk

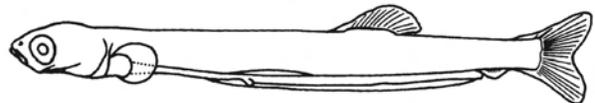
CLUPEIDAE—herrings

- slender, little pigment, transparent
- oil may or may not be visible
- large oil globule, if present, will be located posteriorly
- posterior vent
- less than 10 postanal myomeres
- dorsal finfold origin anterior, at mid-yolk sac early and just behind head later



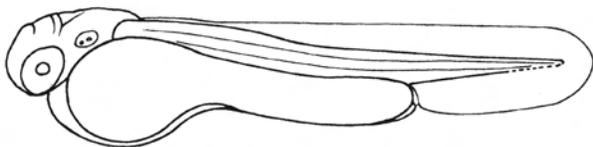
Larvae without yolk

- slender, little pigment
- posterior vent
- anal fin posterior to dorsal fin

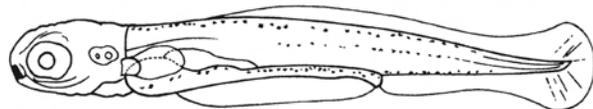


CYPRINIDAE—carps and minnows

- yolk long, cylindrical, initially bulbous anteriorly
- pigmentation varies from light to heavy
- vent usually slightly beyond midbody



- pigmentation often in rows; dorsolaterally, midlaterally, along ventral margin of myomeres, and midventrally
- air bladder obvious, becoming two-chambered, usually pigmented dorsally
- single dorsal fin



Larvae with yolk

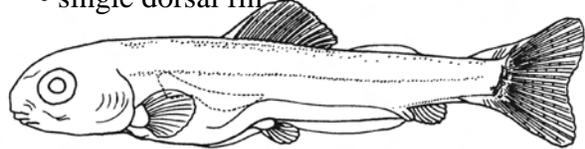
CATOSTOMIDAE—suckers

- yolk long, cylindrical, initially more bulbous anteriorly
- vent posterior, two-thirds to three fourths back on body



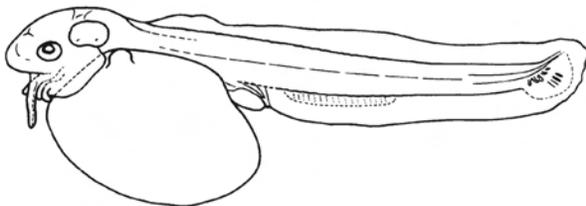
Larvae without yolk

- mouth shape and position varies from inferior (later in development) to terminal and oblique
- pigment variable but often in three rows, dorsally, ventrally, and midlaterally; dorsal pigment may also be in 1-3 rows
- air bladder obvious
- single dorsal fin



ICTALURIDAE—catfishes

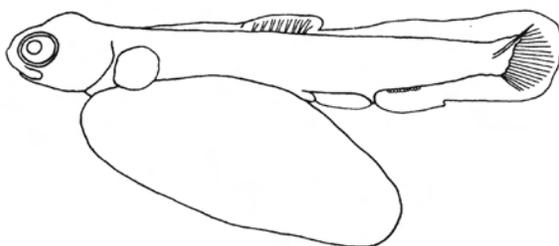
- large bulbous yolk
- barbels evident at hatching
- advanced fin development before complete yolk absorption



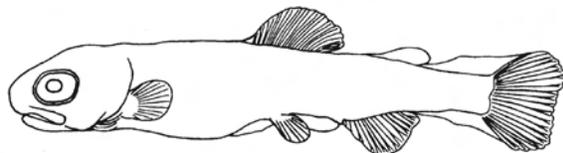
- some juveniles still have yolk, others absorb yolk as larvae before adipose fin is fully differentiated from remnant finfold or all rudimentary caudal-fin rays are formed

SALMONIDAE—trouts

- large, greater than 11 mm TL at hatching
- large yolk, initially pendulous
- advanced fin development prior to complete yolk absorption
- vent about two-thirds back on body



- robust
- large, rounded head
- adipose fin



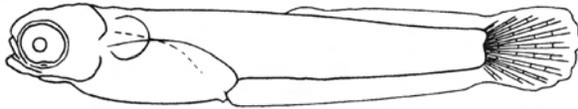
Larvae with yolk

Larvae without yolk

CYPRINODONTIDAE—killifishes

- stubby, robust
- caudal fin with rays at hatching
- vent anterior, near posterior margin of yolk

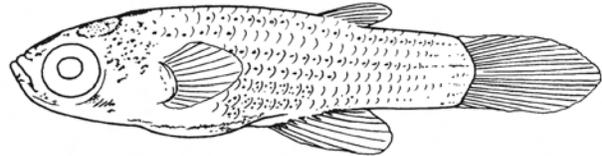
- large head
- superior mouth
- rounded caudal fin
- stocky caudal peduncle
- 10 or more dorsal rays (later larvae)



POECILIIDAE—livebearers

- inside female

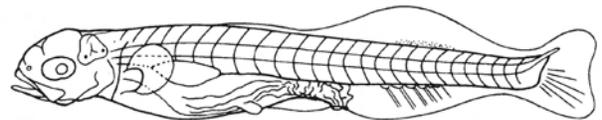
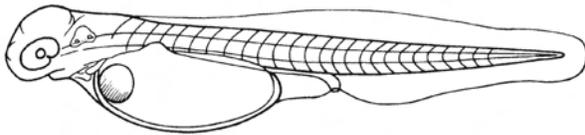
- scales present at birth
- rays in all fins at birth
- superior mouth
- dorsal fin short, 7-8 rays



MORONIDAE—temperate basses

- vent slightly posterior to midbody
- single, large, anterior oil globule
- low total myomere count, 25-26 or less

- "s" shaped gut
- low myomere count
- late larvae with well developed mouth with teeth
- spinous dorsal fin develops secondarily (later larvae)

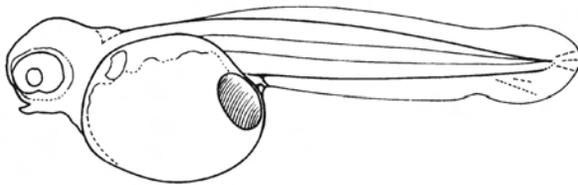


Larvae with yolk

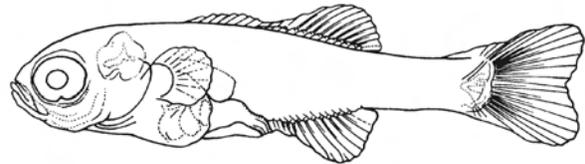
Larvae without yolk

CENTRARCHIDAE—sunfishes

- large, oval yolk sac at hatching
- position of oil globule variable, but usually posterior
- vent anterior to midbody

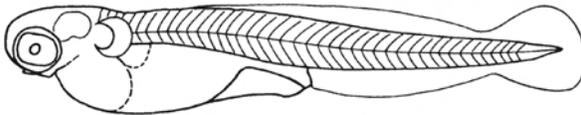


- usually robust with large head
- air bladder distinct
- gut short, coils with growth
- spinous and soft dorsal fins continuous (later larvae)

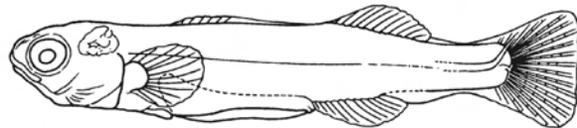


PERCIDAE—perches

- vent near midbody
- large anterior oil globule
- pectoral fins usually well developed at hatching
- total myomere counts higher than in moronids or centrarchids

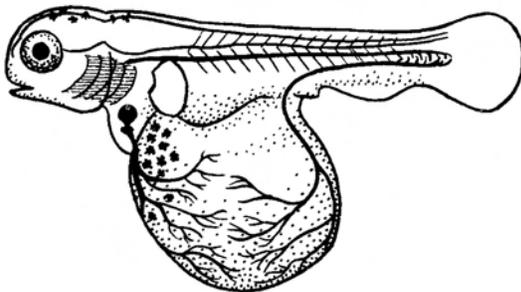


- large pectoral fins
- spinous dorsal separate from soft dorsal fin (later larvae)



CICHLIDAE—cichlids

- small, 4-10 mm TL
- oil globules spread throughout large yolk sac



- stout body
- head with large eyes and terminal mouth
- continuous dorsal fin with 15-17 spiny rays, 10-13 soft rays (later larvae)

