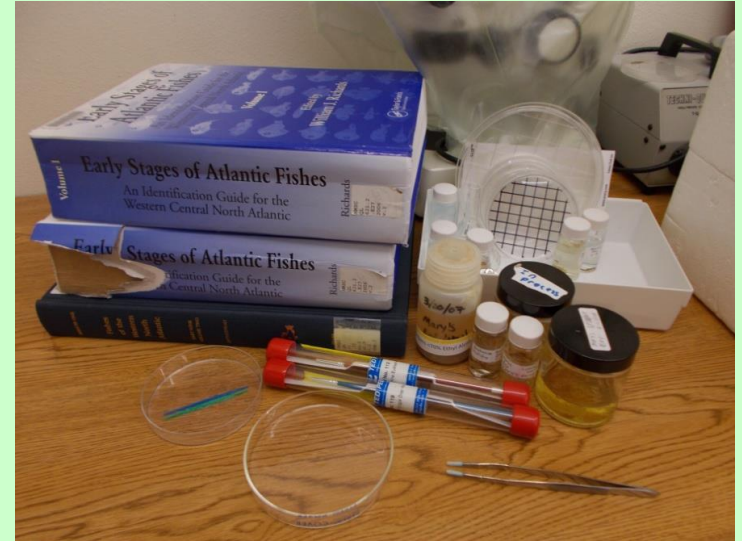


Larval Fish Diversity at Little Cayman Island, Caribbean Sea

Eric Post, undergraduate research, Heppell lab, 2013-2014



Background

➤ Nassau grouper (*Epinephelus striatus*) study

- Spawning aggregations vulnerable to overfishing
- IUCN listed—endangered



➤ Interested in recruitment of grouper larvae

- Deployment of light traps around Little Cayman
- Result: no grouper larvae found
 - *Many other species collected!*



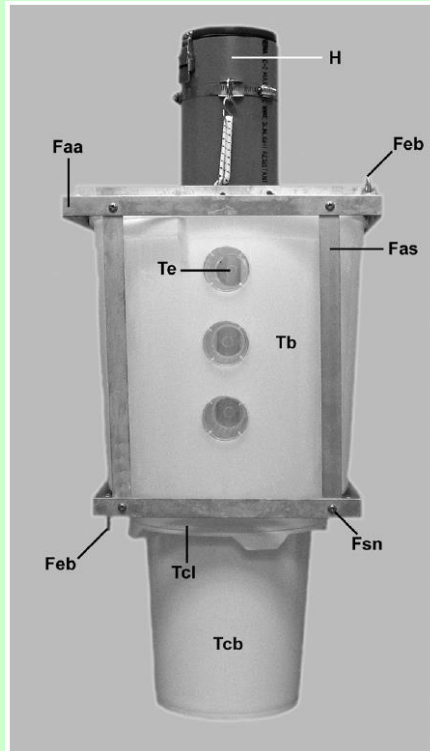
New questions

- How diverse is the larval fish community around Little Cayman Island?
- Which fishes might be using areas around Little Cayman Island as nursery habitats?
- Does larval fish diversity vary around Little Cayman Island, and if so, how?

Methods

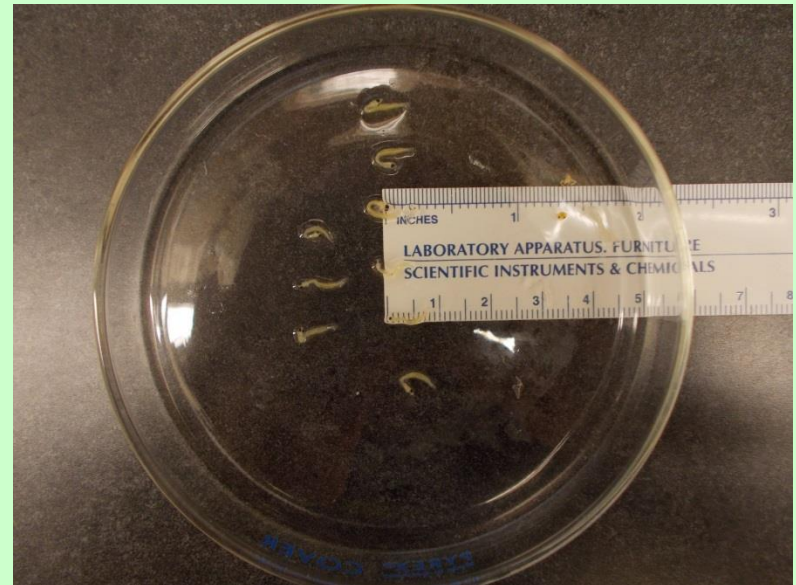
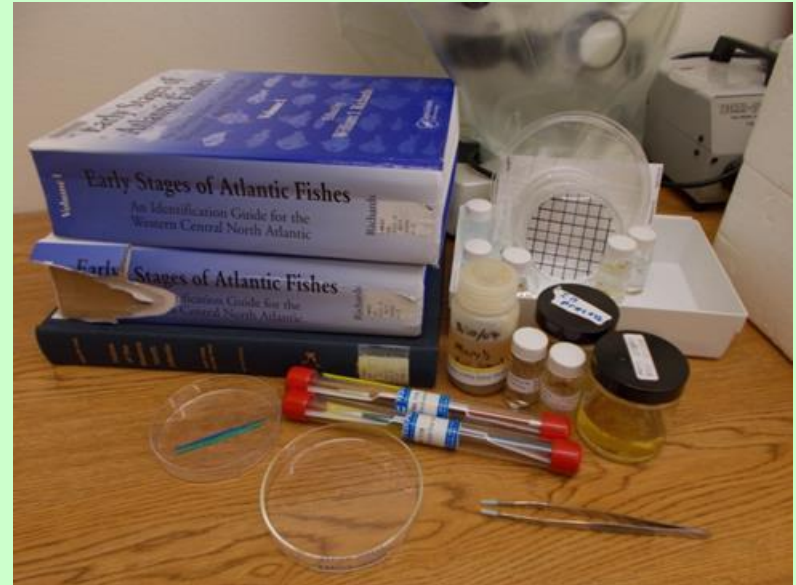
➤ Light traps

- Larvae collected 32-45 days after peak grouper spawning 2007, 2008, 2009
- Larvae preserved in 70% ETOH



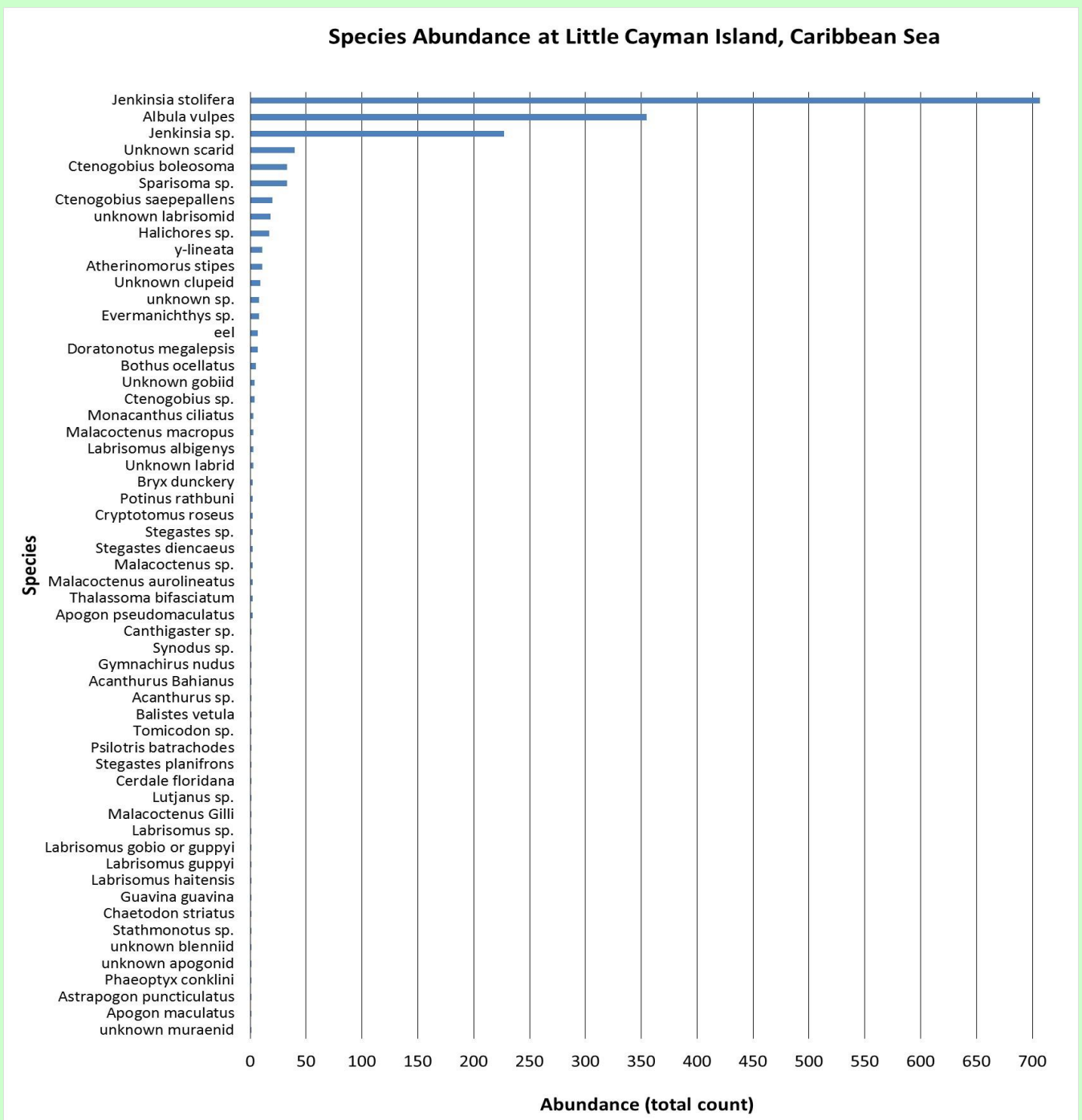
Methods: Larvae identification

- Initial sorting—body form
- Stereomicroscope
 - Meristics and morphometrics
 - Ultra-fine tools!
- I.D. guides: Richards et al (2006); Smith et al. (1989); coralreeffish.com (Victor 2014); fishbase.com
- Digital photography



Results

- All species
- Charles Bay, Mary's Bay, Kingston Bight (2007)
- Traps 1-6 (2009)



Kingston Bight 2007



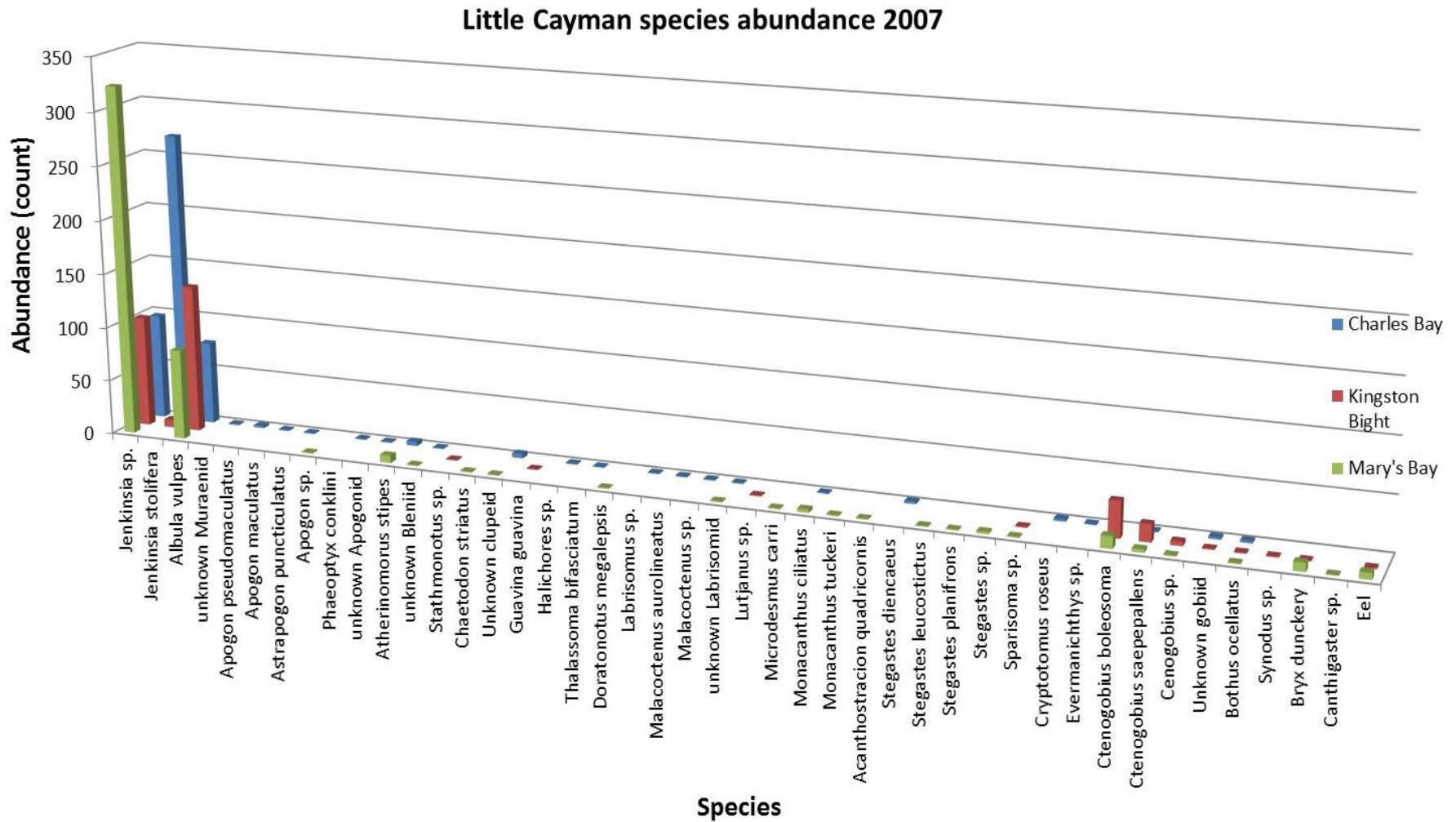
Mary's Bay 2007



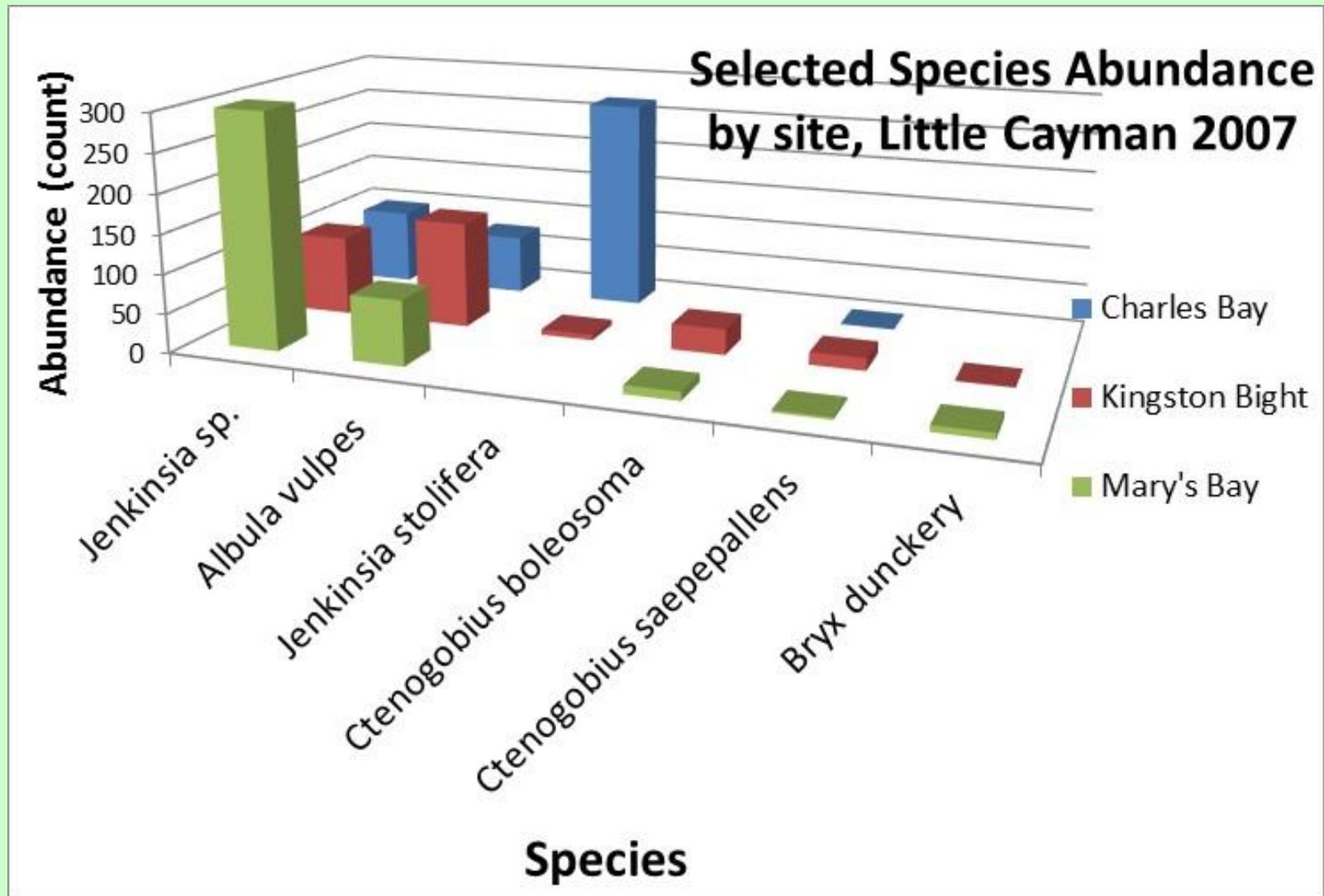
Charles Bay 2007



Results (continued)...

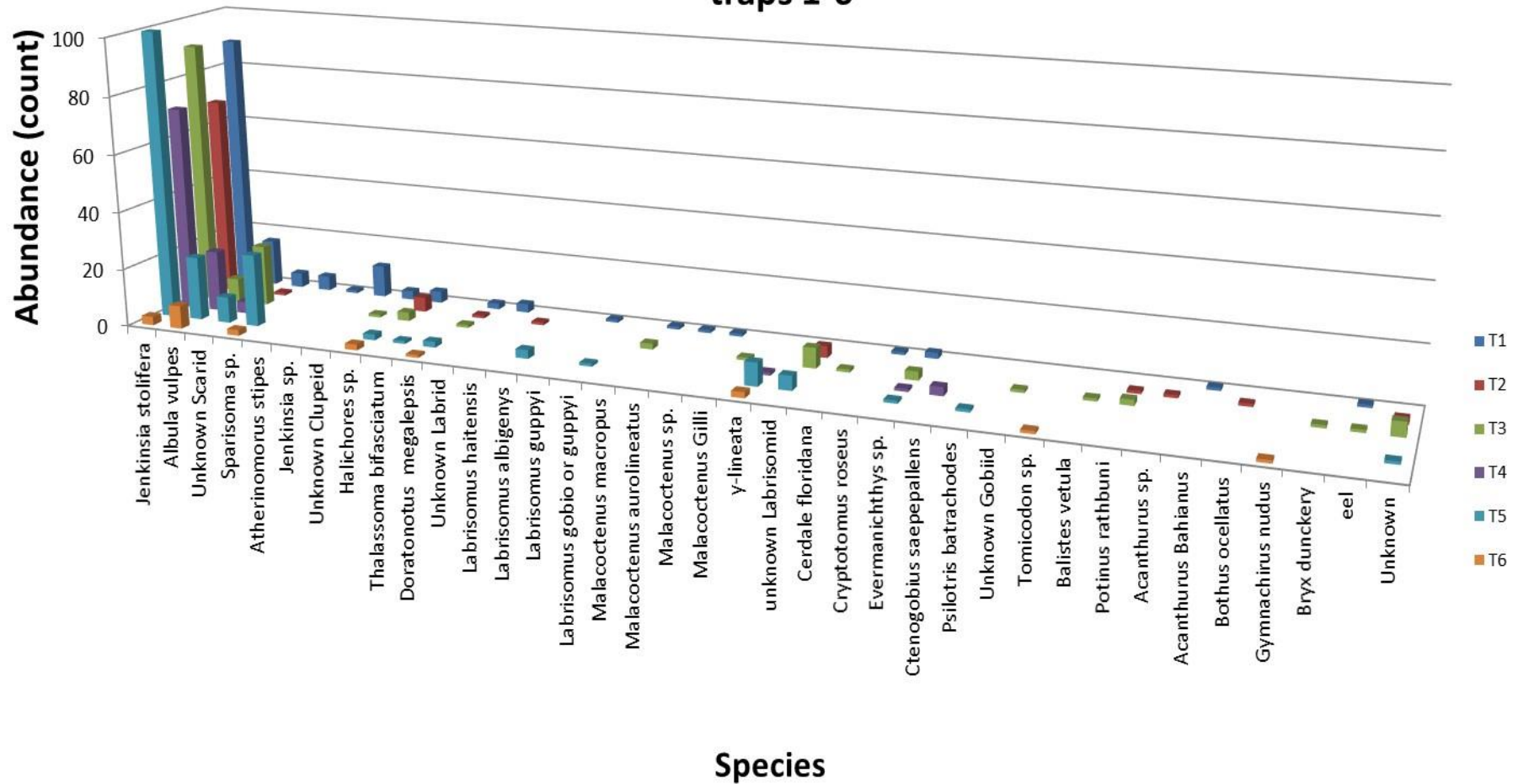


Results (continued)...



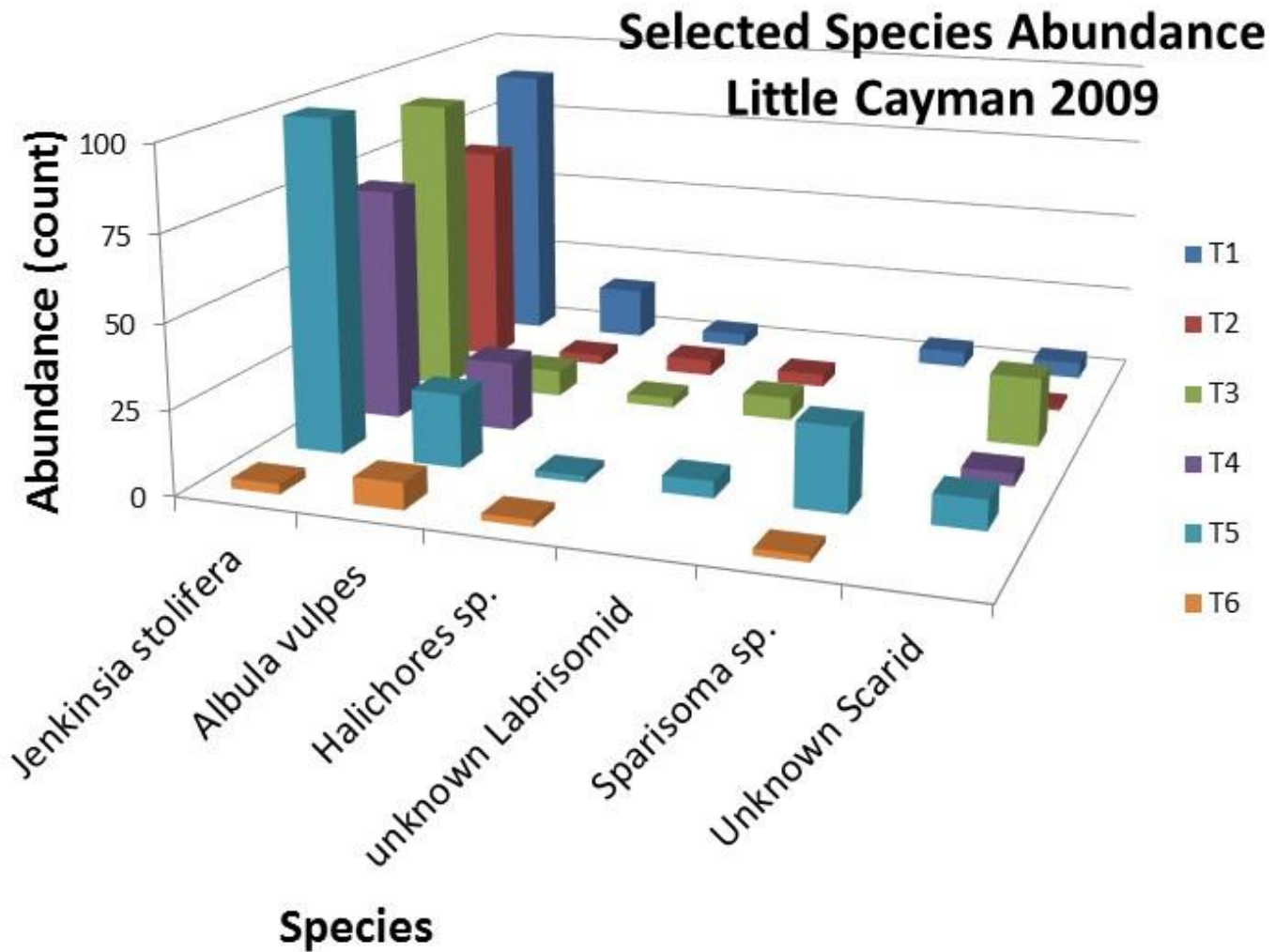
Results (continued)...

Little Cayman species abundance 2009
traps 1-6



T= trap

Results (continued)...



T= trap



Jenkinsia stolifera

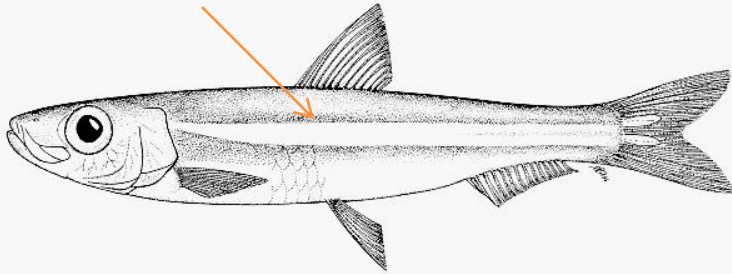


Jenkinsia sp. (stolifera? parvula?)

Meristics for *Jenkinsia parvula* & *stolifera*

Species	Vertebrae	Dorsal rays	Anal rays	Pectoral rays	Pelvic rays
<i>Jenkinsia parvula</i>	38-39	10-13	12-16	11-12	8
<i>Jenkinsia stolifera</i>	38-39	9-12	13-16	11-12	8

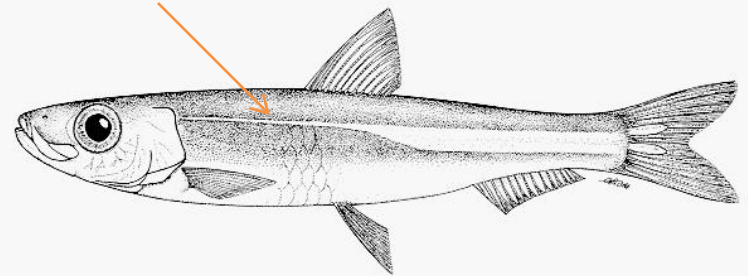
Jenkinsia stolifera



FAO

- ✓“Florida round herring”
- ✓Florida, Belize, Venezuela
- ✓IUCN: not evaluated

Jenkinsia parvula

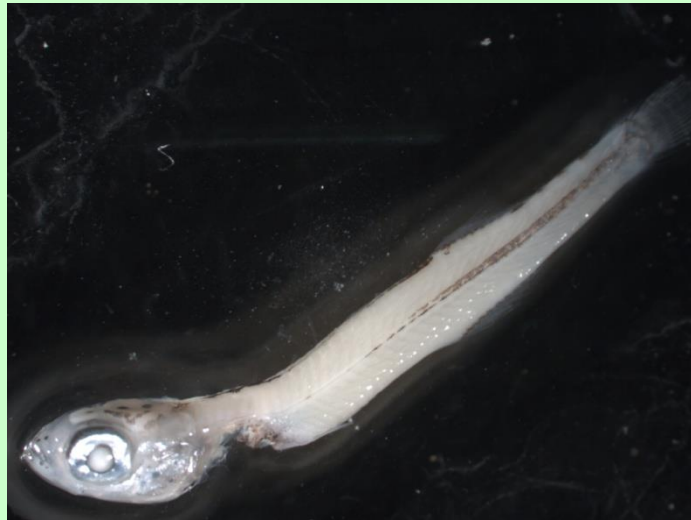


FAO

- ✓“Short-striped round herring”
- ✓Venezuela
- ✓IUCN: Threatened, 1996 (needs updating)

Albula vulpes leptocephali





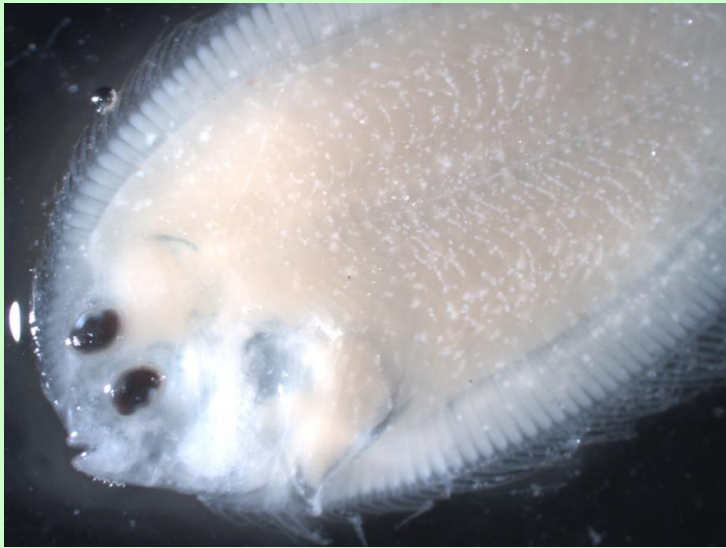
*Atherinomorus
stipes*



Apogon maculatus



Astrapogon puncticulatus



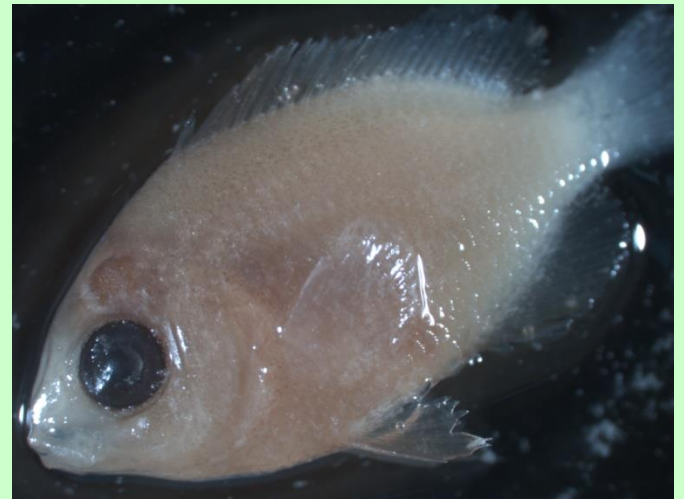
Bothus ocellatus



Family: Gobiidae



Chaetodon striatus



Stegastes sp.



Synodus sp.

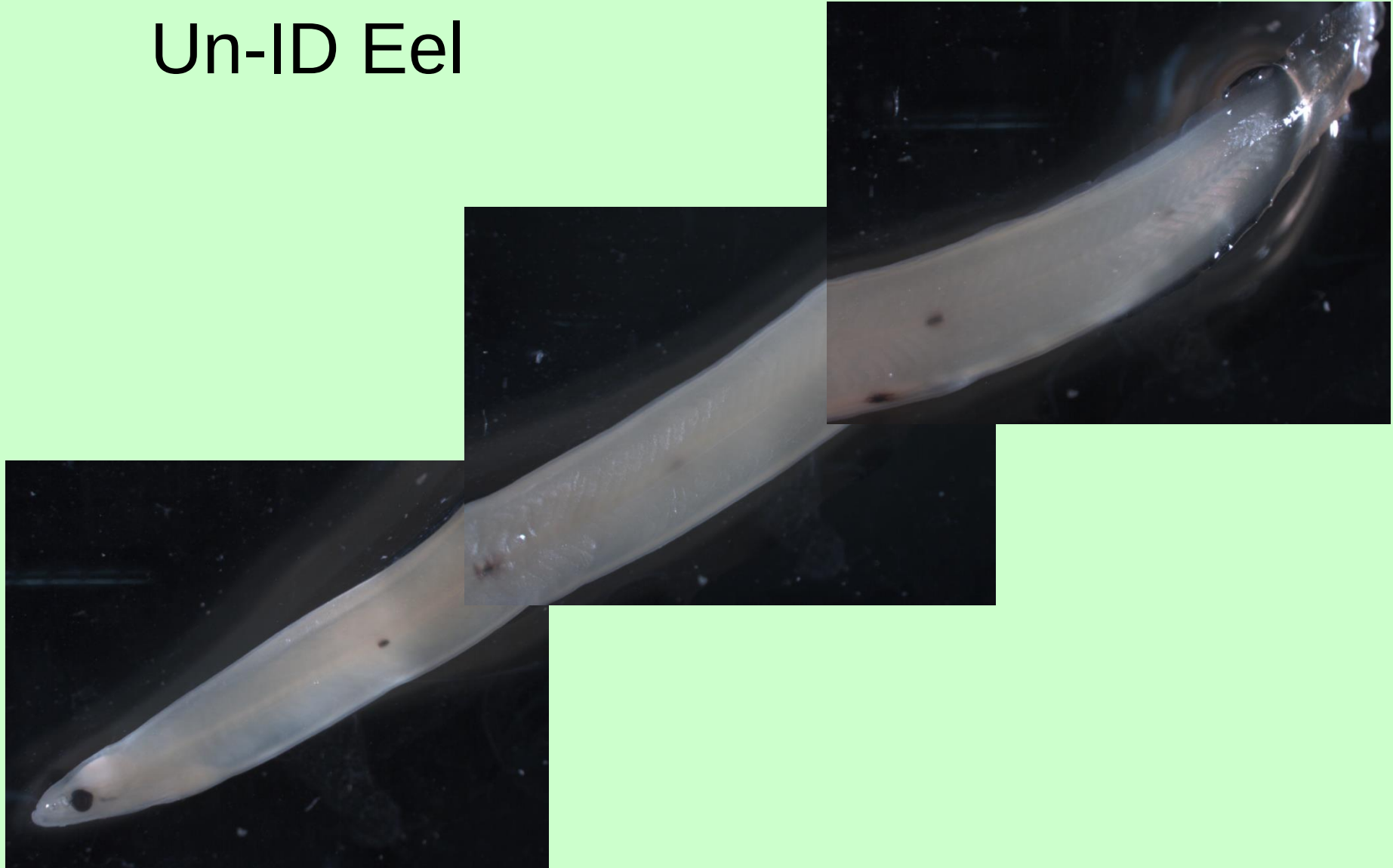


Canthigaster sp.



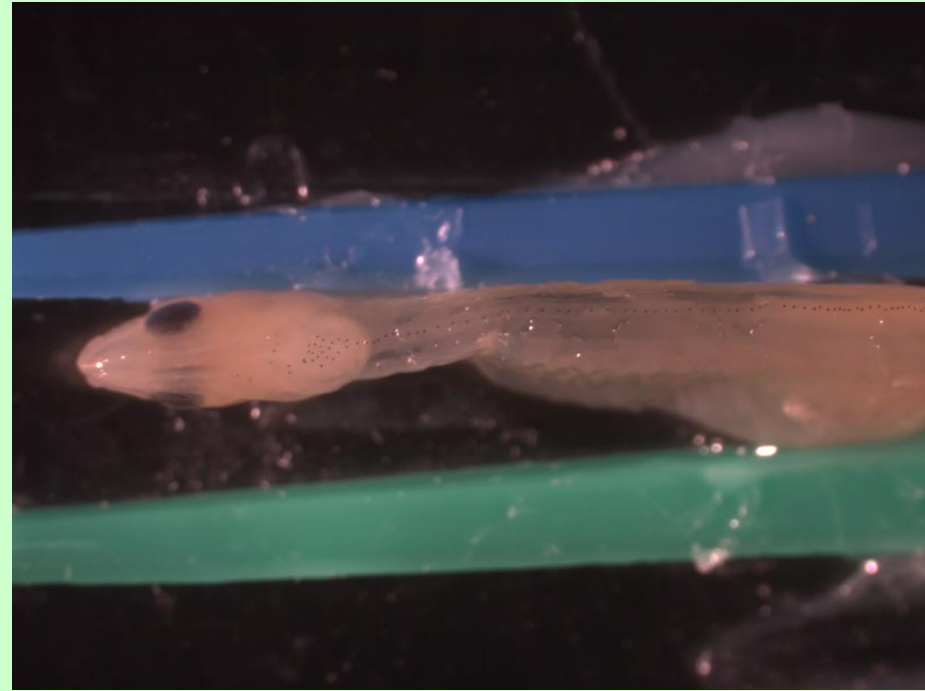
Monacanthus ciliatus

Un-ID Eel

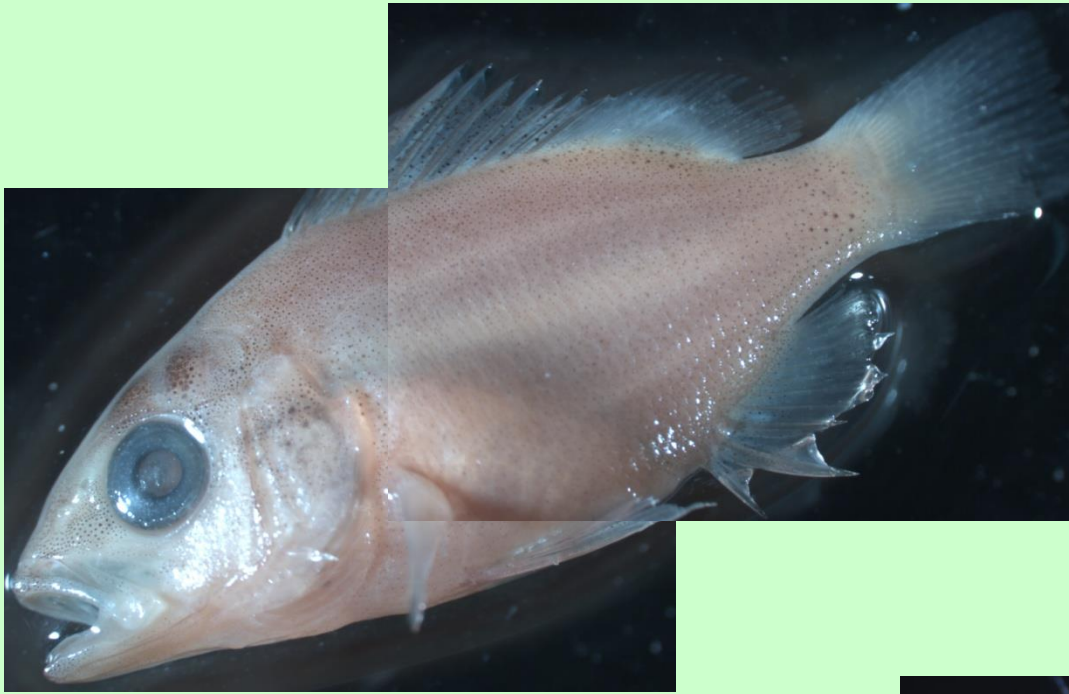




Gymnothorax moringa



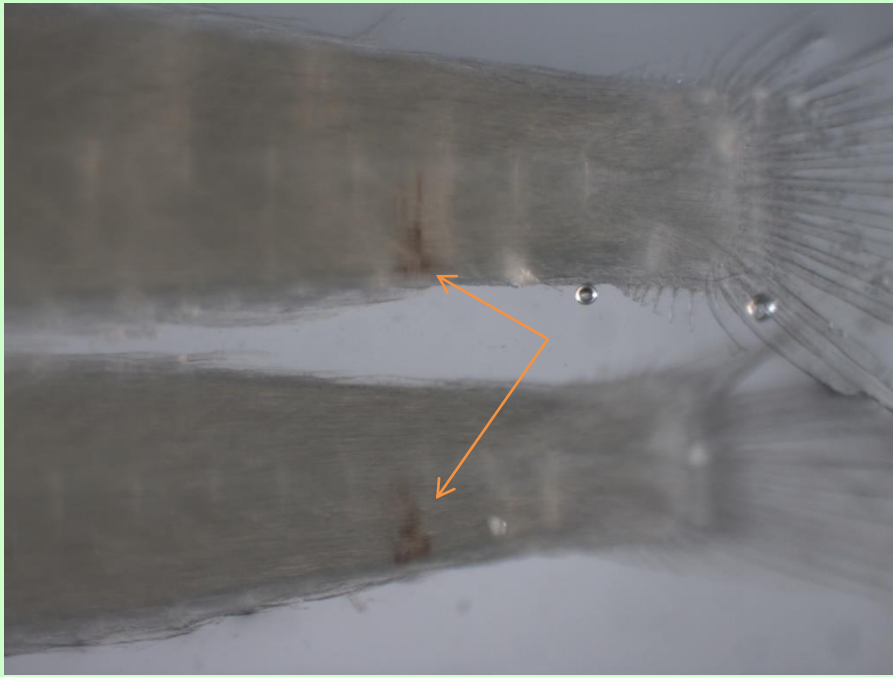
Gymnothorax moringa
ventral melanophore pattern



Lutjanus sp.

Stathmonotus sp.





Melanophores

Ctenogobius boleosoma
or *C. saepepallens*

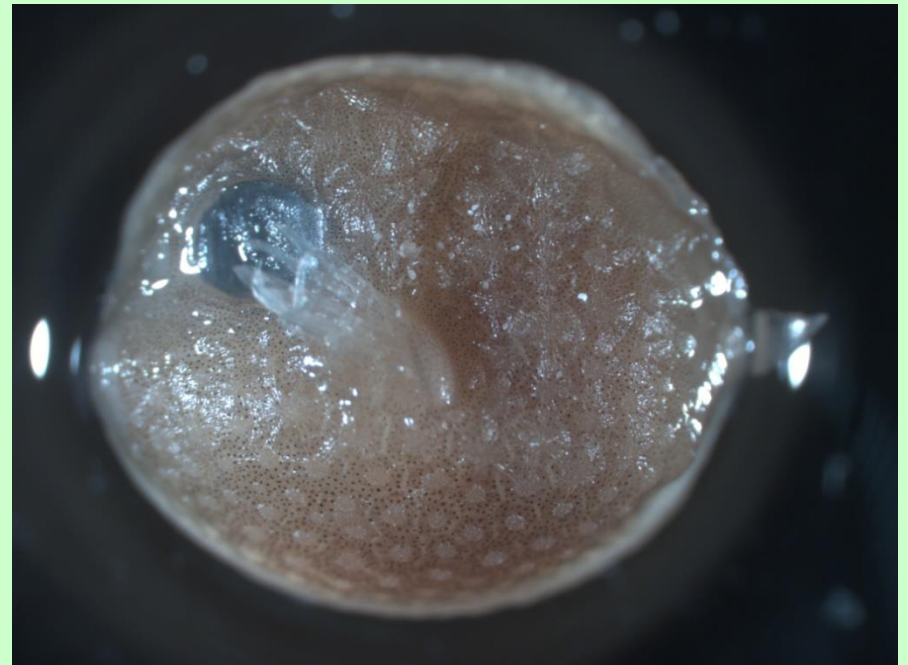


Bryx dunckeri



Microdesmus carri

*Acanthostracion
quadricornis*



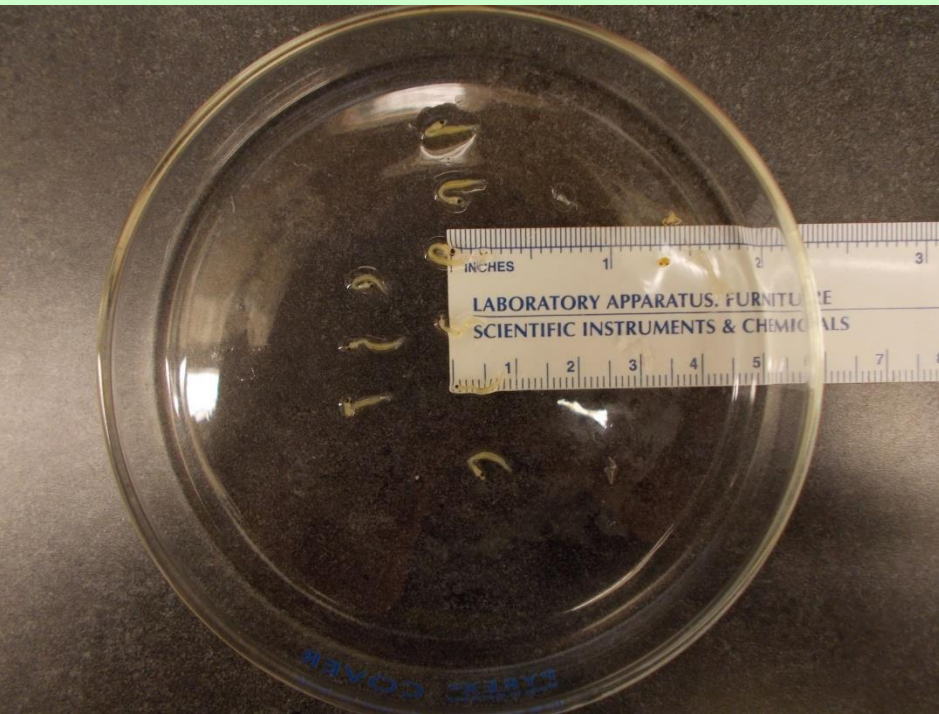


← Un-ID juvenile eels

Gymnothorax
moringa →



Time consumers



bent specimens



invert-dense sample

Discussion

- Major portion of larval fish diversity at Little Cayman
 - ✓ Herrings (genus *Jenkinsia*)
 - ✓ Bonefish (*Albula vulpes*)

- Other contributing taxa
 - ✓ Parrotfishes (family Scaridae)
 - ✓ Gobies (genus *Ctenogobius*)

- Future research possibilities
 - ✓ Shannon's biodiversity index
 - ✓ Species distribution around Little Cayman
 - ✓ Investigate nursery habitats

Photo file name format

Genus_species_SiteName_date(mmddyyyy, no slashes)

References

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