



Identification of Fish Larvae

Regional Training Workshop on Fish Larvae Phase I: Larval Fish Identification and Fish Early Life History Science

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SEAFDEC Training Department, Samut Prakarn, Thailand

By

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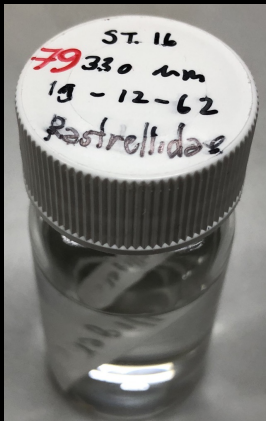
Asst. Prof. Dr. Itchika Sivaipram

Chulalongkorn University

Family: Scombridae



- Sample: #79 ST.16 330 μ m 19-12-62
- Genus: *Rastrelliger*
- Scientific name: *Rastrelliger kanagurta* (tentative)
- Larvae stage: Post-flexion



Body part	Adult Count	Larvae Count	Actual Count
D (Dorsal fin)	VIII~XI – 11~13 + 4~6	VIII~IX – 12 + 5	D2: 12 + 5 (17)
A (Anal fin)	10 ~ 13 + 5	12 + 5	12 + 5 (17)
P1 (Pectoral fin)	18 ~ 22	19~20	NA
P2 (Pelvic fin)	I, 5		NA
V(M) (Myomere)	31	31	31

Identification key:

1. No preopercular spine, round head, mouth relatively small
2. 2nd dorsal fin develops prior to first dorsal fin
3. 2nd dorsal fin 17 (12 fin ray + 5 finlets)
4. Myomere count 31

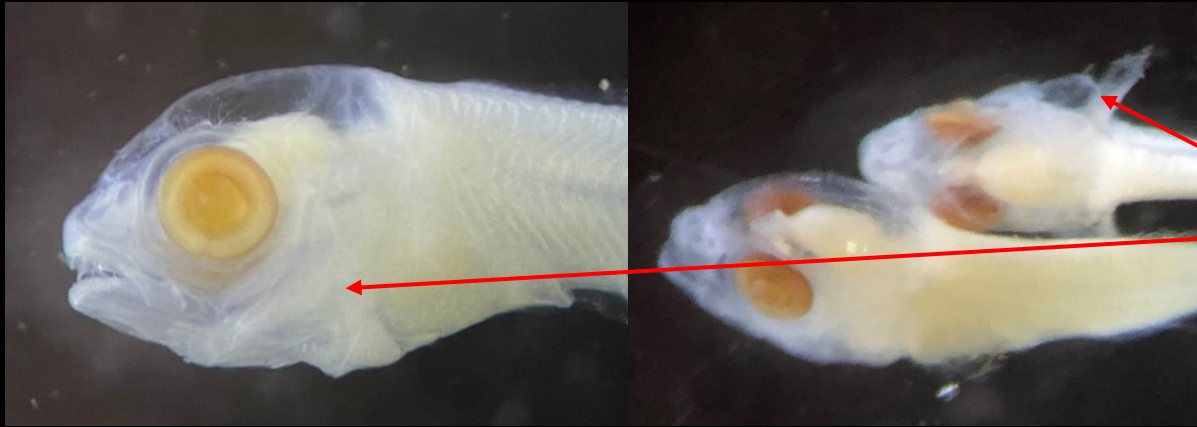
Description to *Rastrelliger* sp.



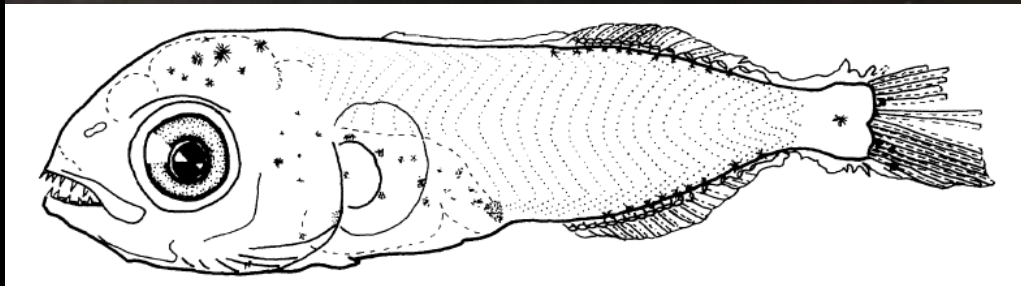
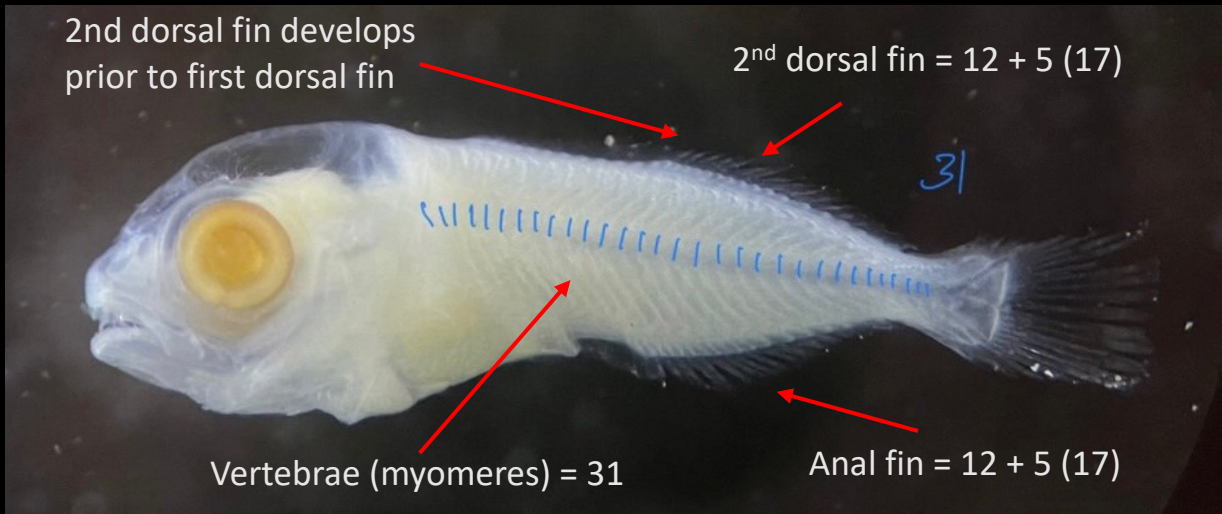
Body part	Features
Body shape	Slightly elongate (BD 10-20% BL)
Head	Large, round
Gut	Coiled and compact early (3 mm)
Snout	Round
Mouth	Oblique; relatively small
Eye	Round
Head Spination	No spination

Note: It is difficult to differentiate the species between *Rastrelliger* genus. The larvae morphology is very similar. Need a molecular (DNA) approach to confirm the species.

Distinct features of *Rastrelliger sp.*

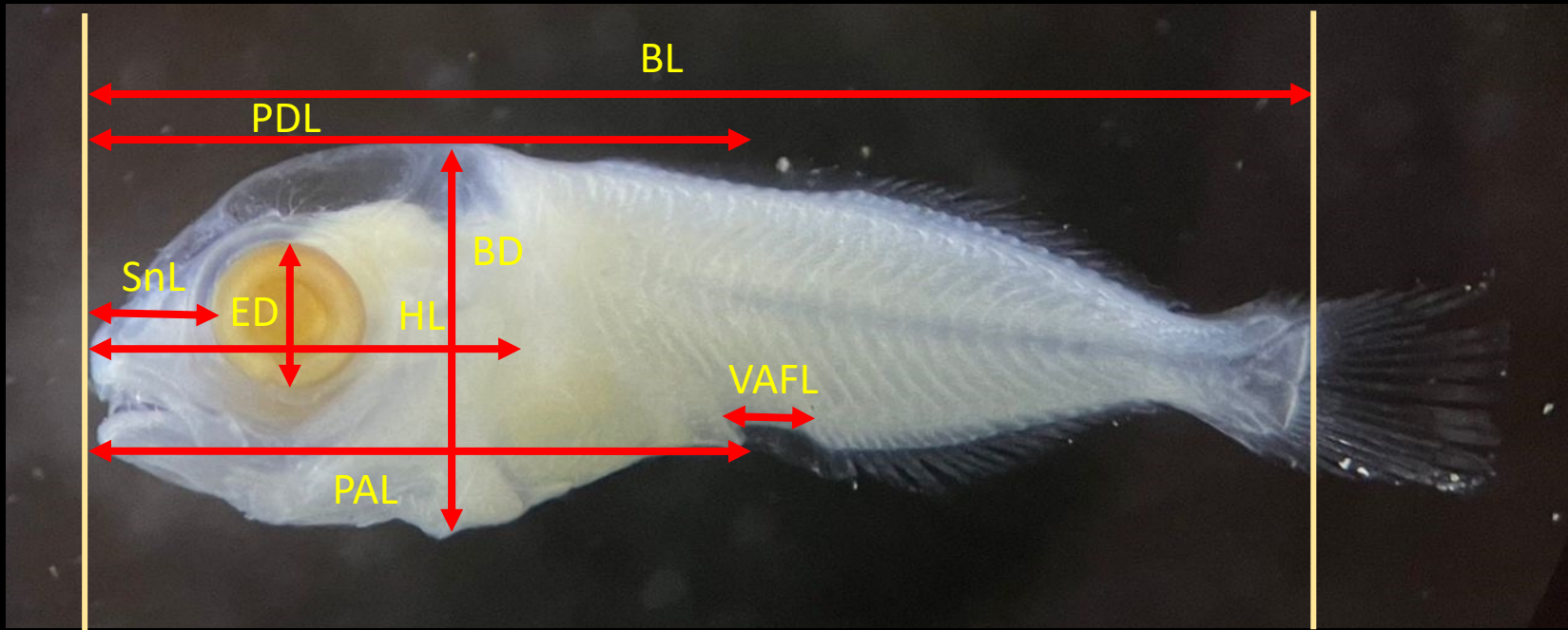


Preopercular spines absent



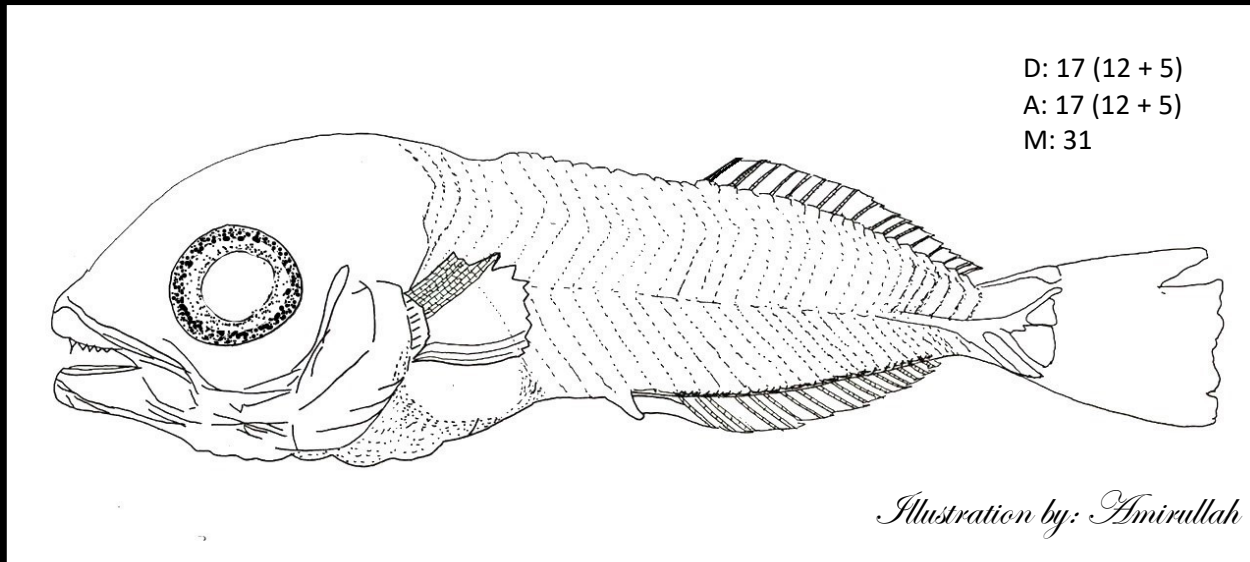
The dorsal and finlet form as part of the main body of the fin and do not separate from it until early juvenile stage.

Measurement of *Rastrelliger sp.*



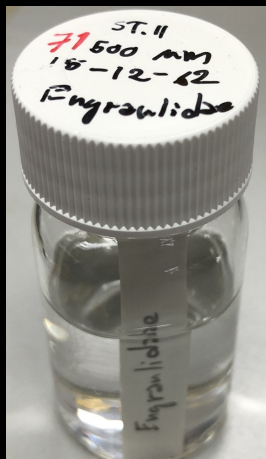
Body part	Measurement (mm)	Body part ratio
BL (Standard length)	5.2	
HL (Head length)	1.94	HL 37.3% of SL
BD (Body depth)	1.54	BD 29.6% of SL
SnL (Snout length)	0.47	SnL 24.2% of HL
ED (Eye diameter)	0.65	ED 33.5% of HL
PAL (Pre-anal fin length)	2.79	PAL 53.7% of SL
PDL (Pre-dorsal fin length)	2.22	
VAFL (Vent to anal fin length)	0.35	

Specimen photo & Drawing *Rastrelliger* sp.



Family: Engraulidae

- Sample: #71 ST.11 500 μ m 18-12-62
- Genus: Encrasicholina
- Species name: *Encrasicholina sp.*
- Larvae stage: Post-flexion



Body part	Larvae Count	Actual Count
D (Dorsal fin)	11~16	12-13
A (Anal fin)	14~21	12
P1 (Pectoral fin)	12~17	NA
P2 (Pelvic fin)	7	NA
V(M) (Myomere)	41~44	43

Identification key:

1. Dorsal fin base posterior to midpoint of body, myomere < 70
2. Anal fin ray less than 30
3. Origin of anal fin just under end of dorsal fin
4. Myomere count 40-45

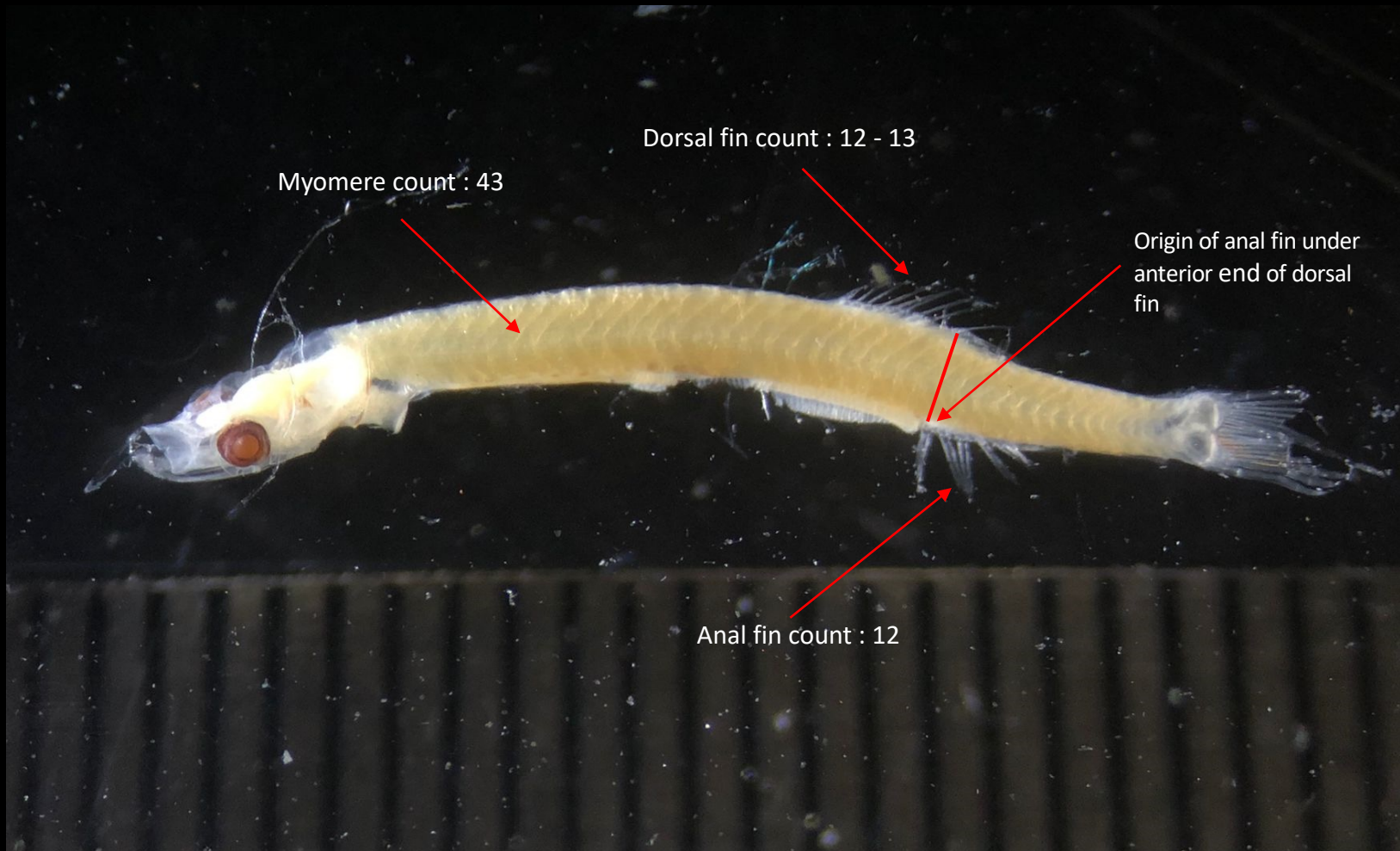
Description to *Encrasicholina* sp.

Body part	Features
Body shape	Very elongate (BD <10% BL)
Head	Round and small
Gut	Very long (PAL >70% BL)
Snout	Slightly concave
Mouth	Small and terminal; reaches to the anterior half of eye
Eye	Round; moderate
Head Spination	No spination
Origin of anal fin	Under the anterior end of dorsal fin

Note:

- In Engraulidae family, it is difficult to differentiate between *Encrasicholina* sp. and *Stolephorus* sp. larvae. (before, this two genus group together)
- The overlap of dorsal fin base and anal fin base is very important features to differentiate between the *Encrasicholina* sp. and *Stolephorus* sp.

Distinct features of *Encrasicholina* sp.



Myomere count : 43

Dorsal fin count : 12 - 13

Origin of anal fin under
anterior end of dorsal
fin

Anal fin count : 12

Measurement of *Encrasicholina* sp.



Body part	Measurement (mm)	Body part ratio
BL (Standard length)	9.86	
HL (Head length)	1.70	HL 17.2% of SL
BD (Body depth)	1.02	BD 10.3% of SL
SnL (Snout length)	0.56	SnL 32.9% of HL
ED (Eye diameter)	0.43	ED 25.3% of HL
PAL (Pre-anal fin length)	7.14	PAL 72.4% of SL
PDL (Pre-dorsal fin length)	6.24	

Family: Carangidae

- Sample: #54 ST.44
- Tribe: Carangini
- Scientific name: *Carangiodes* sp.
- Larvae stage: Post-flexion



Body part	Adult Count	Larvae Count	Actual Count
D (Dorsal fin)	VIII-I, 17 ~ 34	VIII-I, 17 ~ 34	VIII-I, 19
A (Anal fin)	II-I, 14 ~ 27	II-I, 14 ~ 27	II-I, 14
P1 (Pectoral fin)	18 ~ 24	18 ~ 24	NA
P2 (Pelvic fin)	I, 5	I, 5	NA
V(M) (Myomere)	10+14	10+14 ~ 15	10+14

Identification key: Group 1 of carangid larvae

1. Supraoccipital crest (SOC) present
2. Body shape deep
3. Preopercular spines present



Description of *Carangiodes* sp.

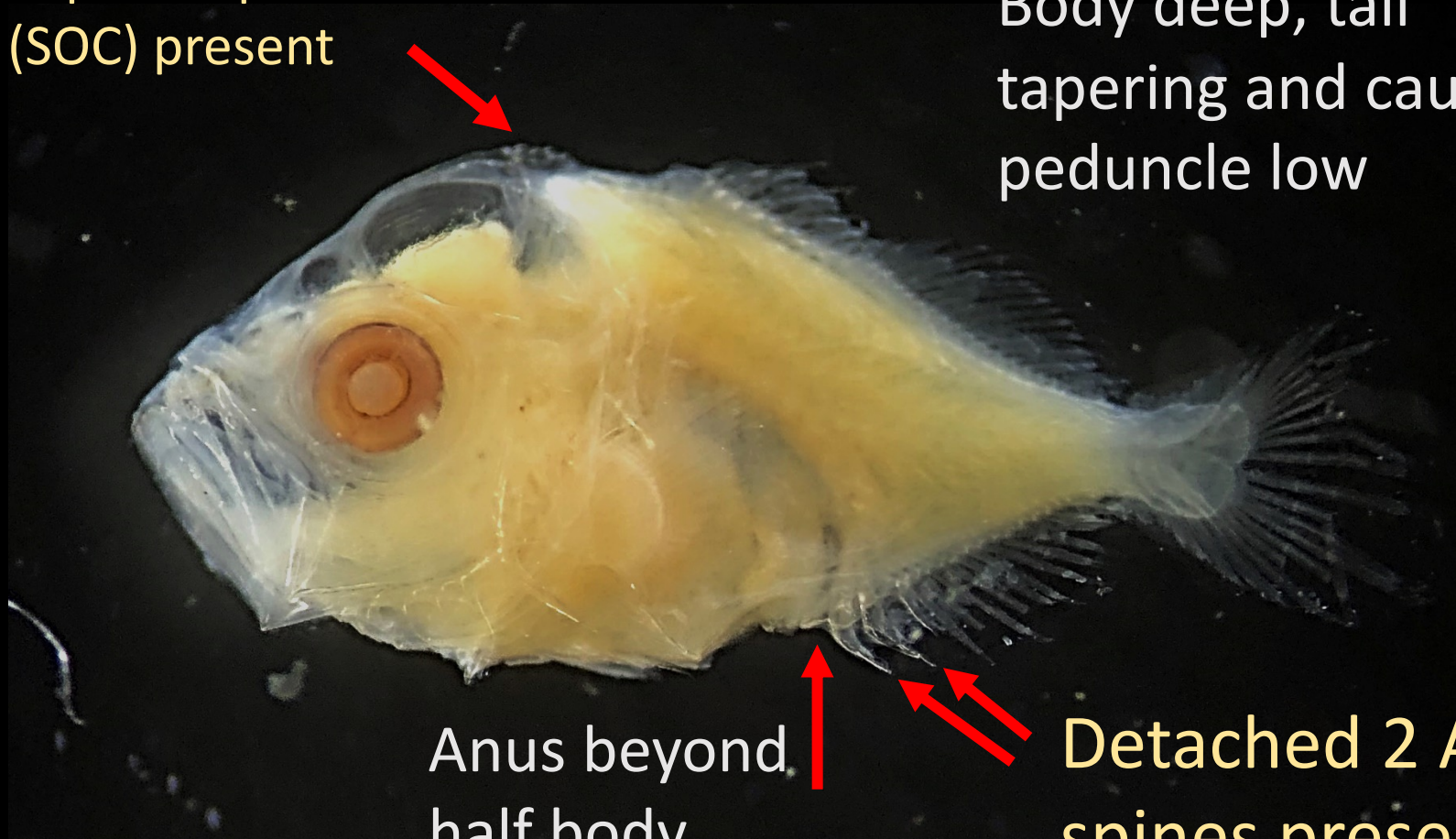


- **Body shape:** deep to very deep (BD>40% BL)
- **Head:** moderate to large and moderately compressed, roundly triangular
- **Gut:** coiled, roundly triangular
- **Snout:** triangular, short
- **Mouth:** oblique
- **Eye:** large round
- **Spination:** two rows of smooth preopercular spines present, spine at angle longest
- **Pigment:** if present occur on dorsal and ventral midline, snout and brain
- **Remark:** pigments of our specimen is not clearly seen

Diagnostic characters of *Carangoides* sp.

Supraoccipital crest
(SOC) present

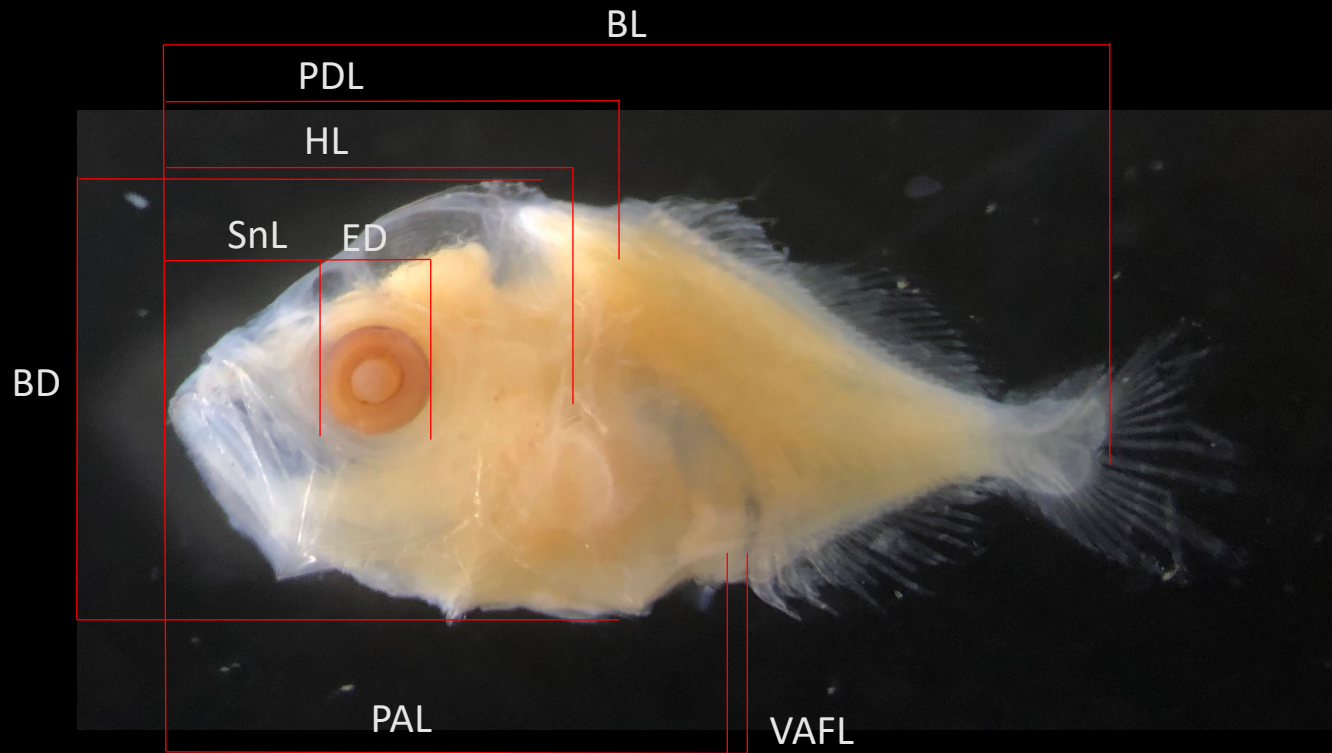
Body deep, tail
tapering and caudal
peduncle low



Anus beyond
half body

Detached 2 A
spines present

Measurement of *Carangiodes* sp.



Body part	Measurement (mm)
BL (Standard length)	5.37
HL (Head length)	2.40; 44.6% BL
BD (Body depth)	2.49; 46.4% BL
SnL (Snout length)	0.80; 33.3% HL
ED (Eye diameter)	0.63; 26.3% HL

Body part	Measurement (mm)
PAL (Pre-anal fin length)	3.07; 57.1% BL
PDL (Pre-dorsal fin length)	2.69
VAFL (Vent to anal-fin length)	0.28

Family: Lutjanidae

Subfamily: Lutjaninae



- **Sample:** Upper Gulf of Thailand from P' Mai (Piyawan-san)
- **Scientific name:** *Lutjanus* sp.
- **Larvae stage:** Post-flexion

Body part	Larvae Count	Actual Count
D (Dorsal fin)	X-XII, 12-16	X, 14
A (Anal fin)	III, 7-11	III, 9
P1 (Pectoral fin)	15 ~ 19	NA
P2 (Pelvic fin)	I, 5	NA
V(M) (Myomere)	10+14	10+14

Description of Lutjanidae



- **Body shape:** deep to very deep (BD>40% BL)
- **Head:** compressed
- **Gut:** coiled, 40-67% BL
- **Snout:** slightly elongate
- **Mouth:** horizontal to oblique, prominent canine teeth
- **Eye:** round; moderate size
- **Spination:** smooth spines on preopercle, at the angle largest
- **Pigment:** dorsal surface of the gut and gas bladder (not see)
- **Remark:** pigments of our specimen is not clearly seen

Diagnostic characters of Lutjanidae

Dorsal-fin spines smooth
and 2nd spine very
elongate

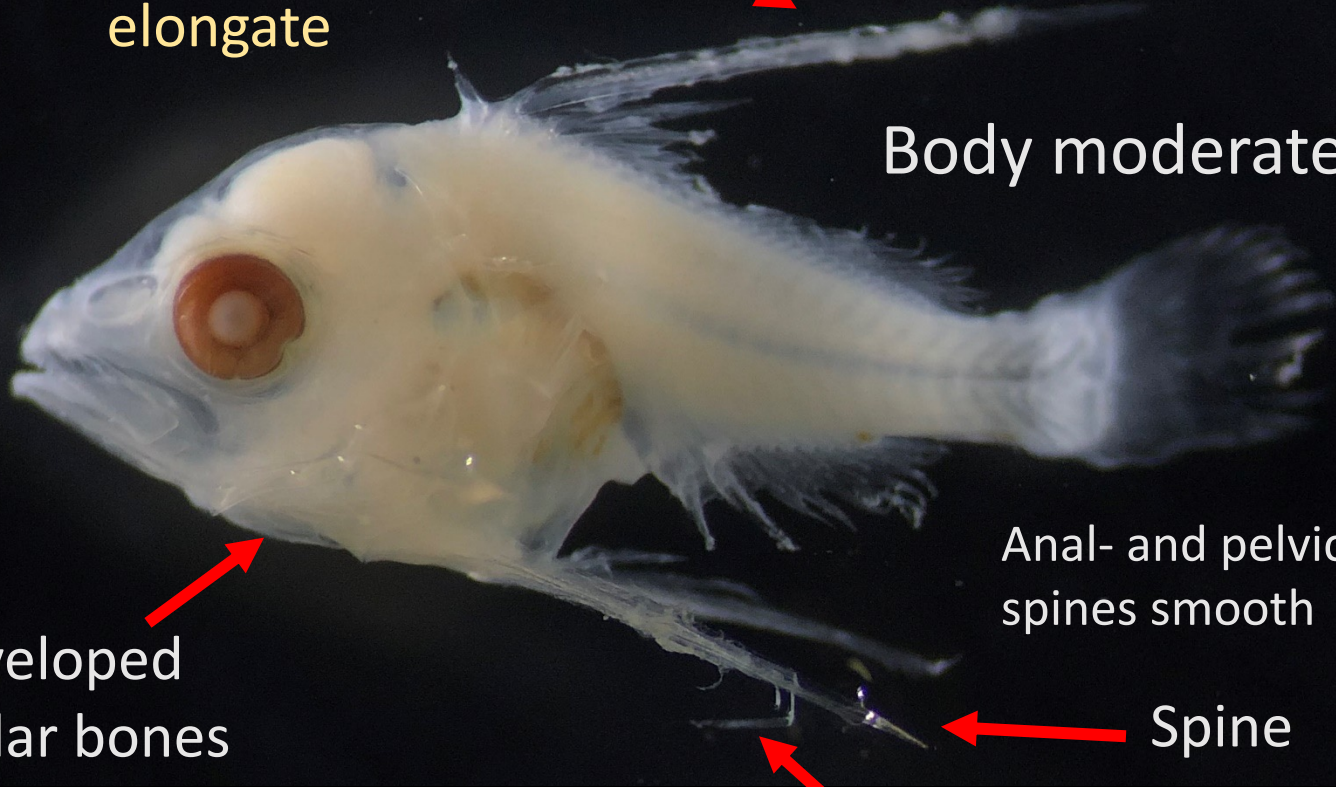
Body moderate

Spines developed
on opercular bones

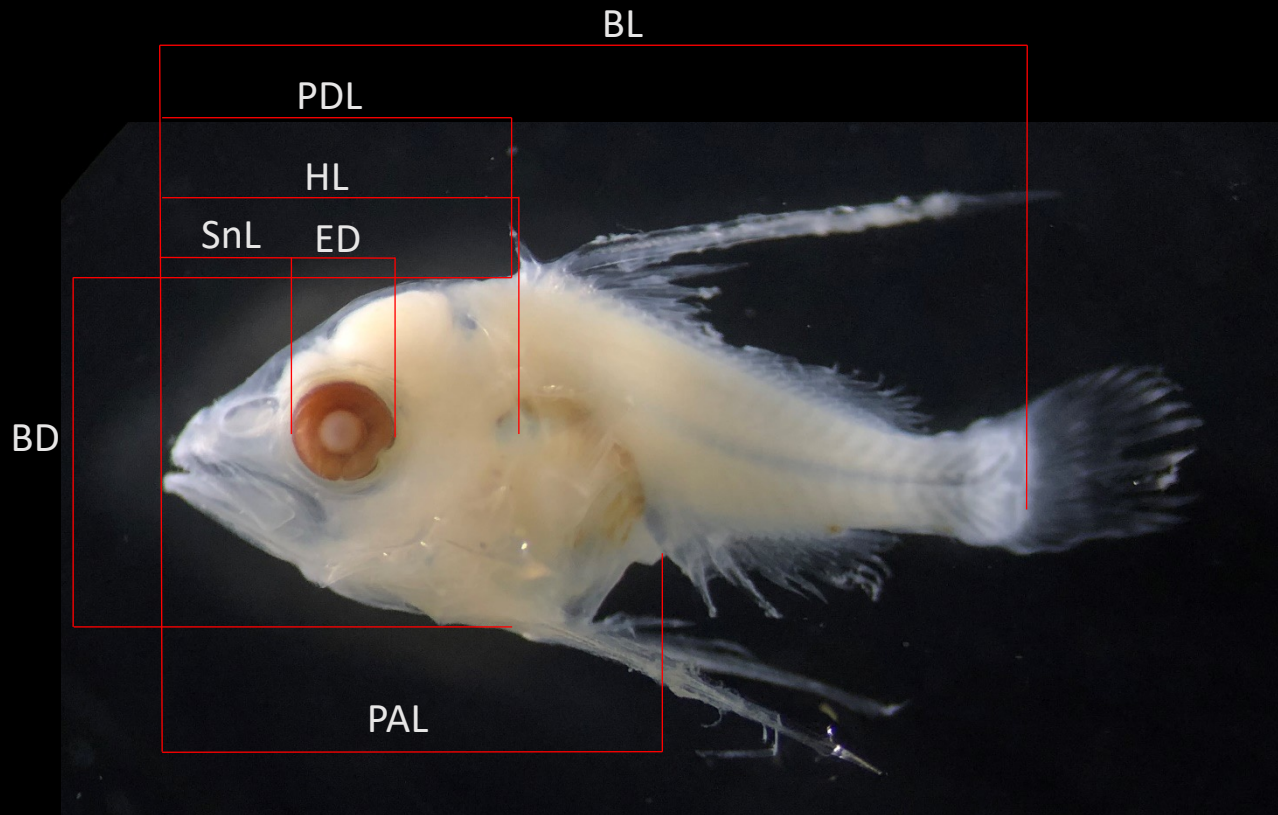
Anal- and pelvic fin
spines smooth

Spine

1st soft ray of P2 very
longer than spine



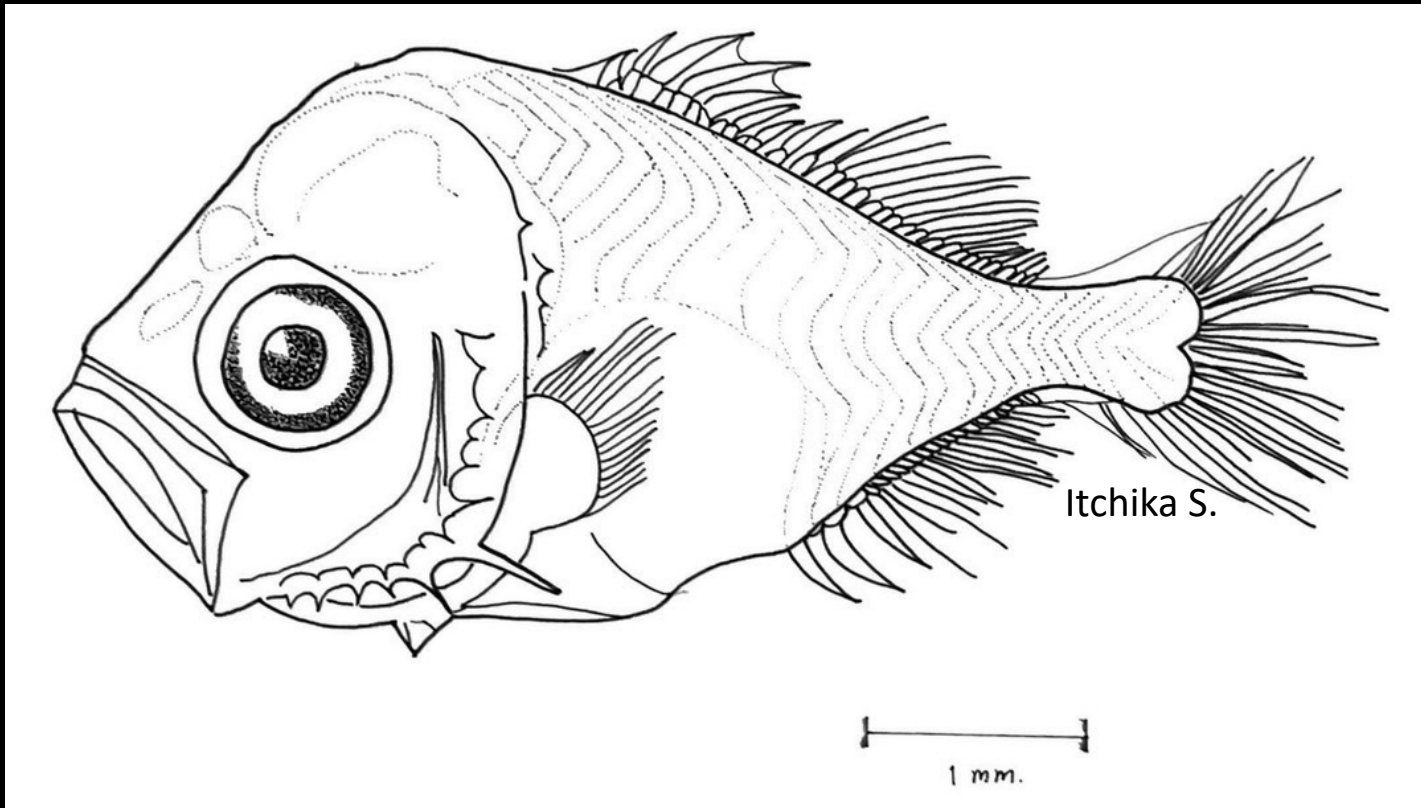
Measurement of *Lutjanus* sp.



Body part	Measurement (mm)
BL (Standard length)	5.88
HL (Head length)	2.40; 40.8% BL
BD (Body depth)	2.33; 39.6% BL
SnL (Snout length)	0.76; 31.7% HL
ED (Eye diameter)	0.72; 30.0% HL

Body part	Measurement (mm)
PAL (Pre-anal fin length)	3.42; 58.2%
PDL (Pre-dorsal fin length)	2.29
VAFL (Vent to anal-fin length)	NA

Drawing of *Carangiodes* sp.



Acknowledgement

- *Refugia* project
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Thank you !