

NATIONAL BIORESOURCE DEVELOPMENT BOARD

Dept. of Biotechnology
Government of India, New Delhi

For office use:

MARINE BIORESOURCES

FORMS DATA ENTRY: Form- 1(general) Ref. No.:
(please answer only relevant fields; add additional fields if you require)

Fauna : <input checked="" type="checkbox"/>	Flora	Microorganisms
General Category : Vertebrata (Zooplankton), Fish larvae		
Scientific name & Authority : <i>Selar kalla</i> (Cuvier and Valenciennes) 1833-Adult Common Name (if available) : Golden scad		
Synonyms:	Author(s)	Status
<i>Caranx kalla</i>	Cuvier and Valenciennes	1833
<i>Selar kublii</i>	Bleeker	1851
<i>Alepes kalla</i>	Ogilby	1915
<i>Selar kalla</i>	Barnard	1925
Classification:		
Phylum: Vertebrata	Sub- Phylum	
Super Class : Pisces	Class : Osteichthyes	Sub- Class: Actinopterygii
Super Order: Teleostei	Order: Perciformes	Sub Order :Percoidei
Super Family:	Family : Carangidae	Sub-Family:
Genus : <i>Selar</i>	Species : <i>kalla</i>	
Authority: <i>Selar kalla</i> Cuvier and Valenciennes 1833		
Reference No.		
Cuvier, G. and A. Valenciennes., 1833. <i>Hist. Nat. Poiss.</i> 9 p. 49.		
Subrahmanyam, C.B., 1968. Eggs and early development of two more carangids from Madras. <i>J. mar. boil. Ass. India.</i> 8 (1): 188-192.		
Premalatha, P. 1986. Studies on the carangid larvae of the southwest coast of India. III. <i>Alepes kalla</i> (Cuvier and Valenciennes). <i>Bull. Dept. Mar. Sci. Univ. Cochin.</i> 14 : 123-130.		
Geographical Location:		
Warm waters of the Indo-Pacific. Commonly found along the east and west coasts of India.		
Latitude:	Place:	
Longitude:	State:	

Environment

Fresh water: Yes/ No

Habitat :

Salinity :

Brackish : Yes/ No

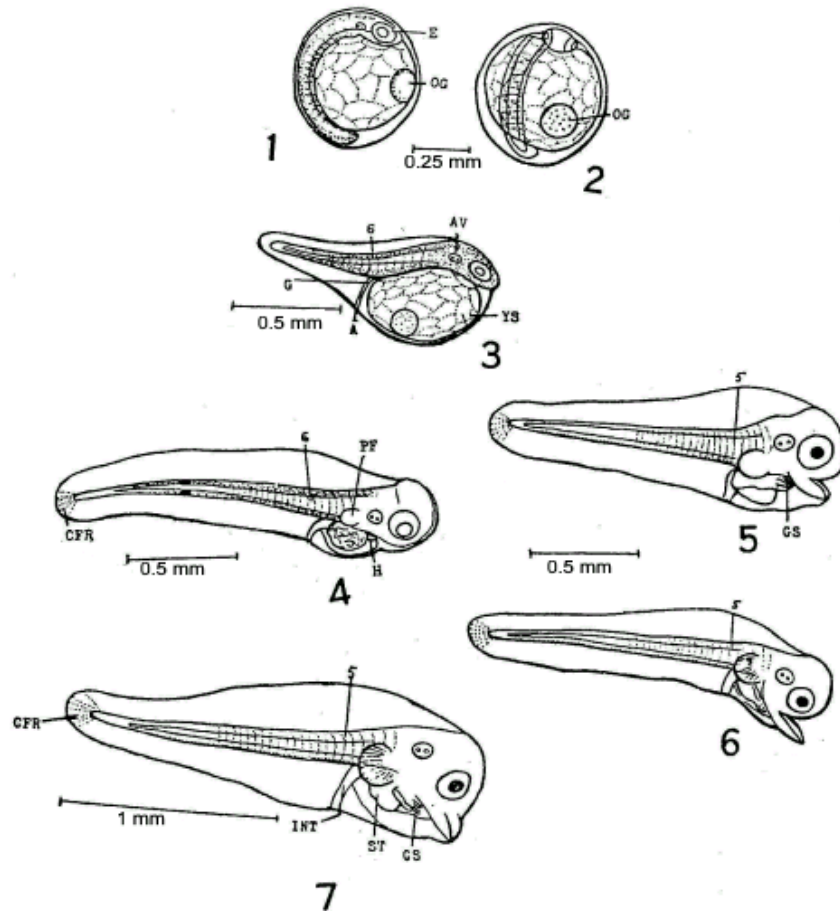
Migrations :

Temperature :

Salt water : Yes/ / No

Depth range :

Picture (scanned images or photographs of adult / larval stages)



Figs. 1-5. Egg and larvae of *Selar kalla*, laboratory – reared.

(Reproduced from Subrahmanyam, 1966)

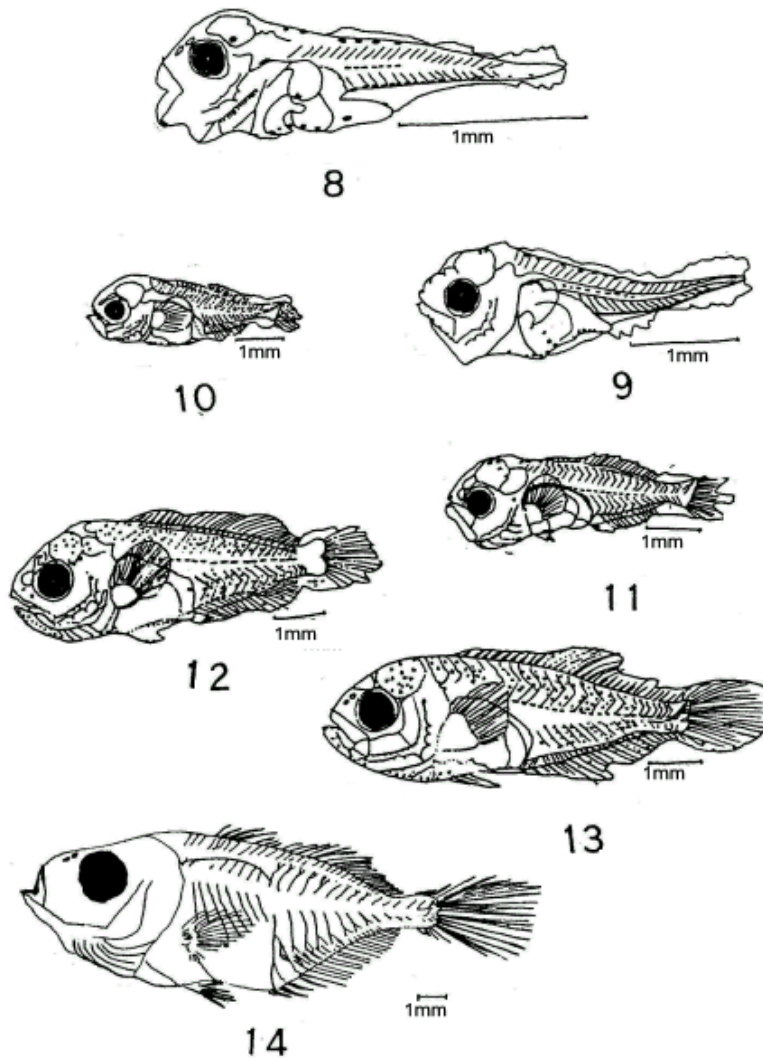
Fig. 1 and 2. Lateral and ventral view of egg.

Fig. 3. Newly hatched prolarva, 1.13mm, Fig. 4. 24 hours old prolarva 1.7 mm,

Fig. 5. 48 hours old prolarva, Fig. 6. 72 hours old postlarva,

Fig. 7. 96 hours old postlarva 2.01 mm.

A=anus; AV=auditory vesicles; CFR=caudal fin rays; E=eye; G=gut; GS=gill slits;
H=heart; INT=intestine; OG=oil globule; PR=pectoral rudiment; ST=stomach;
YS=yolk sac.



Figs. 8 - 17. Larvae of *Alepes kalla* (Cuvier and Valenciennes)
 (Reproduced from Premalatha, 1986)
 Fig. 8. 2.0 mm stage, Fig. 9. 3.0 mm stage, Fig. 10. 4.5 mm stage,
 Fig. 11. 6.0 mm stage, Fig. 12. 8.0 mm stage, Fig. 13. 9.1 mm stage,
 Fig. 14. 22.0 mm stage (Alizarine stained).

<p>DATA ENTRY FORM: Form- 2(Fish / shellfish / others) Ref.No.:</p> <p>(please answer only relevant fields ; add additional fields if you require)</p> <p>Form -1 Ref.No.:</p>			
<p>IMPORTANCE</p> <p>Landing statistics (t/y) : from to Place : Ref . No.:</p> <p>Main source of landing: Yes/ No Coast: east/ west</p> <p>Importance to fisheries:</p> <p>Main catching method :</p> <p>Used for aquaculture : yes/ never/ rarely</p> <p>Used as bait : yes/no/ occasionally</p> <p>Aquarium fish : yes/ no/ rarely</p> <p>Game fish : yes/ no</p> <p>Dangerous fish : poisonous/ harmful/ harmless</p> <p>Bioactivity : locally known/ reported/ not known Details:</p> <p>Period of availability : Throughout the year – yes/ no If no, months:</p>			
<p>SALIENT FEATURES :</p> <p>Morphological:</p> <p>Diagnostic characteristics:</p>			
<p>Sex attributes:</p> <p>Descriptive characters:</p>			

Meristic characteristics:

Feeding habit:

Main food :

Feeding type :

Additional remarks:

Size and age:

Maximum length (cm) (male / female/ unsexed)

Ref. No.:

Average length (cm) (male / female / unsexed)

Ref. No.:

Maximum weight : (g) (male / female / unsexed)

Ref. No.:

Average weight :(g) (male / female / unsexed)

Ref. No.:

Longevity (y) (wild) : (captivity)

Ref. No.:

Length / weight relationships:

Eggs and larvae:

Ref. No.:

Eggs: Pelagic spherical transparent egg with 0.58 to 0.61 mm in diameter. Yolk is faintly segmented with a centrally located oil globule measuring 0.19 mm in diameter. Egg membrane is smooth and perivitelline space very narrow. The embryo has distinct head, eyes and auditory vesicles with two statocysts. Black pigment cells are present in the inner surface of the oil globule. Yellow pigment cells are scattered all over the embryo. (Figs. 1 and 2).

Larvae: The newly hatched prolarva (Fig. 3) measured 1.13 mm in length. The large yolk sac did not extend beyond the anterior margin of the head and an oil globule located on the ventral side centrally. Gut is short and opens immediately behind the yolk sac below the 6th myotome. Pigmentation is identical to that of the embryo. In the 1.73 mm stage (Fig. 4) the yolk is reduced and oil globule is absorbed. Eyes are large and auditory vesicles are located in proximity to the eyes. Tubular heart can be made out in the pharyngeal region. Dorsal and ventral finfolds are prominent and fin rays are present on the caudal fin fold. Pectoral rudiments are visible. There are 12-14 post anal myotomes. Yellow pigment cells are present on the margin of myotomes. Black cells are present only on the ventral margin. In Fig 5, though there is no increase in length of prolarva noticed, other important development took place are the enlargement of eyes with blackening of iris, development of mouth with prominent lower jaw, two chambered heart, presence of gill slits, opening of the gut below the 5th myotome and enlargements of pectoral rudiments. Other significant changes that the larva has undergone in the next stage (Fig. 6) are the absorption of yolk sac, widening of the cleft of mouth with lower jaw protruding beyond the margin of upper jaw and presence of four gill slits. The length of post larva at this stage has increased to 2.01 mm (Fig. 7).

A few postlarval stages of *Alepes kalla* (Premalatha, 1986), synonymous to *Caranx kalla* are reproduced in figures 8-14. The 2.0 mm stage larva (Fig. 8) is slender bodied and head with serrated preopercular margin having three spines, of which the central one being longer. Teeth are absent. Ventral margin of the stomach is well pigmented towards anterior side. There are six chromatophores on dorsal margin of which two of them are behind occipital and the remaining ones distributed within sixth and twelfth myotomes. Postanal pigments on ventral (about 15 to 17 dots) are arranged in a line up to the caudal tip. The most characteristic feature that distinguishes it from other carangid larvae is the presence of mid lateral pigment line in the anterior region of the trunk. In 3mm stage larva (Fig. 9) snout is blunt with elongated lower jaw. Only upper jaw margin is serrated. Two to four teeth like projections are present. Pre opercular margin is with double serrations and four to five minute ones. Larval finfolds persists. Notochord is straight towards caudal with fin folds on both sides. Ventrals are absent at this stage. Three gill arches are present. Eight to ten stellate chromatophores are seen on the dorsal side. Three supra occipital crest is very small. In 4.5 mm stage (Fig. 10) this is very much reduced. The pigments are more concentrated. Formations of fin rays has started. Urostyle is turned upward. The number of myotomes are 24 in 6.0 mm larva (Fig. 11). Branchistegals are seven in number and gill slits four with fully formed filaments. Development is more advanced in 8.0 mm stage (Fig 12). D.VIII, I+22-23, A II, I+18, C 17, P16, V 4-5. In the 22.0 mm stage (Fig. 14) meristic characters are distinct and agree with adults. Scutes are prominent on the caudal region (40-44), preopercular spines are absent.

<p>Characteristics: Abundance:</p>	
<p>Biochemical aspects: Proximate analysis: moisture/ fat/ protein/ carbohydrate/ash Electrophoresis:</p>	<p>Ref. No. Ref. No.</p>
<p>SPAWNING INFORMATION:</p>	
<p>Locality: Maximum larval abundance was noticed during July - October southwest coast of India mainly from inshore regions.</p>	<p>Main Ref: period at the</p>
<p>Season: Fecundity: Comment:</p>	

MAJOR PUBLICATIONS (INDIAN):

(include review articles, monographs, books etc.)

Bapat, S.V and Prasad, R.R. 1952. On some development stages of *Caranx kalla*. *J. Bombay Nat. Hist. Soc.* **51**:111-115.

Peter K.J. 1982. Studies on some fish larva of the Arabian Sea and Bay of Bengal. *Ph. D. Thesis, Univ. of cochin*, 349pp.

Premalatha, P. 1986. Studies on the carangid larvae of the southwest coast of India. III. *Alepes kalla* (Cuvier and Valenceinnes). *Bull. Dept. Mar. Sci. Univ. Cochin.* **14**: 123-130.

Subrahmanyam, C.B., 1968. Eggs and early development of two more carangids from Madras. *J. mar. boil. Ass. India.* **8** (1): 188-192.

LIST OF INDIAN EXPERTS (Name, address, phone, fax, e-mail etc.)

1. Dr. (Mrs.) P.Premalatha
Integrated Fisheries Project
Fore Shore Road
Kochi – 682 016.
Ph. (0484) 2352172
2. Dr. C.B. Subrahmanyam
Scientist
CMFRI
Tuticorin.
3. Dr. K.J.Peter
Scientist, NIO. (Rtd)
Koithara
54/2950, Kadavanthara South
Kochi-682020
Ph. (0484) 2318036
e-mail: peterann@md4.vsnl.net.in

ACKNOWLEDGEMENT:

(List of persons who contributed, modified or checked information)