

**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 : Invertebrata (Zooplankton), Chaetognatha		
Scientific name & Authority : <i>Sagitta minima</i> Grassi, 1881 Common Name ( if available): Arrow worm		
Synonyms	Author( s)	Status
Classification: Phylum: Chaetognatha Super class:                      Class:                      Sub-Phylum: Super Order:                      Sub Order:                      Sub- Class: Super Family:                      Family:                      Sub-Family: Genus: <i>Sagitta</i> Species: <i>minima</i> Authority: Grassi Reference No.: Grassi, B., 1881. <i>Intorno ai Chaetognati. R.C. Inst. lombardo, Ser. 2, 14: 193-213.</i>		
Geographical Location: This is an oceanic, cosmopolitan epiplanktonic species, typical of regions of mixing of waters, neritic and oceanic or of different water masses. In the Indian Ocean it is more abundant south of equator and distributional limit is 41°S.  Latitude: Extends to 41°S                      Place:  Longitude: 20° - 120°E                      State:		

Environment

Fresh water: Yes/ No  
Brackish : Yes/ No

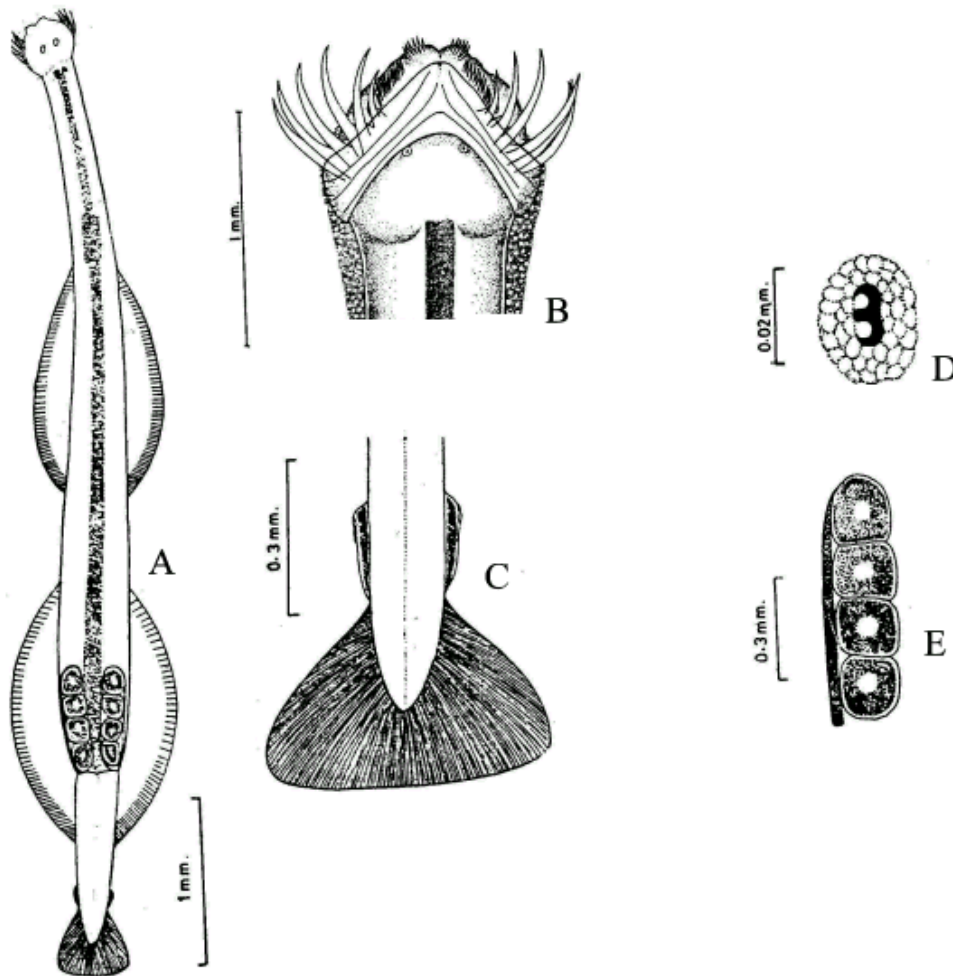
Habitat : Marine

Salinity :

Migrations : Perform Vertical migrations. Temperature :  
This can be diurnal in relation  
to size/stage of maturity, light  
intensity or otherwise

Salt water : Yes ✓/ No Depth range:

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



*Sagitta minima*

A – Dorsal view; B – Head;

C – Details of posterior part of tail and seminal vesicles (dorsal view);

D – Eye; E – Arrangement of ova in the ovary.

<p>DATA ENTRY FORM: Form- 2(Fish / shellfish / others )          (please answer only relevant fields ; add additional fields if you require)          Form –1 Ref.No.:</p>			
<p>IMPORTANCE</p>			
Landing statistics (t/y) :	from	to	Place :
Main source of landing:	Yes/ No		Coast: east/ west
<p>Importance to fisheries:          Main catching method :</p>			
Used for aquaculture :	yes/ never/ rarely		
Used as bait :	yes/no/ occasionally		
Aquarium fish :	yes/ no/ rarely		
Game fish :	yes/ no		
Dangerous fish :	poisonous/ harmful/ harmless		
Bioactivity :	locally known/ reported/ not known		Details:
Period of availability :	Throughout the year – yes/ no		If no, months:
<p>SALIENT FEATURES :</p>			
<p>Morphological:          Diagnostic characteristics:</p>			
<p>This is one of the smallest species and generally less than 7 mm in length. Body is translucent, flaccid and wider at posterior region at the level of ovaries. Intestinal diverticula though present are not very conspicuous.</p>			
<p>Head small and clearly demarcated from body by a neck. Tail segment constitutes 17 to 21 per cent of total length of animal and constriction at the tail septum is prominent. Eyes are large and oval. Pigmented region is at centre with three branches. Collarlette absent. Corona ciliata is oval in shape extending from head to anterior part of trunk at a length equal to about one half of head's length. Intestine often appears swollen and attached to walls by a series of travecula. Ventral ganglion seen roughly at ¼ distance from the anterior end of the animal and is bigger as compared to body size. Anterior fins shorter and narrower than posterior fins and do not reach up to posterior end of ventral ganglion. Fin rays are sparsely arranged only along the margin of the fins. Posterior fins are slightly longer and broader than the anterior fins. More than 70% of the fins are seen at the trunk segment and do not reach seminal vesicles. They are sparsely rayed at outer part of the fin.</p>			
<p>Sex attributes:</p>			
<p>Hermaphrodite. Male gonads being located in the tail segment, the female in the posterior part of the trunk. Though hermaphrodite cross – fertilization by copulation is the rule.</p>			
<p>Descriptive characters:</p>			
<p>Ovarian tubes are short reaching up to midlength of the extent of posterior fins on trunk. Ova are large, few in number and distributed along one row. Seminal vesicles separated from posterior end of posterior fins and touch tail fin. They are oval and elongate with anterior part larger than posterior. The vesicles break open along the anterodorsal margin through which sperms are liberated.</p>			

Meristic characteristics:

Hooks are short and strongly curved, numbering from 7 to 8 though often occur up to 9. Anterior teeth usually number from 3 to 5 on each side and sometimes seen as many as 7. Posterior teeth usually number from 6 to 12 on each side and sometimes total up to 16.

Feeding habit: Active, well armed, voracious animals.

Main food : Crustaceans, hydromedusae, other chaetognaths, fish larvae.

Feeding type : Carnivore.

Additional remarks:

Size and age:

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

Ref. No.:

Reach a length of 7 or 9 mm at maturity

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

Ref. No.:

Range and average length: 4 - 10 (6) mm

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: Characteristics: Abundance:	Ref. No.:
Biochemical aspects: Proximate analysis: moisture/ fat/ protein/ carbohydrate/ash Electrophoresis:	Ref. No. Ref. No.
<b>SPAWNING INFORMATION:</b>	
Locality: Season: Fecundity: Comment:	Main Ref:
<b>MAJOR PUBLICATIONS (INDIAN):</b> (include review articles, monographs, books etc.)	
Grassi, B., 1881. Intorno ai Chaetognati. <i>R.C. Inst. lombardo, Ser. 2, 14</i> : 193-213.	
Vijayalakshmi Nair, R. 1977. Chaetognaths of the Indian Ocean. <i>Proc. Symp. Warm Water Zoopl. Spl. Publ. UNESCO/NIO</i> . 168-195.	
Vijayalakshmi Nair, R. 1978. Bathymetric distribution of chaetognaths in the Indian Ocean. <i>Indian J. Mar. Sci. 7</i> : 276-282.	
Pierrot – Bults, A.C and Vijayalakshmi Nair, R. 1991. Distribution patterns in Chaetognaths. <i>In: The Biology of Chaetognaths</i> . Q.Bone, H. Kapp and A. C. Pierrot – Bults (Eds.). Oxford Science Publications, Oxford University Press, Oxford, New York, Tokyo. 86-116.	
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<b>ACKNOWLEDGEMENT:</b> (List of persons who contributed , modified or checked information)	