

THE PRESENCE OF TUNA LARVAE IN THE STRAITS OF MESSINA

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SUMMARY

A survey of the distribution and quantity of tuna larvae was carried out in the south Tyrrhenian Sea with the framework of the ICCAT Bluefin Year Program. Surface temperatures were also considered.

RÉSUMÉ

On trouvera ci-après les résultats d'une enquête sur la distribution et la quantité des larves de thonidés réalisée dans la Sud de la Mer Tyrrhénienne. Les températures de surface sont également présentées.

RESUMEN

En el marco del BYP se llevó a cabo una prospección, en el sur del Mar Tirreno, sobre la distribución y cantidad de larvas de túnidos.

También se tuvo en cuenta la temperatura superficial.

Introduction

In the summer of 1994, a research survey on tuna larvae was carried out in connection with ICCAT and BYP. Periodical samples were collected in the waters of the Eolian Islands (Southern Tyrrhenian Sea), which are known as one of the best spawning areas.

We reported data concerning the capture of tuna larvae in 1994 and also of large fish in previous years (1986 and 1991).

Materials and methods

Various samplings of ichthyoplankton were carried out between 24th May and 14th September 1994, in the sea near the Eolian Islands. The capture was carried out with a Bongo net (500 μ mesh).

The Bongo openings are 0,2825 m². The net has a flowmeter in the middle in order to determine the filtered volume.

The depth of the capture is estimated by an inclinometer, payed out a rope and speed of the fishing boat, are all in the thermoclyne area.

Superficial temperature are reported for each survey.

Sorting of the larvae of BYP are carried out in the Laboratorio di Biologia Marina e Pesca di Fano.

Results

Table. 1 shows the area of sampling and geographical coordinates, the filtered volume, superficial temperature and number of tuna larvae catches.

Table. 2 shows the size of larvae for each sampling.

The geographical area is shown in Fig.1.

393 tuna larvae were collected: 14 of *Thunnus thynnus*, 24 *Thunnus alalunga* and 355 *Auxis* sp.(Fig.2).

The larvae of the species were captured between July and September (Fig. 3, 4, 5). No swordfish or bonito larvae were sampled. The size of bluefin larvae shows that in 1994 reproduction took place from the end of June till the beginning of August, i.e.a limited period. *T.alalunga* reproduced up to the end of August. the reproduction of *Auxis* was extended to September.

Discussion

Eggs and larvae were captured by Sanzo (1932). Sella (1924) and aother Authors. in the South Tyrrhenian Sea, during the last days of May to halfway through June.

During a survey in 1970, carried out in the Egadi Island, (western Sicily) Scaccini et al. (1973) collected bluefin eggs till 23rd June.

The delay, in 1994, of the presence of tuna larvae in the Eolian Island was also for other species.

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In a survey carried out by the Department of Animal Biology and Marine Ecology (University of Messina) in 1991, in the Ionian Sea, 93 albacore larvae, 40 bluefin larvae and 2 swordfish larvae were captured at a depth 25 mts (Potoschi et al 1994).

In a 1986 survey carried out in the Tyrrhenian sea, with various samplings taken between 8th June and 27th July, 38 swordfish larvae were captured. In this survey the diameter of the net used was 160 cm, its length 7 mts and its size was 500 μ . The situation in 1994, with a delay in the captures of tuna larvae is not connected with a similar thermal situation which occurred in previous years.

Tab. 1

Station	Date	Lat.	Long.	Space m ²	m ³	Temp. C ^o	Tuna larv.
1	24/05	38.18.94	15.05.34	2090.1	1180.907	--	--
2	24/05	38.20.31	15.03.80	4270.2	2412.663	--	--
3	24/05	38.24.03	14.52.45	4076.0	2304.635	--	--
4	24/05	38.12.74	14.55.90	8400.6	4746.339	--	--
1	01/06	38.15.66	15.08.41	3743.0	2117.055	--	--
2	01/06	38.19.27	15.06.97	3739.2	2112.648	--	--
3	01/06	38.25.35	15.07.70	3234.6	1827.549	--	--
4	01/06	38.25.12	15.01.46	3505.5	1980.608	--	--
1	08/06	38.12.39	14.58.99	4595.1	2597.970	19.5	--
2	08/06	39.16.03	14.58.47	5077.8	2868.957	19.6	--
3	08/06	38.18.23	15.00.58	3833.1	2165.702	20.0	--
4	08/06	38.16.14	15.03.16	2812.5	1589.063	20.1	--
1	21/06	38.14.67	15.06.81	4331.4	2447.241	20.5	--
2	21/06	38.15.99	15.08.96	4348.5	2456.903	20.8	--
3	21/06	38.19.20	15.02.28	4853.1	2742.002	21.0	--
4	21/06	38.17.91	14.56.92	4211.4	2379.441	21.0	--
1	24/06	38.19.32	14.56.94	3930.9	2220.959	21.3	--
2	24/06	38.21.49	15.01.78	6517.8	3682.557	22.7	--
3	24/06	38.24.69	15.02.56	4041.6	2268.249	22.8	--
4	24/06	38.15.91	15.02.08	4125.3	2330.795	22.7	--
1	05/07	38.24.05	15.02.47	3827.4	2162.481	25.0	1
2	05/07	38.27.59	15.00.99	3930.6	2220.789	25.0	--
3	05/07	38.26.65	14.59.37	3936.6	2224.179	25.1	2
4	05/07	38.21.04	14.59.65	4073.4	2301.471	25.9	3
1	20/07	38.11.92	15.05.30	3933.3	2222.315	24.05	6
2	20/07	38.11.28	15.03.01	3576.0	2020.440	24.0	6
3	20/07	38.10.86	15.08.66	3683.7	2081.291	24.2	1
1	30/07	38.16.84	15.03.54	4446.6	2512.329	24.3	2
2	30/07	38.19.59	15.01.40	4075.5	2302.658	24.6	8
3	30/07	38.18.01	14.57.67	6210.3	3508.820	24.8	12
4	30/07	38.15.25	14.55.34	5068.2	2863.533	25.2	56
1	03/08	38.16.32	14.57.56	3595.8	2031.627	25.2	5
2	03/08	38.21.80	14.53.89	3996.0	2257.740	25.0	13
3	03/08	38.26.33	14.58.79	3709.2	2095.698	25.2	7
4	03/08	38.20.29	15.00.45	3190.5	1802.633	25.5	5
1	10/08	38.17.16	15.00.06	4959.6	2802.174	26.1	3
2	10/08	38.19.55	14.55.32	4872.9	2753.189	26.1	18
3	10/08	38.22.43	15.01.11	3834.6	2166.549	26.7	26
4	10/08	38.21.00	15.04.55	3508.5	1982.303	26.7	--
1	24/08	38.17.34	14.56.34	4018.2	2270.287	25.7	176
2	24/08	38.21.71	14.53.50	3979.9	2248.079	25.8	19
3	24/08	38.25.61	14.55.95	2939.1	1660.592	26.0	2
4	24/08	38.23.03	15.03.80	3240.3	1830.770	26.7	1
1	30/08	38.16.83	15.01.01	3595.5	2031.548	24.7	8
2	30/08	38.20.15	14.55.55	2944.8	1663.812	24.7	12
3	30/08	38.26.26	14.58.51	1940.0	1096.326	25.7	9
4	30/08	38.24.07	15.03.50	2476.5	1399.223	25.8	14
1	14/09	38.12.77	15.01.11	3967.5	2241.638	24.1	--
2	14/09	38.18.27	14.54.70	3620.0	2047.560	24.3	3
3	14/09	38.20.58	15.00.23	3656.4	2065.866	25.3	1
4	14/09	38.18.44	15.04.10	2992.2	1690.593	25.1	--

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Tab. 2

Station	Date	N.bluefin	Range LTmm	N°lar.bonito	Range LTmm	N°lar.frigate	Range LTmm
1	24/05	--	--	--	--	--	--
2	24/05	--	--	--	--	--	--
3	24/05	--	--	--	--	--	--
4	24/05	--	--	--	--	--	--
1	01/06	--	--	--	--	--	--
2	01/06	--	--	--	--	--	--
3	01/06	--	--	--	--	--	--
4	01/06	--	--	--	--	--	--
i	08/06	--	--	--	--	--	--
2	08/06	--	--	--	--	--	--
3	08/06	--	--	--	--	--	--
4	08/06	--	--	--	--	--	--
1	21/06	--	--	--	--	--	--
2	21/06	--	--	--	--	--	--
3	21/06	--	--	--	--	--	--
4	21/06	--	--	--	--	--	--
1	24/06	--	--	--	--	--	--
2	24/06	--	--	--	--	--	--
3	24/06	--	--	--	--	--	--
4	24/06	--	--	--	--	--	--
1	05/07	1	7.6	--	--	--	--
2	05/07	--	--	--	--	--	--
3	05/07	--	--	--	--	--	--
4	05/07	1	4.9	1	5	2	4-6
1	20/07	2	6-8	--	--	2	6.70
2	20/07	1	5	--	--	4	3.9-6.8
3	20/07	1	7.8	--	--	--	4-7.5
1	30/07	1	7.8	--	--	1	--
2	30/07	1	7.3	1	6	1	3.50
3	30/07	1	5.1	--	--	6	4.5-9
4	30/07	2	5-7.8	--	--	11	3.9-7
1	03/08	--	--	1	14	53	3.5-8
2	03/08	--	--	1	8.5	4	6.5-7.5
3	03/08	--	--	2	7.8	12	4-7.8
4	03/08	--	--	2	7.5-8	5	4.5-9
1	10/08	--	--	2	7.4-7.8	1	3.9
2	10/08	4?	4-6.5	1	6.5	13	4.4-8
3	10/08	3	5.5-6	6	5-9	17	3.5-8.5
4	10/08	--	--	--	--	--	--
1	24/08	19?	4-6	--	--	157	4-9
2	24/08	--	--	3	4-6.5	16	4-6.5
3	24/08	--	--	1	4.8	1	--
4	24/08	--	--	1	5.8	--	--
1	30/08	--	--	1	7.2	7	4.2-8.2
2	30/08	--	--	1	5	11	4-8
3	30/08	--	--	--	--	9	4-9.5
4	30/08	--	--	--	--	14	4.2-8.5
1	14/09	--	--	--	--	--	--
2	14/09	--	--	--	--	--	--
3	14/09	--	--	--	--	3	5-7
4	14/09	--	--	--	--	1	6

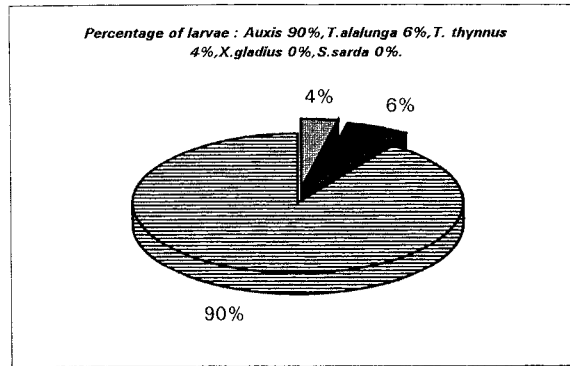
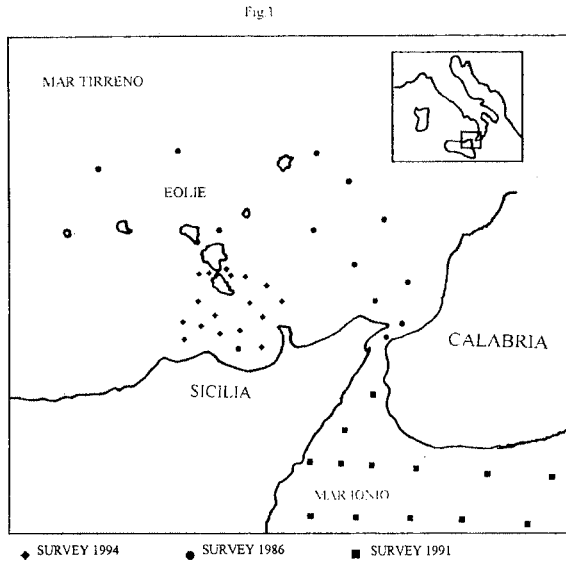


Fig.2

Number of larvae of *Auxis* captured from may to september 1994

May	0
Jun	0
Jul	80
Aug	271
Sep	4

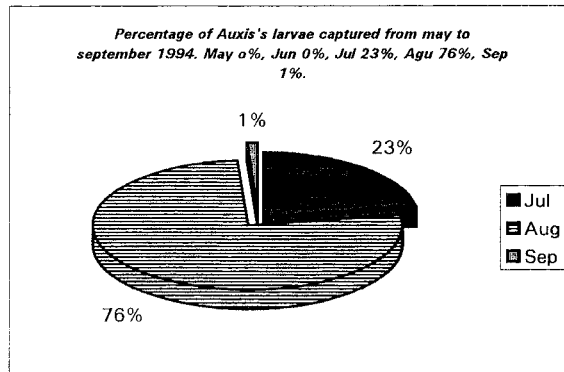


Fig.3.

Number of larvae of *T. thynnus* captured from may to september 1994

May	0
Jun	0
Jul	11
Agu	3
Sep	0

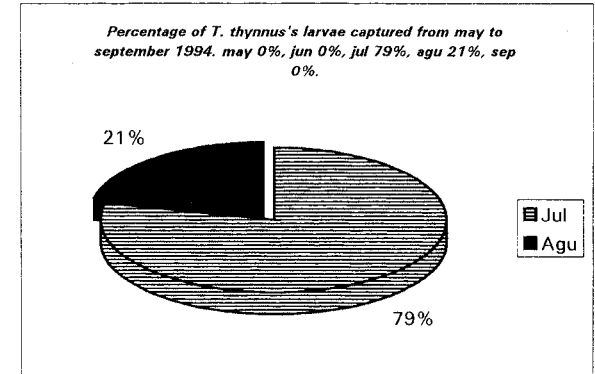


Fig.4.

Number of larvae of *T. alalunga* captured from may to september 1994

May	0
Jun	0
Jul	3
Agu	21
Sep	0

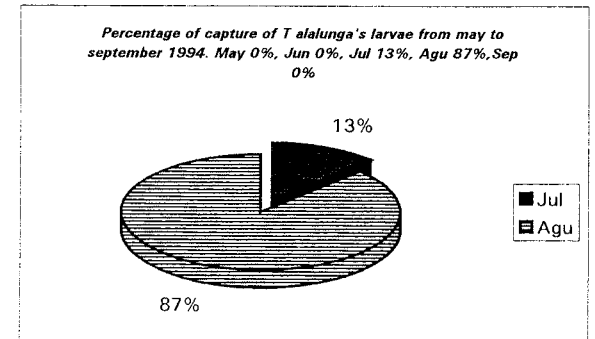


Fig.5.