

Study of Pelagic Fish Target Strength Distribution in Mentawai and Southeast of Enggano Seawaters Using Split-beam Acoustic System¹

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Abstract

An acoustic survey on pelagic fish was conducted in Mentawai and southeast Enggano seawaters in March 1999 and December 1999. The SIMRAD EK 500 split-beam acoustic system with frequency of 38 kHz was used for collecting acoustic data and CTD for oceanographic data. The stations of 13 and 10 were fixed along triangular cruising transects at Mentawai and Enggano seawaters respectively.

The obtained data were analysed and the results show that dominant single fish was detected in Mentawai water at strata-3 of 100-150 m depth with total single target of 4164 fish. Target strength values were ranged from -50 to -32 dB, with dominant TS value of -50 dB from the fish near the surface. In southeast Enggano water, the detected single target was dominant at strata-2 of 44-84 m depth with total single target of 245 fish. The target strength values range were -50 to -41 dB. The dominant target strength values at all stations is around -50 dB. The relationship between oceanographic parameters (temperature and salinity) with single fish distribution was found at 15.0-16.0°C and 35.0-36.0 ‰ at station near the coast; 14.5-16.5°C and 33.8-34.0 ‰ at station far from the coast in Mentawai water. In southeast Enggano water they were 27.5-29.0 °C and 33.6-33.9 ‰ at station of South latitude 6.00°; 27.5-28.0°C and 33.7-33.8 ‰ at station of South latitude 6.20°

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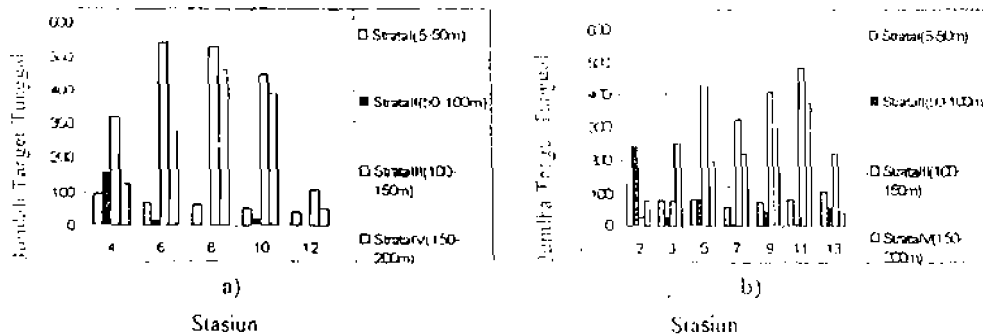
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Tabel 1. Jumlah Target Tunggal Yang Terdeteksi Pada Tiap Stasiun di perairan Mentawai, Maret 1999
 Table 1. The total single fish at each station in Mentawai waters, March 1999

Strata	Stasiun												
	2*	3*	4-	5*	6-	7*	8-	9*	10-	11*	12-	13*	
I	133	83	96	82	70	62	65	78	57	55	43	111	
II	244	26	157	85	16	4	0	48	18	2	0	57	
III	26	82	318	430	544	321	531	428	416	483	107	219	
IV	82	254	124	198	276	219	464	297	386	370	54	40	

Ket. - Stasiun dekat pantai; * Stasiun jauh dari pantai



Grafik 1. Sebaran Total Jumlah Target Tunggal Ketiga Strata Pada Stasiun a) Dekat Pantai dan b) Jauh dari Pantai di Perairan Mentawai, Maret 1999

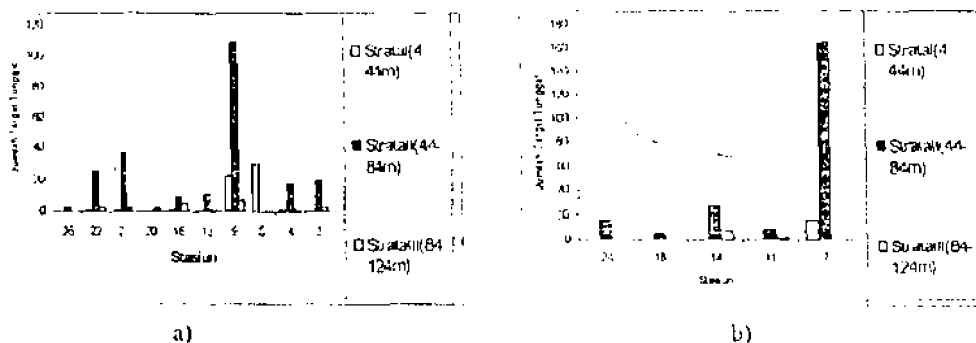
Fig. 1. Total distribution of single fish in three stratified layers at station a) near coast station b) far coast station in Mentawai waters, March 1999

Tabel 2. Jumlah Target Tunggal Yang Terdeteksi Pada Tiap Stasiun di Tenggara Enggano, Desember 1999

Table 2. The total single fish at each station in southeast Enggano waters, December 1999

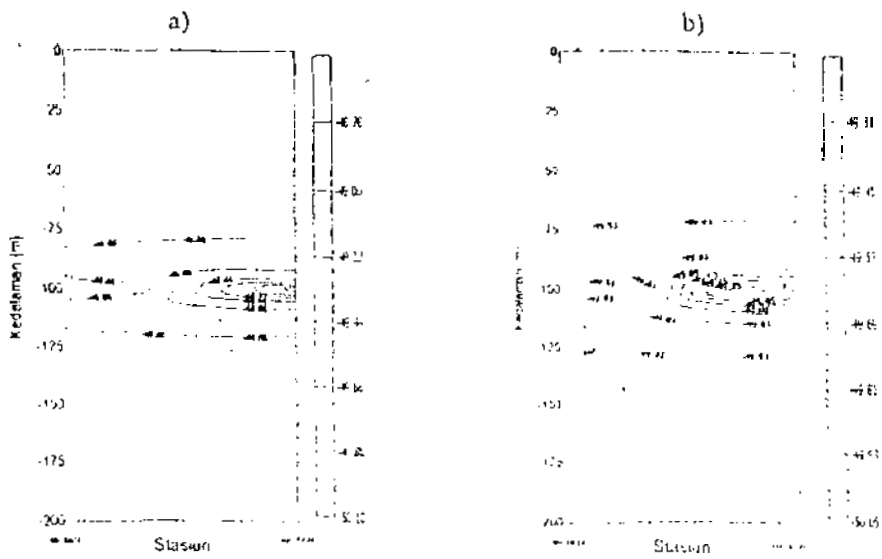
Strata	Stasiun														
	26	24*	22*	21	20	18*	16	14*	12	11*	9	7*	5	4	3*
I	0	0	1	1	0	0	1	0	1	0	22	16	29	1	0
II	6	14	25	37	0	5	1	28	11	9	109	168	0	18	20
III	0	0	3	2	2	0	5	7	1	2	7	0	0	1	3

Ket. - Stasiun terletak pada lintang 6 00⁰; * stasiun terletak pada lintang sekitar 6 20⁰

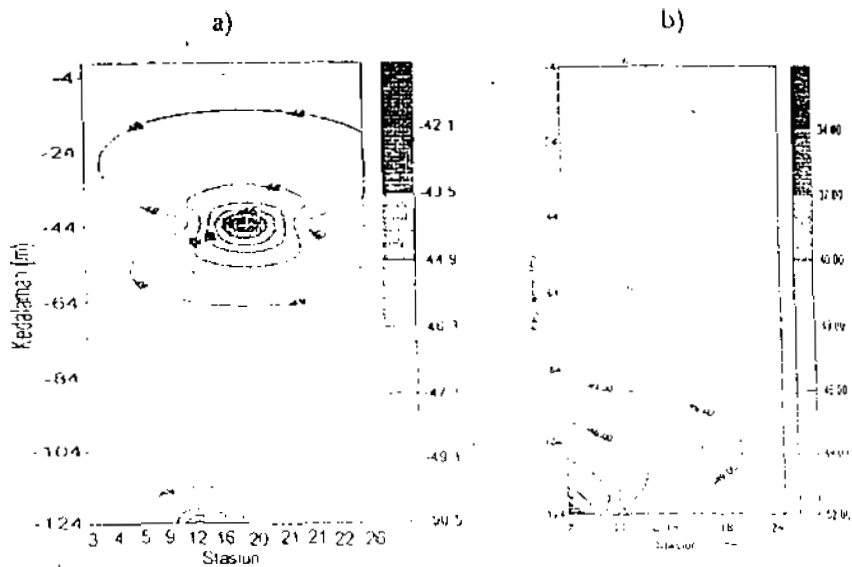


Grafik 2. Sebaran Total Jumlah Target Tunggal Ketiga Strata Pada Stasiun a) Lintang 6.00⁰ b) Lintang 6.20⁰ Perairan Tenggara Enggano, Desember 1999

Fig 2 Total Distribution of single fish in three stratified layers at Station a) Latitude 6.00⁰ b) Latitude 6.20⁰ in Southeast Enggano waters, December 1999



Gambar 2. Profil Menegak Sebaran Target Strength di Perairan Mentawai, Maret 1999 a) Stasiun dekat pantai ; b) stasiun jauh dari pantai
 Fig. 2. The vertical distribution of target strength in Mentawai waters, March 1999 a) near from coast station ; b) far from coast station.



Gambar 3. Profil Menegak Sebaran Target Strength di Perairan Tenggara Enggano Desember 1999, a) Stasiun Pada Lintang 6.00° , b) Stasiun Pada Lintang 6.20°
 Fig. 3. The vertical distribution of target strength in southeast Enggano waters a) station at latitude 6.00° , b) station at latitude 6.20°