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LAMPIRAN

Lampiran 1. Frekuensi panjang ikan tenggiri papan *Scomberomorus guttatus*, Fc, Frekuensi kumulatif dan logaritma natural kelompok umur 1 dan 2

Kohort 1

L1	TK	F	F*TK	TK-x	F(TK-x) ²	Fc	In Fc	d In Fc
33	34	2	68	-6.67	88.89	1.6	0.45	1.53
35	36	7	252	-4.67	152.44	7.3	1.98	0.99
37	38	19	722	-2.67	135.11	19.6	2.98	0.45
39	40	34	1360	-0.67	15.11	30.7	3.43	-0.09
41	42	23	966	1.33	40.89	28.1	3.34	-0.63
43	44	17	748	3.33	188.89	15.0	2.70	-1.17
45	46	6	276	5.33	170.67	4.6	1.53	-1.53
		108	4392		792.00			
x rata	=	40.67			a	=	10.364	
s²	=	7.40			b	=	-0.261	
s	=	2.72			L1	=	39.8	

Kohort 2

L2	TK	F	F*TK	TK-x	F(TK-x) ²	Fc	In Fc	d In Fc
47	48	16	768	-2.59	107.40	8.2	2.11	0.51
49	50	10	500	-0.59	3.49	13.7	2.61	-0.13
51	52	9	468	1.41	17.87	12.0	2.48	-0.77
53	54	7	378	3.41	81.35	5.5	1.71	-1.41
55	56	2	112	5.41	58.52	1.4	0.30	-0.30
		44	2226		268.64			
x rata	=	50.59			a	=	7.120	
s²	=	6.25			b	=	-0.145	
s	=	2.50			L2	=	49.1	

Lampiran 2. Tabel frekuensi panjang ikan tenggiri papan berdasarkan waktu
Pengambilan sampel

NO	KELAS	TK	F (September)	F (Oktober)	F Total
1	33 - 35	34	2	0	2
2	35 - 37	36	6	1	7
3	37 - 39	38	16	3	19
4	39 - 41	40	23	11	34
5	41 - 43	42	14	9	13
6	43 - 45	44	10	7	17
7	45 - 47	46	3	3	6
8	47 - 49	48	11	5	16
9	49 - 51	50	7	3	10
10	51 - 53	52	8	1	9
11	53 - 55	54	6	1	7
12	55 - 57	56	2	0	2
			108	44	152

Lampiran 3. Tabel pedugaan parameter pertumbuhan dari metode ELEFAN I pada aplikasi FISAT II

Scores: ELEFAN I Method							
K\Loo	71.00	72.50	74.00	75.50	77.00	78.50	80.00
0.10	0.063	0.163	0.163	0.084	0.084	0.084	0.434
0.15	0.298	0.298	0.298	0.154	0.066	0.066	0.066
0.20	0.066	0.194	0.187	0.187	0.187	0.187	1.000
0.25	0.187	1.000	1.000	1.000	1.000	1.000	1.000
0.30	1.000	1.000	1.000	0.515	0.515	0.515	0.515
0.35	0.515	0.515	0.515	0.515	0.515	0.496	0.496
0.40	0.515	0.515	0.496	0.496	0.496	0.496	0.580
0.45	0.496	0.496	0.496	0.496	0.580	0.580	0.580
0.50	0.496	0.496	0.580	0.580	0.580	0.434	0.434
0.55	0.580	0.580	0.580	0.434	0.434	0.434	0.434
0.60	0.580	0.580	0.434	0.434	0.434	0.434	0.434

Pendugaan parameter pertumbuhan dari metode ELEFAN I

Nilai-nilai yang dimasukkan pada metode ELEFAN I :

$$SS = 1$$

$$SL = 40,00$$

Nilai yang dihasilkan pada metode ELEFAN I :

$$L^{\infty} = 80,00 \text{ cm}$$

$$K = 0,25$$

$$R_n = 1,000$$

Dimana :

SS = *Starting sample*

SL = *Starting Length*

K = koefisien laju pertumbuhan

L^{∞} = panjang asimptot ikan (cm)

Lampiran 4. Hubungan antara panjang ikan tenggiri papan pada berbagai tingkatan umur di perairan Luwu Teluk Bone Bagian Utara

L oo	K	to	t	Lt
80	0.25	-0.512	-0.512	5.97
80	0.25	-0.512	0	10.10
80	0.25	-0.512	1	25.56
80	0.25	-0.512	2	37.61
80	0.25	-0.512	3	46.98
80	0.25	-0.512	4	54.29
80	0.25	-0.512	5	59.97
80	0.25	-0.512	6	64.40
80	0.25	-0.512	7	67.85
80	0.25	-0.512	8	70.54
80	0.25	-0.512	9	72.63
80	0.25	-0.512	10	74.26
80	0.25	-0.512	11	75.53
80	0.25	-0.512	12	76.52
80	0.25	-0.512	13	77.29
80	0.25	-0.512	14	77.89
80	0.25	-0.512	15	78.36
80	0.25	-0.512	16	78.72
80	0.25	-0.512	17	79.00
80	0.25	-0.512	18	79.22
80	0.25	-0.512	19	79.40
80	0.25	-0.512	20	79.53
80	0.25	-0.512	21	79.63
80	0.25	-0.512	22	79.71
80	0.25	-0.512	23	79.78
80	0.25	-0.512	24	79.83
80	0.25	-0.512	25	79.87
80	0.25	-0.512	26	79.89
80	0.25	-0.512	27	79.92
80	0.25	-0.512	28	79.94
80	0.25	-0.512	29	79.95
80	0.25	-0.512	30	79.96
80	0.25	-0.512	31	79.97
80	0.25	-0.512	32	79.98
80	0.25	-0.512	33	79.98
80	0.25	-0.512	34	79.99
80	0.25	-0.512	35	79.99
80	0.25	-0.512	36	79.99

Lampiran 5. Persamaan nilai umur ikan tenggiri papan

$$\begin{aligned}L^\infty &= 80 \\K &= 0,25 \\ \text{Log}(L^\infty) &= 1,9030 \\ \text{Log}(K) &= -0,6020 \\ 0,2752(\text{Log } L^\infty) &= 0,5237 \\ 1,038(\text{Log } K) &= 0,6248\end{aligned}$$

$$\log(-t_0) = -0,3922 - 0,2752(\log L_0) - 1,038(\log K)$$

$$\log(-t_0) = -0,3922 - 0,2752(\log 80) - 1,038(\log 0,25)$$

$$\log(-t_0) = -0,3922 - 0,2752(1,9030) - 1,038(-0,6020)$$

$$\log(-t_0) = -0,3922 - 0,5237 + 0,6248$$

$$\log(-t_0) = -0,2911$$

$$(-t_0) = -0,512$$

$$t_0 = 0,51 \text{ tahun}$$

Dengan persamaan panjang ikan tenggiri waktu tertentu :

$$L_t = 80 [1 - e^{-0,25(t - (-0,512))}]$$

Dimana :

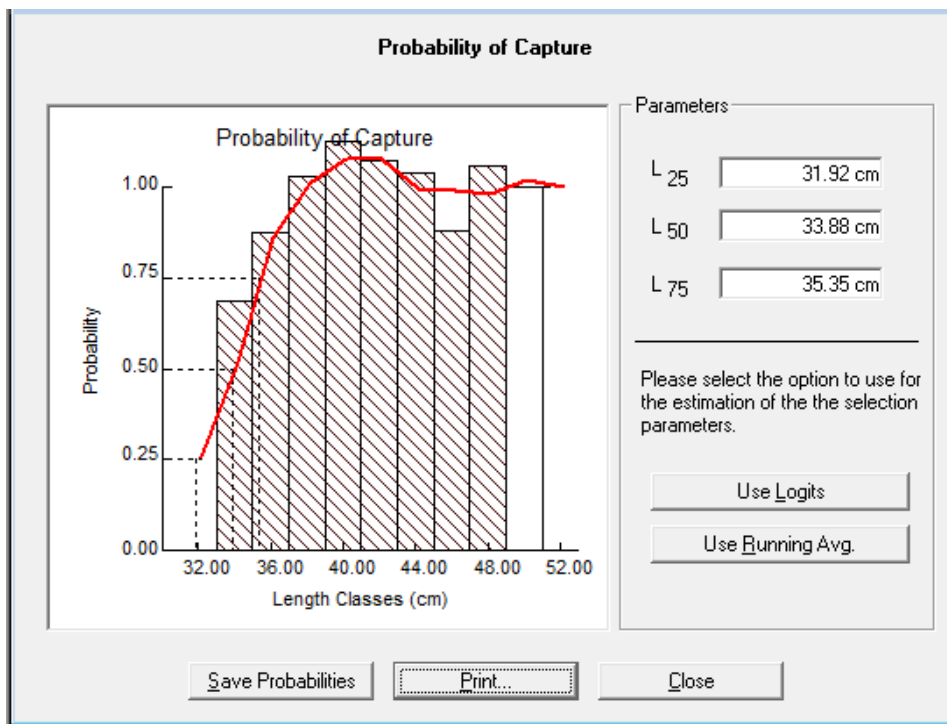
L^∞ = Panjang asimptot ikan (cm)

K = Koefisien pertumbuhan

t_0 = umur teoritis

L_t = panjang ikan pada waktu tertentu

Lampiran 6. Grafik probabilitas tangkapan dari estimasi nilai L_c (panjang ikan pertama kali tertangkap) pada program FISAT II untuk ikan tenggiri papan



Lampiran 7. Nilai dugaan mortalitas ikan tenggiri papan di perairan Luwu Teluk Bone Bagian Utara

No	Kelas interval	TK (ML)	F	F x TK
1	33-35	34	2	68
2	35-37	36	7	252
3	37-39	38	19	722
4	39-41	40	34	1360
5	41-43	42	23	966
6	43-45	44	17	748
7	45-47	46	6	276
8	47-49	48	16	768
9	49-51	50	10	500
10	51-53	52	9	468
11	53-54	54	7	378
12	55-57	56	2	112

Lc	$\sum F$	$\sum F \times TK$	L rata-rata
33,88	152	6618	
Log L^∞	Log K	Log T	suhu
1,9030	-0,6020	1,4623	29

Mortalitas Alami (M)

$$\ln M = -0,0152 - 0,279 \ln(L^\infty) + 0,6543 \ln(K) + 0,4634 \ln(T)$$

$$\ln M = -0,0152 - 0,279 \ln(80) + 0,6543 \ln(0,25) + 0,4634 \ln(29)$$

$$\ln M = -0,7260$$

M = 0,4838 per tahun, dan untuk ikan bergerombol $M \times 0,8$ sehingga

$$M = 0,4838 \times 0,8 = 0,39 \text{ per tahun.}$$

Mortalitas Total (Z)

$$\begin{aligned} Z &= K (L^\infty - L' / L - L') \\ &= 0,25 (80 - 33/43,54 - 33) \\ &= 0,25 (4,46) \end{aligned}$$

$$Z = 1,11 \text{ per tahun}$$

Mortalitas penangkapan (F)

$$\begin{aligned} F &= Z - M \\ &= 1,11 - 0,38 \text{ per tahun} \\ &= 0,72 \text{ per tahun} \end{aligned}$$

Sehingga nilai $E = F/Z = 0,72/1,11 = 0,65$ per tahun.

Lampiran 8. Tabel nilai dugaan *Yield per recruitment* dan laju eksploitasi total ikan tenggiri

E	M	K	m2	M/K	U	1-	U^M/K	E3	Y/R
0.05	0.390	0.25	0.61	1.56	0.5800	0.305	0.428	0.05	0.007
0.10	0.390	0.25	0.58	1.56	0.5800	0.294	0.428	0.10	0.013
0.15	0.390	0.25	0.54	1.56	0.5800	0.283	0.428	0.15	0.018
0.20	0.390	0.25	0.51	1.56	0.5800	0.271	0.428	0.20	0.023
0.25	0.390	0.25	0.48	1.56	0.5800	0.260	0.428	0.25	0.028
0.30	0.390	0.25	0.45	1.56	0.5800	0.248	0.428	0.30	0.032
0.35	0.390	0.25	0.42	1.56	0.5800	0.236	0.428	0.35	0.035
0.40	0.390	0.25	0.38	1.56	0.5800	0.223	0.428	0.40	0.038
0.45	0.390	0.25	0.35	1.56	0.5800	0.211	0.428	0.45	0.041
0.50	0.390	0.25	0.32	1.56	0.5800	0.198	0.428	0.50	0.0423
0.55	0.390	0.25	0.29	1.56	0.5800	0.185	0.428	0.55	0.0435
0.60	0.390	0.25	0.26	1.56	0.5800	0.172	0.428	0.60	0.044
0.65	0.390	0.25	0.22	1.56	0.5800	0.159	0.428	0.65	0.044
0.70	0.390	0.25	0.19	1.56	0.5800	0.146	0.428	0.70	0.044
0.75	0.390	0.25	0.16	1.56	0.5800	0.133	0.428	0.75	0.043
0.80	0.390	0.25	0.13	1.56	0.5800	0.120	0.428	0.80	0.041
0.85	0.390	0.25	0.10	1.56	0.5800	0.108	0.428	0.85	0.039
0.90	0.390	0.25	0.06	1.56	0.5800	0.096	0.428	0.90	0.037
0.95	0.390	0.25	0.03	1.56	0.5800	0.084	0.428	0.95	0.034
1.00	0.390	0.25	0.00	1.56	0.5800	0.074	0.428	1.00	0.032

Nilai laju eksploitasi E sekarang :

$$E = \frac{F}{Z} = \frac{0,72}{1,11} = 0,65$$

$$U = 1 - \frac{Lc}{L\infty} = 0,58$$

$$m = \frac{1-E}{M/K} = 0,22$$

$$(Y/R) = E \cdot U^m \left[1 - \frac{3U}{1+m} + \frac{3U^2}{1+2m} + \frac{U^3}{1+3m} \right] = 0,044$$

$$= 0,58^{(1,56)} = 0,428$$

$$= 1 - ((3 \cdot 0,58)/(1+0,22)) + ((3 \cdot 0,58^2)/(1+2 \cdot 0,22)) - ((0,58^3)/(1+3 \cdot 0,22)) = 0,159$$

$$(Y/R) = 0,65 \cdot 0,428 \cdot 0,159 = 0,044$$

Lampiran 9. Dokumentasi



