



MENU-DRIVEN FISH STOCK ASSESSMENT AND MANAGEMENT (KOBE I+II) SOFTWARE

Tom Nishida (PhD)

Representative

[MENU] Menu-driven stock assessment software development team

aco20320@par.odn.ne.jp

<https://www.esl.co.jp/assets/menu>

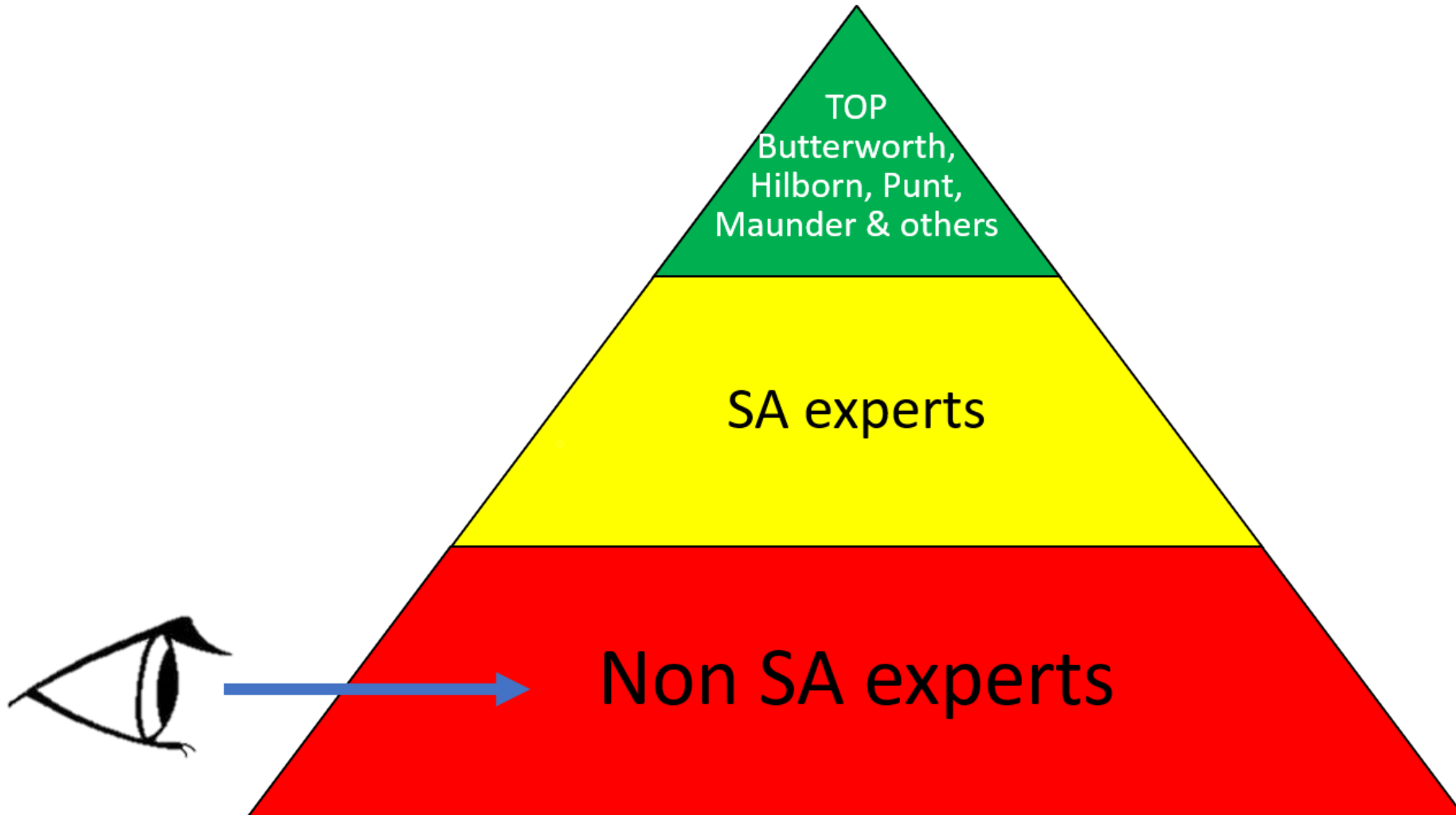
May 7, 2024

[MENU] is supported by Environmental Simulation Laboratory (ESL), Japan

OBJECTIVES

The main objective of the menu-driven software is to enable users who are not familiar with programming to easily carry out stock assessments in a short time using menus (like MS Word & Excel) without any programming.

Target → Beginners (non SA expert)



TRAINING AND UTILIZATION

All software is free of charge for anyone to utilize. All software are @ copy-right reserved by [MENU] Menu-driven stock assessment software development team. If anyone wants to use the software, please contact us. [MENU] will provide the free on-site training.

In the on-site training, [MENU] will provide software. This is because [MENU] is responsible to make sure that users fully understand usages of the software and also mechanisms of each application & Input/Output.

After the training, [MEMU] will continue work with users on real data for an extended period of time to make sure that users will carry out stock assessments properly by software.

(See example https://www.esl.co.jp/products/menu/thailand_workshop_report.pdf)

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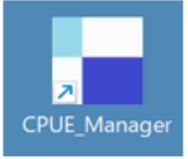

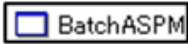


After the training, [MENU] will continue to work with the users on real data for a longer period of time to make sure that the users will carry out stock assessments properly using the software. (See example at https://www.esl.co.jp/products/menu/thailand_workshop_report.pdf)

- Please uninstall & delete all software and get the new free training for the updated software (2024).
- This is because software have been updated and improved as new Manager (Suit) series (see Slide #6 & #9-17).
- In addition, [MENU] needs to make sure its copyrights

FOR USERS WHO HAVE OLD VERSIONS (2023 OR BEFORE)

- Please uninstall & delete all software and get the new free training for the updated software (2024).
- This is because the software has been updated and improved as the new Manager (Suit) Series (see slide #8 & #11-18).
- In addition, [MENU] needs to make sure that its copyrights

SEVEN MENU-DRIVEN SOFTWARE SERIES (MAY 2024)

Types		Level <i>(for beginners)</i>	Name (*)	Icon	Input information				Features	Current version year (start year)
					Catch	CPUE	Biology (**)	Others		
CPUE standardization		<i>Basic to Intermediate</i>	(1) (*) CPUE_Manager						QC, CPUE standardization & weighed Ave of multiple CPUE by catch	ver1.2.0 2024 (2016)
Stock assessment (SA)	Production model (PM)		(2) (*) ASPIC_Manager						Production model incorporating observation (OBS) errors	ver1.1.0 2024 (2016)
	Age structured (integrated) model	<i>Advanced</i>	(3) JABBA_Manager (Just Another Bayesian Biomass Assessment)					Prior information for input parameters	Best Bayesian PM incorporating both OBS & process errors	<i>(To be completed by the end of 2024)</i>
(4) ASPM (Age Structured Production Model)				<i>(for both ASPM and SCAA)</i>				In-between PM & age-structured model (selectivity: fixed)	ver4.0 2018 (2010)	
(5) SCAA (Statistical-Catch-At-Age)								Catch-At-Age based age-structured model	ver4.0 2022 (2017)	
(6) SCAS (Statistical-Catch-At-Size)								Catch-At-Size based age-structured model	<i>(Under development)</i>	
Management decision tools		<i>Basic to Intermediate</i>	(7) (*) Kobe_I_II Manager Kobe I: Kobe plot Kobe II: Strategy matrix (risk assessment)					Kobe I: SA results (F/Fmsy & B/Bmsy) Kobe II: Pr. violating MSY (F and Biomass) (Risk assessment)	Kobe I: Stock status trajectory plot Kobe II: Evaluation of the optimum catch level (TAC)	ver6.2.0 2024 (2011)

(*) "Manger" means one system, all-in-one or suit including all necessary applications/functions in one integrated software.

(**) Size, Length-Weight relation, Selectivity, M (natural mortality), Growth, Maturity-At-Age, Spawner-Recruit relation, Life span (Max. age), Fecundity, and others depending on the model.

Number of users : 104 (26 countries) (alphabetical order)

(Fisheries Research Institutes, Universities, Fisheries Management Agencies, and other relevant Agencies)

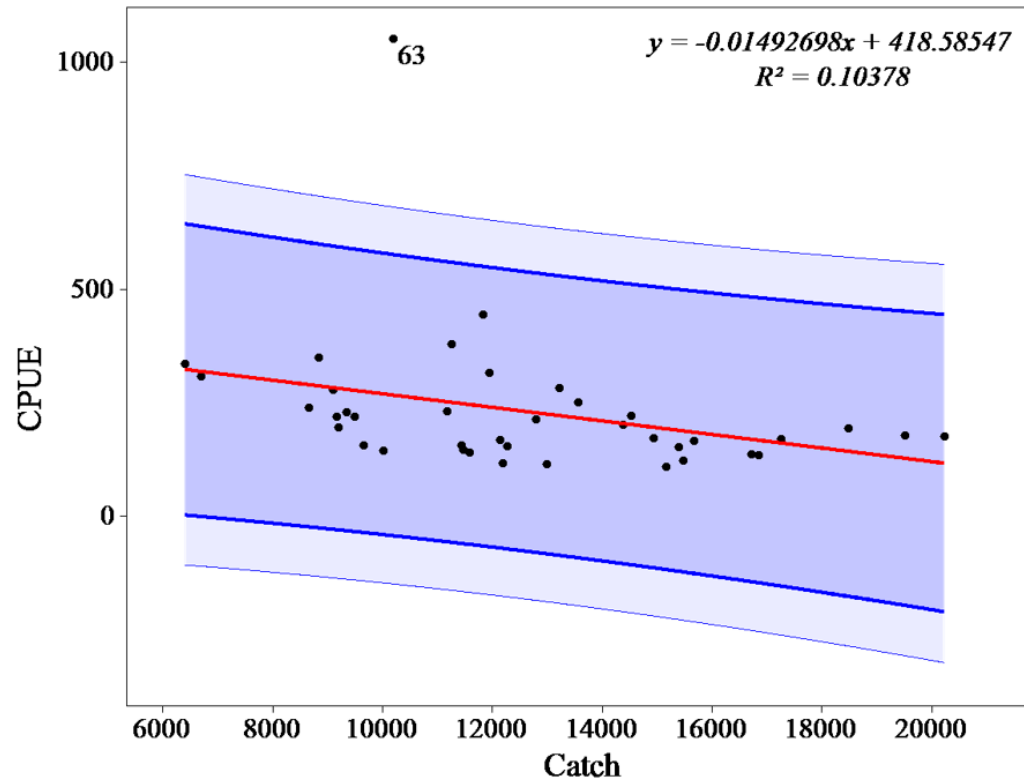
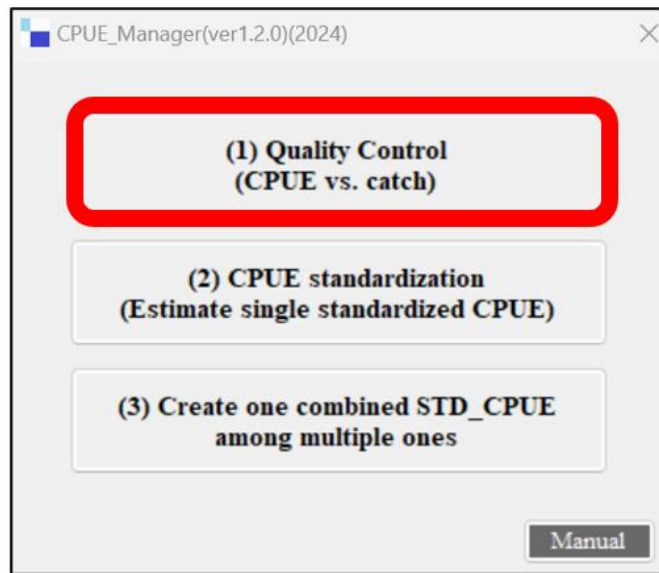
Algeria, Argentina, Brunei Darussalam*, Cambodia*, China, Indonesia*, India, Iran, Japan*, Korea, Kenya, Malaysia*, Mexico, Myanmar*, Oman, Peru, Philippines*, Spain, Sri Lanka, Thailand*, Trinidad and Tobago, USA, Viet Nam*, Taiwan, and Turkey.

Note () Southeast Asian Fisheries Development Center (SEAFDEC) member countries*



MENUS AND OUTPUTS (SAMPLES)

[MENU] Series (1) CPUE_Manager (Quality Control) (ver1.2.0) (2024)



Prediction interval of the CPUE vs. Catch relation (light: 99% and dark: 95%)

To check outliers and to evaluate the relation between CPUE and catch.

[MENU] Series (1) CPUE_Manager (CPUE standardization) (ver1.2.0)(2024)

CPUE_Manager(ver1.2.0)(2024)

(1) Quality Control (CPUE vs. catch)

(2) CPUE standardization (Estimate single standardized CPUE)

(3) Create one combined STD_CPUE among multiple ones

Manual

Information of 0 (zero) catch, Selection of the model, and Selection of the covariates.

Sample size (n=)

Year	Sample size (n=)
2011	60
2012	48
2013	86
2014	310
2015	533
2016	518
2017	499
2018	514
2019	447
2020	60
2021	202
2022	257
2023	529

0 (zero) CPUE (catch) rate (red bar) = 11%

% frequency distribution of nominal CPUE

Select model

Log normal GLM: 0 (zero) CPUE (catch) rate < around 30%

Delta type 2 steps log-normal model: 0 (zero) CPUE (catch) rate > around 30%

Select covariates

Year

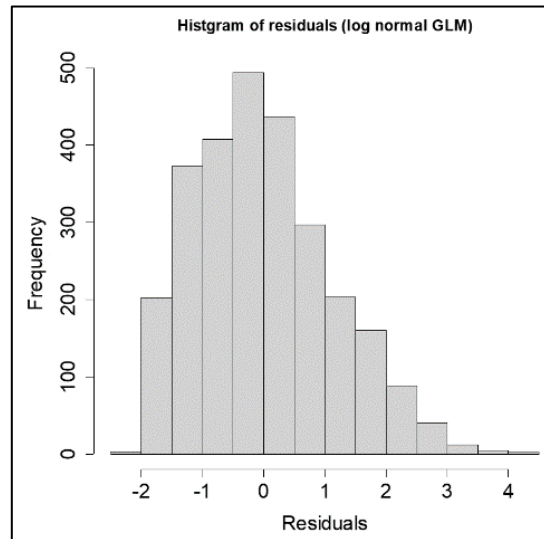
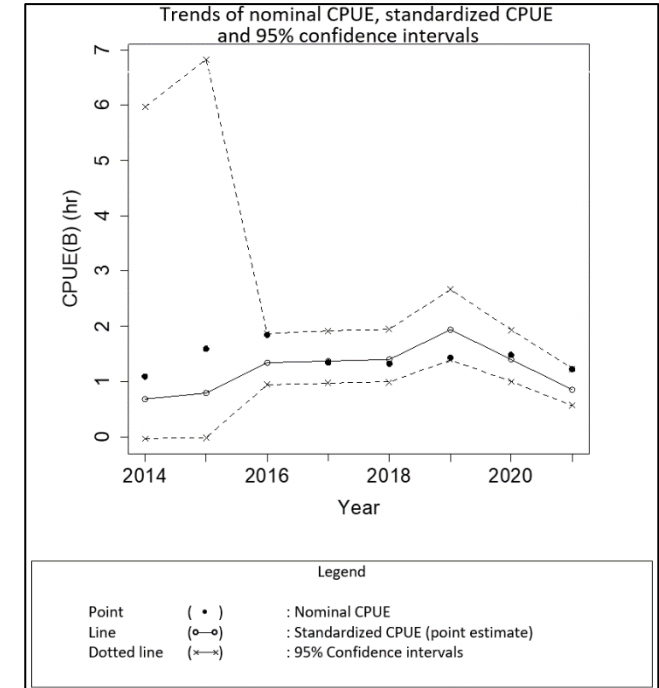
Month

Area

Month * Area

Note: Selection of covariates (for details, refer to the Manual)

OK Cancel



ANOVA (Analysis Of Variance) Table for log normal GLM to test statistical significances on nominal CPUE

Adjusted R² = 0.06

Sources	df1	df2	Type III SS (Sum of Square)	Mean Square	F (test statistic)	α: Probability (>F) (*)
Model	20		245.87	12.29	9.90	0.000
year	7		67.41	9.63	7.76	0.000
Q	3		3.77	1.26	1.01	0.387
stat area	10		174.69	17.47	14.07	0.000
Error		2,701	3,353.99	1.24		

[Note] df Degrees of Freedom (*) Yellow marker Indicates $\alpha < 0.05$ (5%)

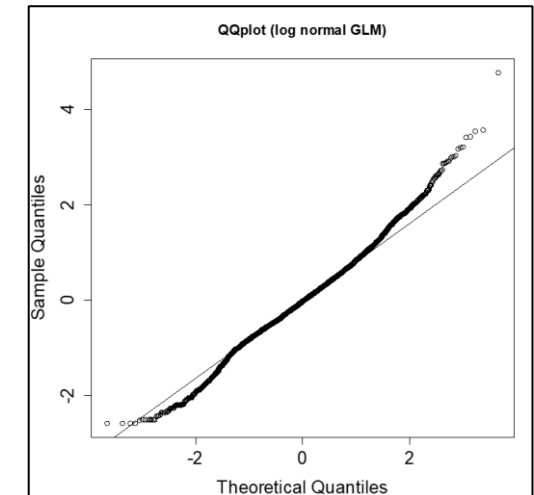
Probability F(df1,df2)

F probability density

$F_{\alpha}(df1,df2)$

Degree of Freedom

α



[MENU] Series (2) ASPIC_Manager (ver1.1.0)(2024)

ASPIC_Manager(ver1.1.0)(2024)

(1) Batch job
(search best parameters & model)

(2) Create results (*.fit) file
(for best parameters)

(3) Graphs (point estimate)
(past trends)

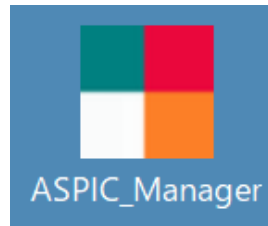
(4) Kobe I
(Kobe plot)

(5) Graphs (uncertainties)
(past trends & future projections)

(6) Kobe II (strategy matrix)
(TAC decision tool)

Manual

Batch job



ASPIC_Manager(ver1.1.0)(2024)

Input file(*.inp)
\\ESL Software\ASPIC_Manager\ASPIC Sample data\1) Batch job\test.inp

Models
 Schaefer FOX Combination: 2

B1/K: 0.1, 0.5, 1.0, 0.4
 q: 0.003, 0.004, 0.005, 0.001

set up: mini(1,000tons), Start, max(1,000tons), step
 MSY: 3, 7.3, 15, 5
 K: 17, 70, 170, 60

total number of combinations: (batch job) 162

Start

(To terminate, close the window by clicking X)

Elapsed CPU ticks: 32
 Elapsed time: 0 hours, 0 minutes, 0 seconds.

NOTE: ASPIC ended normally. The output file is test.fit

----- ASPIC Version 5.10 -----

NOTE: Reading input file test.inp
 TITLE: test

R.0 It: 564 B1/K:0.4026 K:7.11E+04 MSY:1.11E+04 SSE:6.1193960E-01
 12 B1/K:0.4022 K:7.14E+04 MSY:1.11E+04 SSE:6.1193698E-01
 14 B1/K:0.4018 K:7.15E+04 MSY:1.11E+04 SSE:6.1193662E-01
 19 B1/K:0.3562 K:7.03E+04 MSY:1.12E+04 SSE:6.1186895E-01
 5 B1/K:0.1154 K:9.89E+04 MSY:9.24E+03 SSE:3.9829120E-01
 6 B1/K:0.1134 K:1.11E+05 MSY:9.53E+03 SSE:3.9629931E-01
 9 B1/K:0.1134 K:1.11E+05 MSY:9.53E+03 SSE:3.9629931E-01
 4 B1/K:0.1134 K:1.11E+05 MSY:9.53E+03 SSE:3.9629931E-01
 8 B1/K:0.1134 K:1.11E+05 MSY:9.53E+03 SSE:3.9629931E-01
 5 B1/K:0.1134 K:1.11E+05 MSY:9.53E+03 SSE:3.9629931E-01
 274 B1/K:0.1134 K:1.11E+05 MSY:9.53E+03 SSE:3.9629931E-01

Elapsed CPU ticks: 44
 Elapsed time: 0 hours, 0 minutes, 0 seconds.

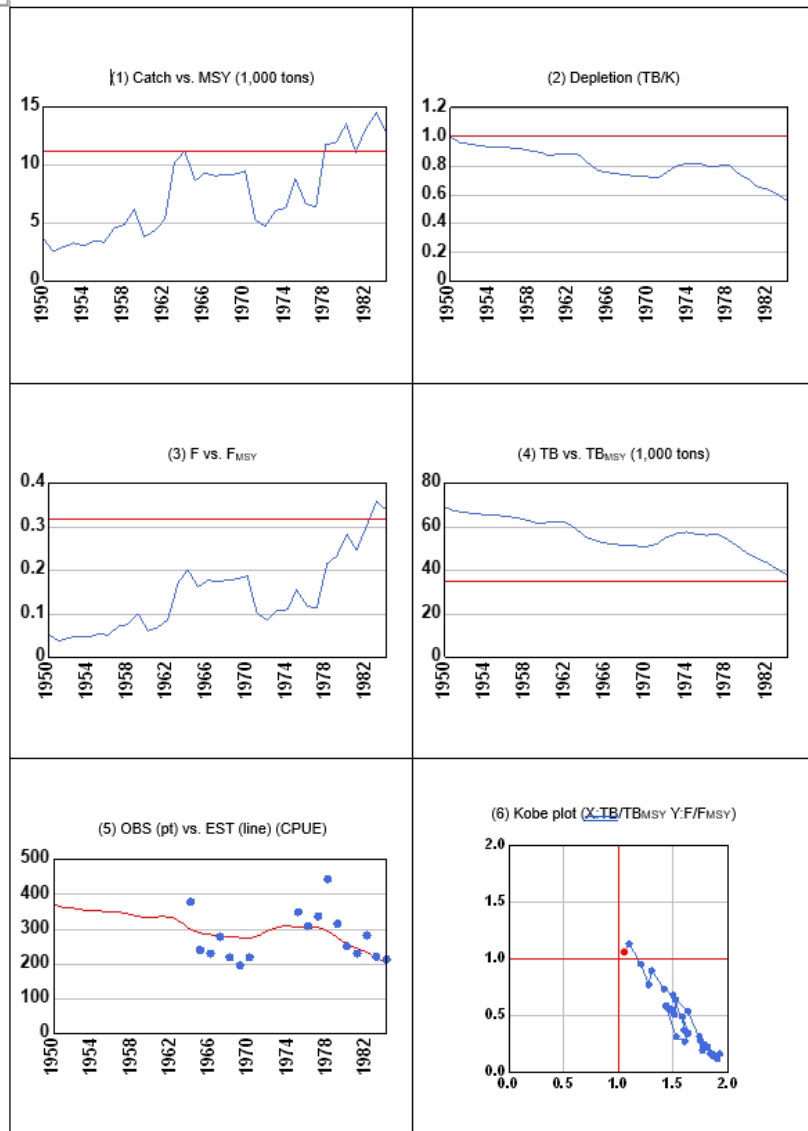
NOTE: ASPIC ended normally. The output file is test.fit

Processing time: 0h3m 162/162

[Current no. of the batch job being processed]/[total number of the batch job]

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	Time	0h2m	No of jobs	162	Average	0.0180	Min/job	1.08	Sec/job																
2	Parameters	Model	B1/K	q	MSY	K																			
3	Range (step)	Fox and Schaefer	0.8-1 by 0.1	0.003-0.005 by 0.001-3	3-15 by 5	23-170 by 60																			
4	Flag (0: fixed / 1: estimate)		1	1	1	1																			
5	Weight unit (1,000 tons)																								
6																									
7	Combination									Results															
8	No	B1/K	MSY (min)	MSY (start)	MSY (max)	K(min)	K(start)	K(max)	q	R2	RMS	r [Est]	Model	B1/K [Est]	MSY [Est]	K [Est]	q [Est]	Current catch	TBmsy [Est]	TB [Est]	Fmsy [Est]	B/Bmsy [Est]	F/Fmsy [Est]	note	
10	13	0.8	3	8	15	23	83	170	0.003	0.524	0.175	0.3435	Schaefer	0.113	9.533	111	0.0066	12.79	55.52	31.7	0.172	0.472	2.58	ASPIC ended normally.	
11	14	0.8	3	8	15	23	83	170	0.004	0.524	0.175	0.3435	Schaefer	0.113	9.533	111	0.0066	12.79	55.52	31.7	0.172	0.472	2.58	ASPIC ended normally.	
12	15	0.8	3	8	15	23	83	170	0.005	0.524	0.175	0.3432	Schaefer	0.113	9.533	111.1	0.0066	12.79	55.53	31.7	0.172	0.472	2.58	ASPIC ended normally.	
13	16	0.8	3	8	15	23	140	170	0.003	0.524	0.175	0.3433	Schaefer	0.113	9.534	111.1	0.0066	12.79	55.53	31.7	0.172	0.472	2.58	ASPIC ended normally.	
14	17	0.8	3	8	15	23	140	170	0.004	0.524	0.175	0.3433	Schaefer	0.113	9.534	111.1	0.0066	12.79	55.53	31.7	0.172	0.472	2.58	ASPIC ended normally.	
15	18	0.8	3	8	15	23	140	170	0.005	0.524	0.175	0.3433	Schaefer	0.113	9.534	111.1	0.0066	12.79	55.53	31.7	0.172	0.472	2.58	ASPIC ended normally.	

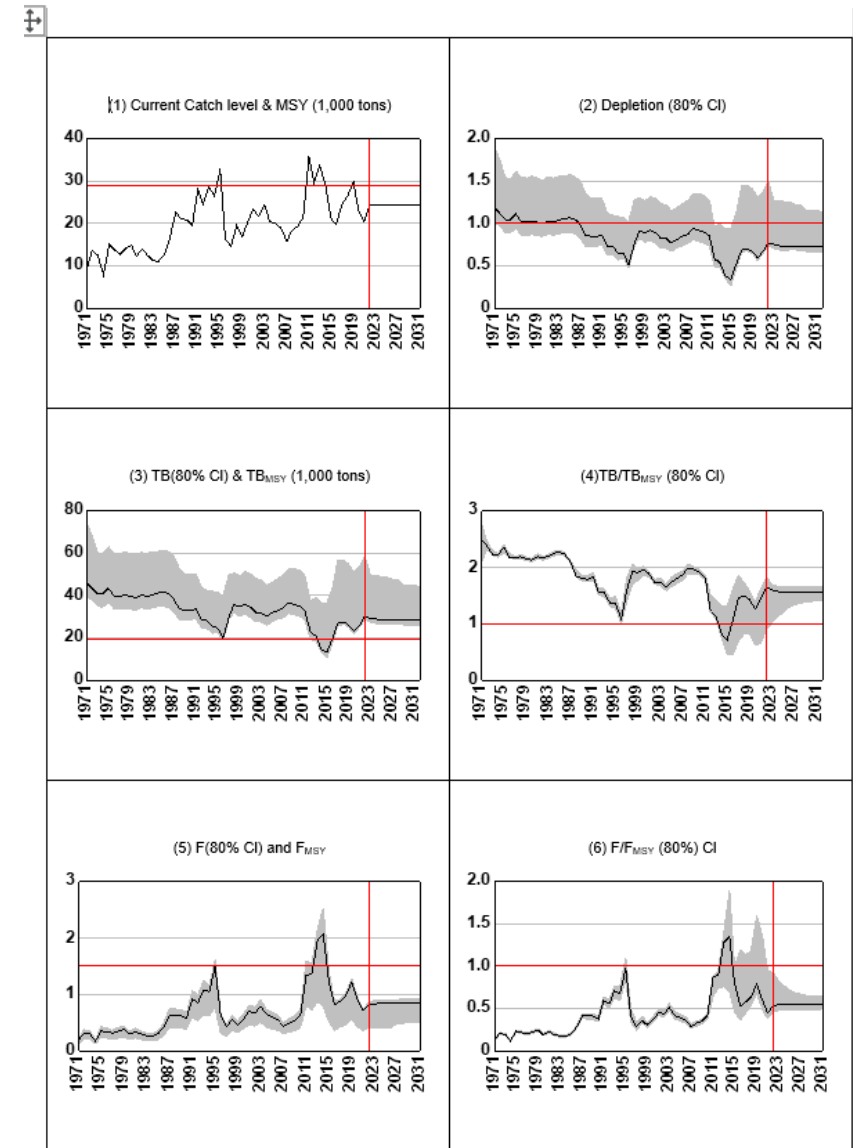
[MENU] Series (2) ASPIC_Manager (graphs) (ver1.1.0)(2024)



ASPIC_Manager(ver1.1.0)(2024)

- (1) Batch job
(search best parameters & model)
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(for best parameters)
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(past trends)
- (4) Kobe I
(Kobe plot)
- (5) Graphs (uncertainties)
(past trends & future projections)
- (6) Kobe II (strategy matrix)
(TAC decision tool)

Manual

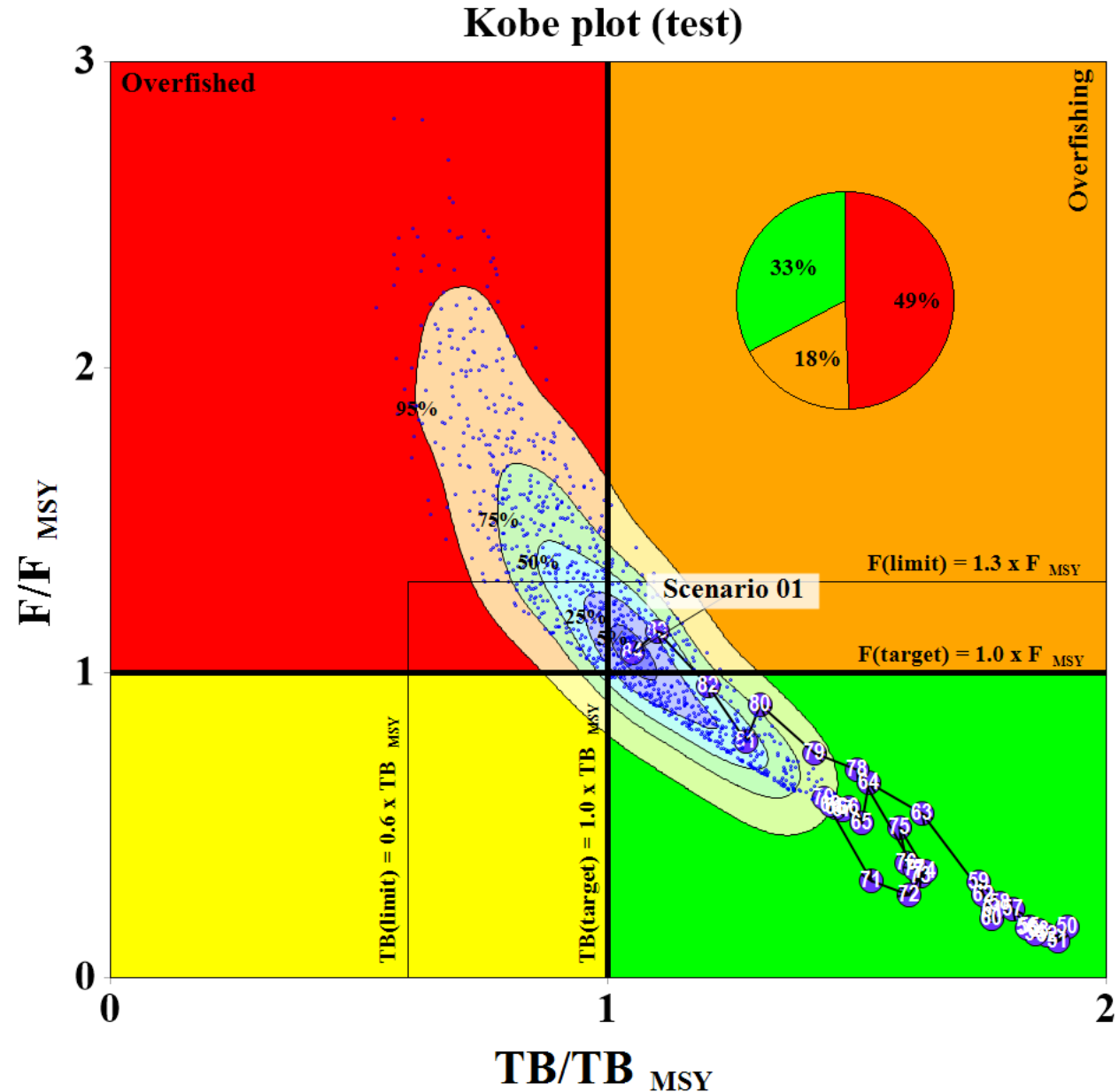


[MENU] Series (2) ASPIC_Manager (Kobe plot) (ver1.1.0)(2024)

ASPIC_Manager(ver1.1.0)(2024)

- (1) Batch job
(search best parameters & model)
- (2) Create results (*.fit) file
(for best parameters)
- (3) Graphs (point estimate)
(past trends)
- (4) Kobe I
(Kobe plot)**
- (5) Graphs (uncertainties)
(past trends & future projections)
- (6) Kobe II (strategy matrix)
(TAC decision tool)

Manual



[MENU] Series (2) ASPIC_Manager (Risk matrix) (ver1.1.0)(2024)

ASPIC_Manager(ver1.1.0)(2024) ✕

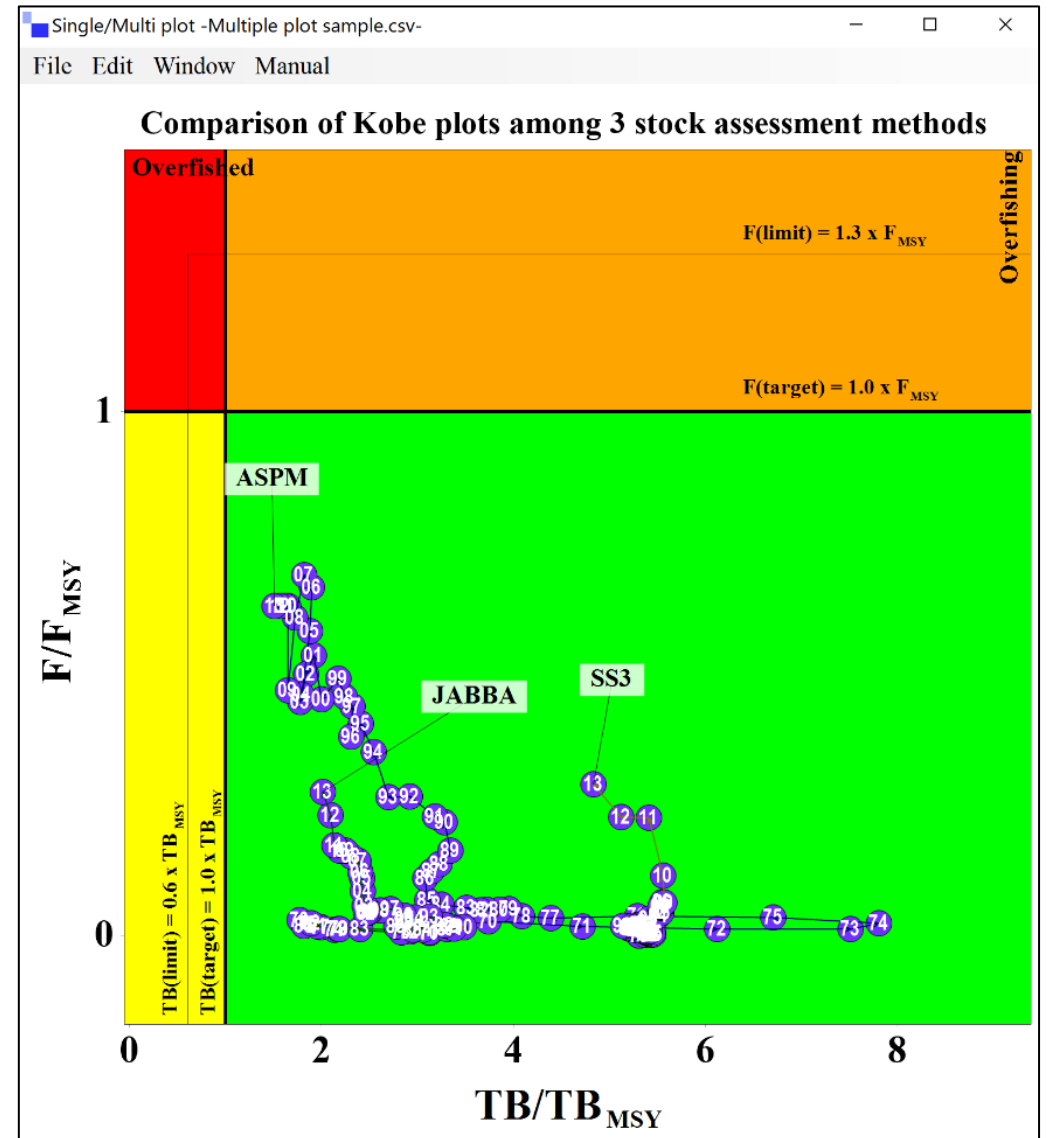
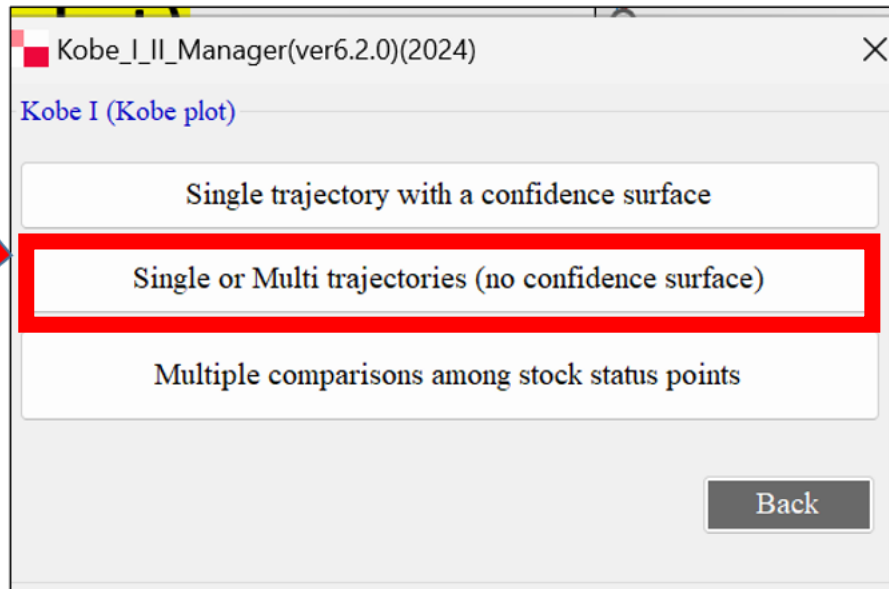
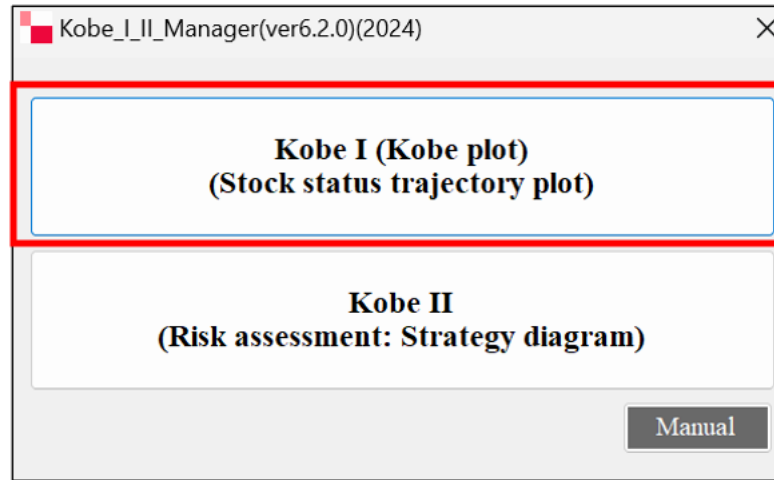
- (1) Batch job
(search best parameters & model)
- (2) Create results (*.fit) file
(for best parameters)
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(Kobe plot)
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(past trends & future projections)
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[Manual](#)

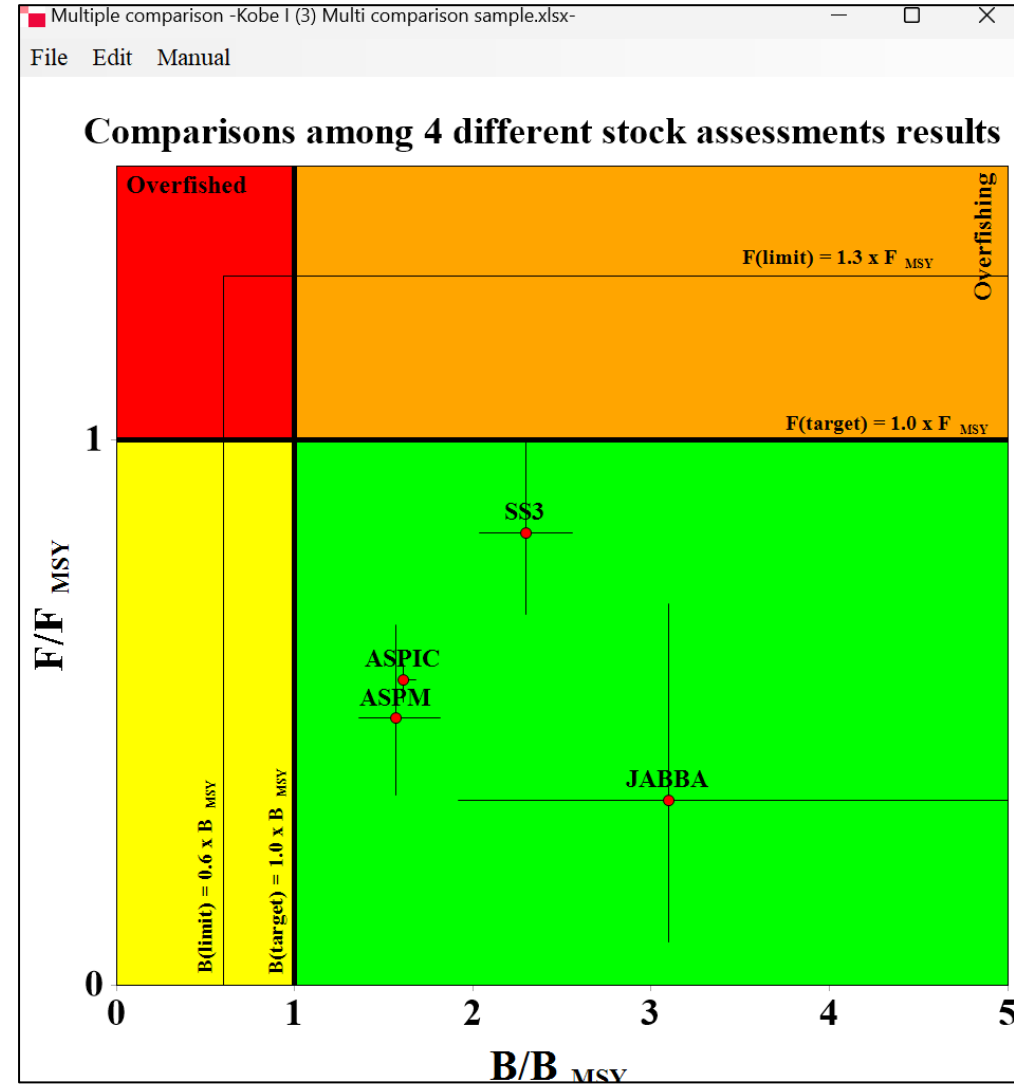
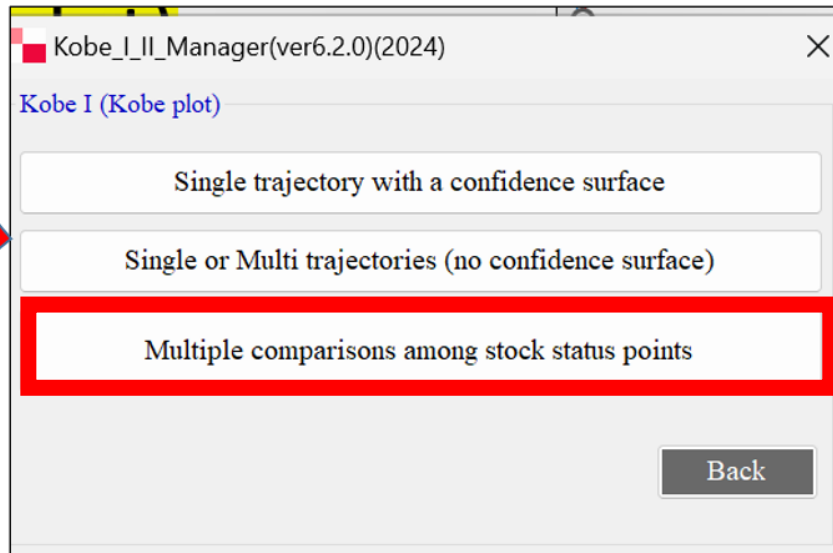
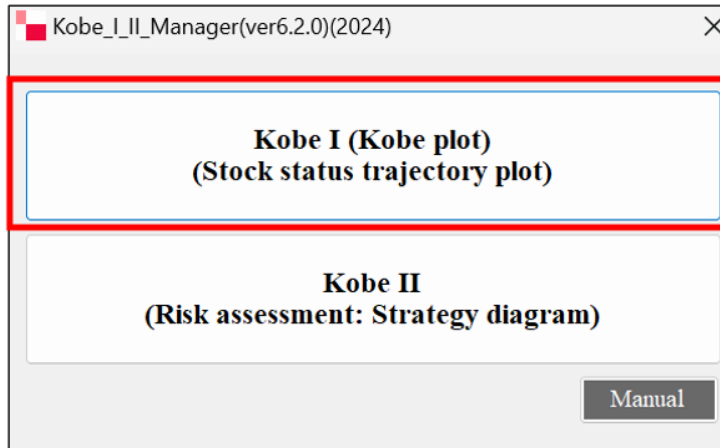
Risk probability (%) violating TB(MSY) level by catch level												
		Color legend										
		Risk levels	Low risk	Medium low risk	Medium high risk	High risk						
		Probably	0 - 25%	25 - 50%	50 - 75%	75 - 100%						
	%	Catch (tons)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
% Increased from the current catch level	200%	40,533	42%	99%	100%	100%	100%	100%	100%	100%	100%	100%
	150%	33,778	42%	96%	99%	100%	100%	100%	100%	100%	100%	100%
	100%	27,022	42%	89%	96%	99%	100%	100%	100%	100%	100%	100%
	80%	24,320	42%	85%	93%	97%	99%	100%	100%	100%	100%	100%
	60%	21,618	42%	79%	88%	93%	96%	98%	99%	100%	100%	100%
	40%	18,915	42%	71%	80%	87%	91%	94%	96%	97%	98%	99%
	30%	17,564	42%	65%	75%	82%	87%	91%	93%	95%	96%	97%
	20%	16,213	42%	60%	69%	76%	81%	86%	89%	91%	92%	93%
10%	14,862	42%	54%	60%	68%	73%	77%	81%	84%	86%	88%	
* Current catch	0%	13,511	42%	48%	51%	56%	61%	64%	68%	72%	75%	77%
% decreased from the current catch level	-5.6%	**12,760	42%	42%	45%	48%	51%	54%	57%	60%	62%	64%
	-10%	12,160	42%	39%	41%	43%	45%	48%	50%	52%	54%	55%
	-20%	10,809	42%	30%	28%	28%	27%	26%	27%	27%	27%	27%
	-30%	9,458	42%	21%	15%	11%	9%	8%	8%	8%	8%	9%
	-40%	8,107	42%	10%	4%	2%	1%	1%	1%	1%	1%	1%
	-60%	5,404	42%	1%	0%	0%	0%	0%	0%	0%	0%	0%
	-80%	2,702	42%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	-100%	0	42%	0%	0%	0%	0%	0%	0%	0%	0%	0%

(Note) * Average catch for 3 last assessments years ** MSY level

[MENU] Series (7) Kobe_I_II Manager (multi plots) (ver6.2.0)(2024)



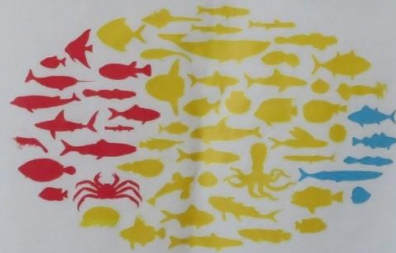
[MENU] Series (7) Kobe_I_II Manager (multiple comparisons) (ver6.2.0)(2024)



Stock assessments for ALL



**STOCK ASSESSMENT
SOFTWARE DEVELOPING TEAM**



STOCK ASSESSMENT FOR ALL
MENU-DRIVEN SOFTWARE DEVELOPMENT TEAM