

# Kobe Plot I and II software

(ver. 3, 2014)

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# Developers

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+

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+

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# Acknowledgements

Kobe plot development project

**Fisheries Agency of Japan** (Funding Agency)

(2009-2014)



**Skipjack and Tuna Division**

National Research Institute of Far Seas Fisheries

**Thanks for \$\$\$ (YenYenYen)**

*(via Sato-san and Okamoto-san)*

## Kobe I (plot) + II (risk assessment matrix) agreed by 5 tuna RFMO meetings

Kobe I (stock trajectory plot)

→ **First** meeting in 2007 (**Kobe**, Japan)

Kobe II (risk assessment matrix)

→ **Second** meeting in 2009 (Barcelona, Spain)



Spreading also to demersal RFMOs  
(e.g. NAFO, SEAFO, NPFC.....)

# Incentives: why we are developing?

(especially) during working group meetings



Need quick and effective plots



**Especially for those who are not good at programming**

Don't want to spend too much time only for programming



Kobe Plot Software developed

## Note : Kobe plot software

- Limitation : fixed outputs (plots & diagrams)

Merit : can produce standardized plot

- High flexibility in design (Graph settings)  
(colors, fonts, symbols, lines, legends etc.)
- This software is NOT for experts who are good at programming can make better plots

This Kobe I+II software those for  
programming illiterate people like....



Beginners



Aged person



**Special Marks on car (Japan)**

# History of development

1<sup>st</sup> version (2011) (IOTC-2011-WPTT13-45)

➔ Basic functions

2<sup>nd</sup> version (2012) (IOTC-2012-WPM04-05)

➔ Improvement of design and Graphics

3<sup>rd</sup> version (2014) (IOTC-2014-WPTT16-53)

➔ Limit+Target reference points

➔ multiple comparisons (stock assessments)

➔ Pie chart (% of uncertainty in 4 phases)




# Installation

**Download the software, manuals  
and other references from**

<http://ocean-info.ddo.jp/kobeaspm/kobeplot/KobePlot.zip>

**Free of Charge**

**you will get**  KobePlot.zip

Unzip  KobePlot.zip  
then you will get the installation  
files as below:

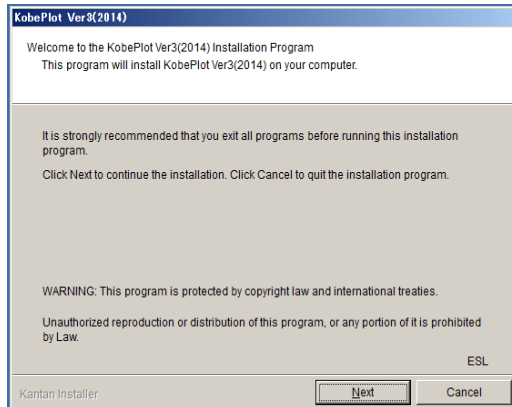


**Then install the software  
by double click**

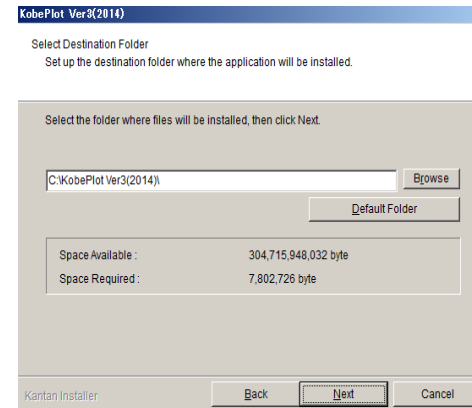


**and then follow  
the normal installation process**

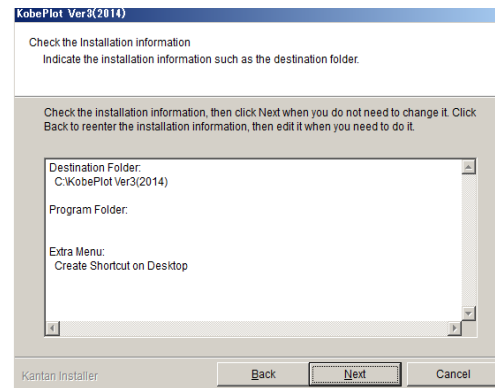
# 4 steps away to finish installation



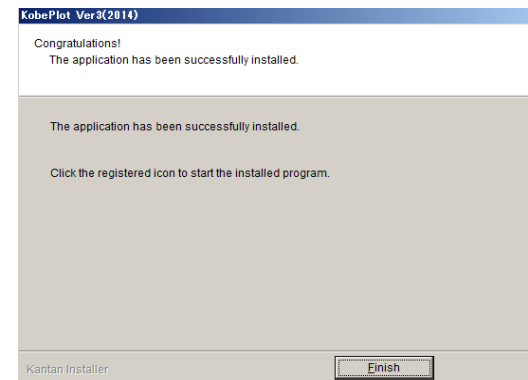
1



2

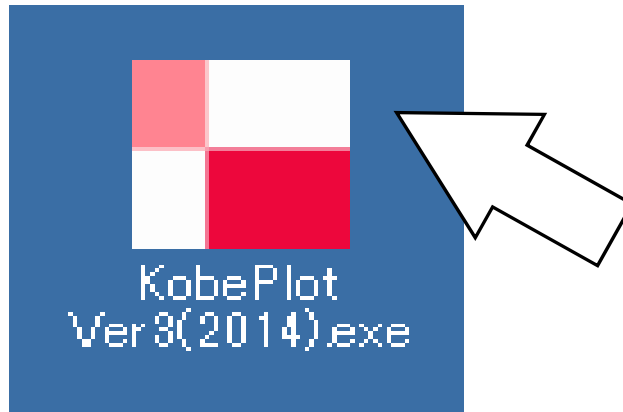


3



4

# Starting the software click



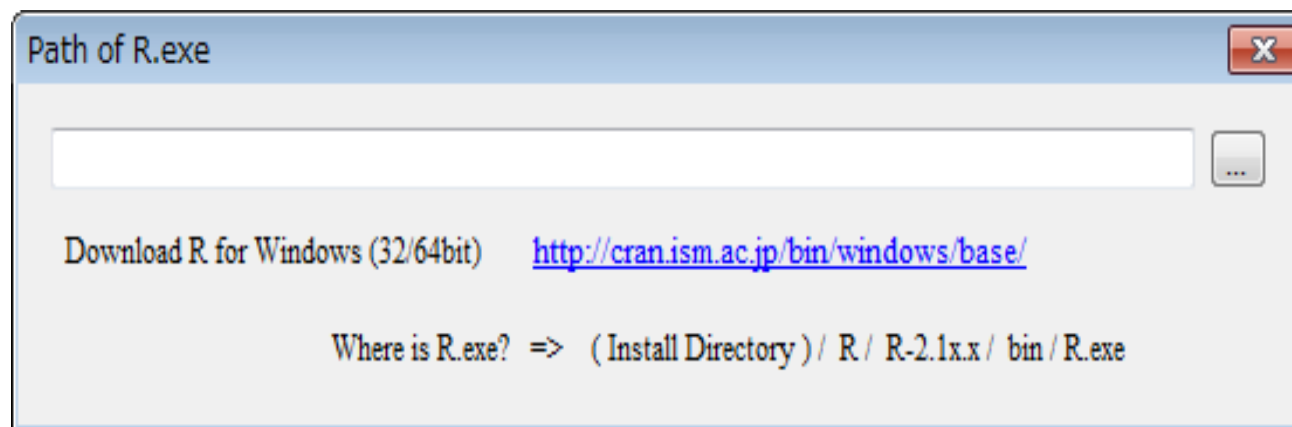
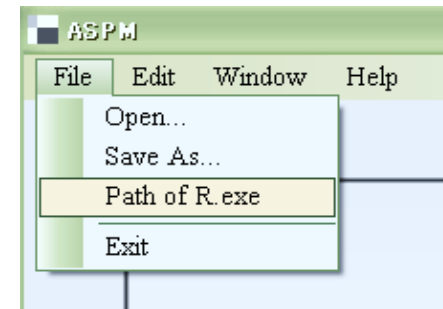
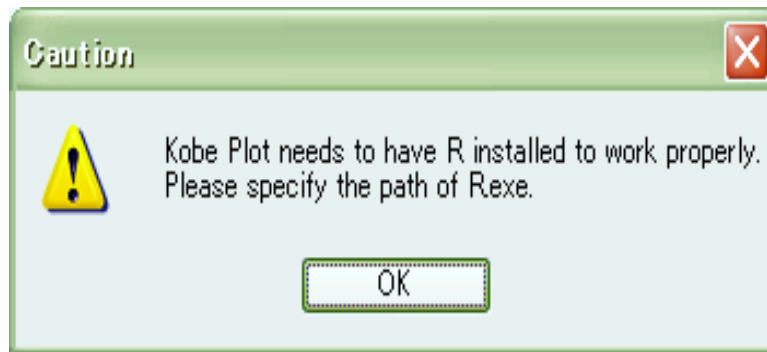
**KobePlot (Ver3)(2014) icon  
(in the desktop window)**

## **Important Note**

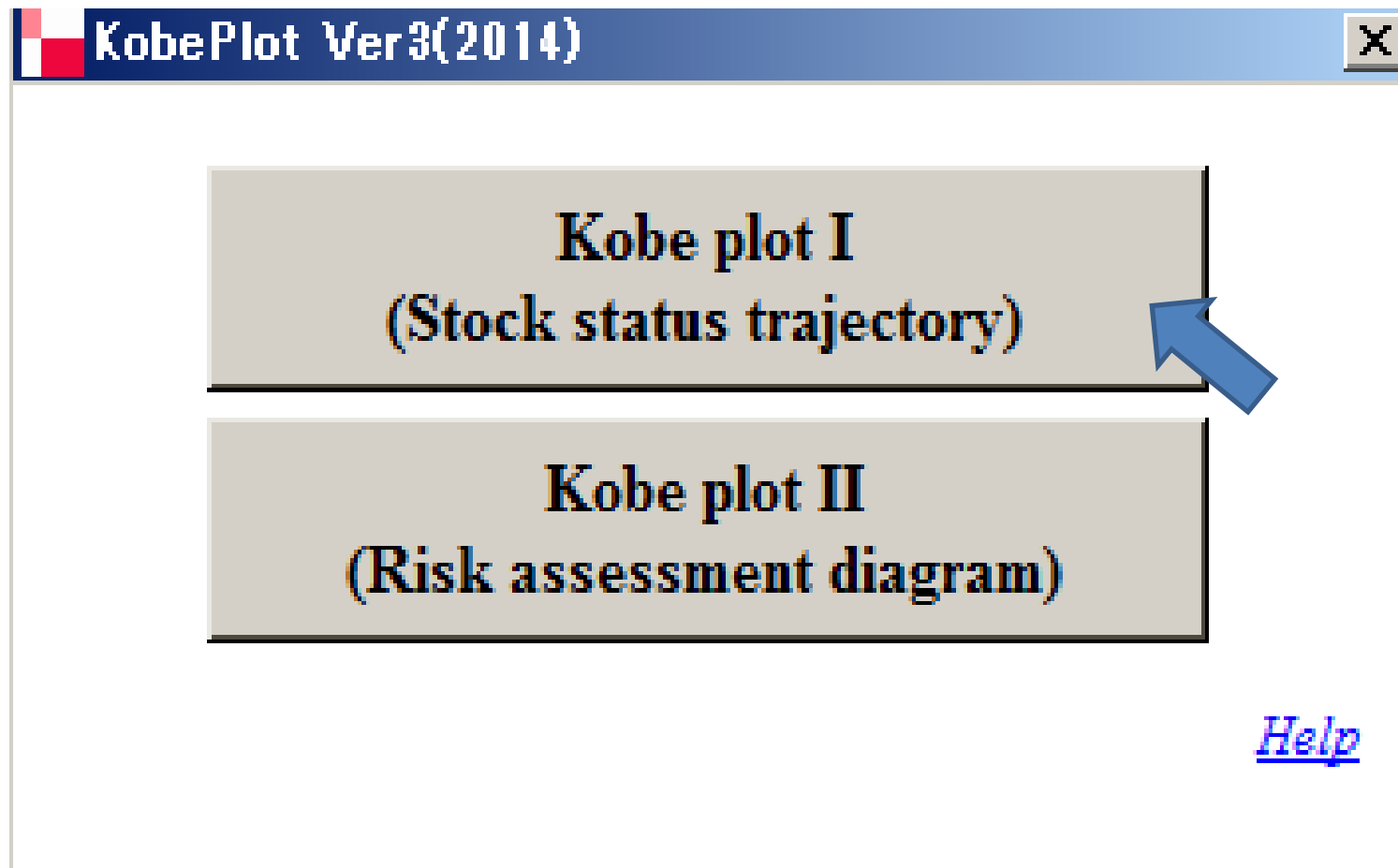
**Normally this icon will appear in the desktop after installation.**

**But, in case users cannot get it in the desktop, please make a shortcut of KobePlotVer3 (2014).exe available in the Kobe plot folder then put it on the desktop.**

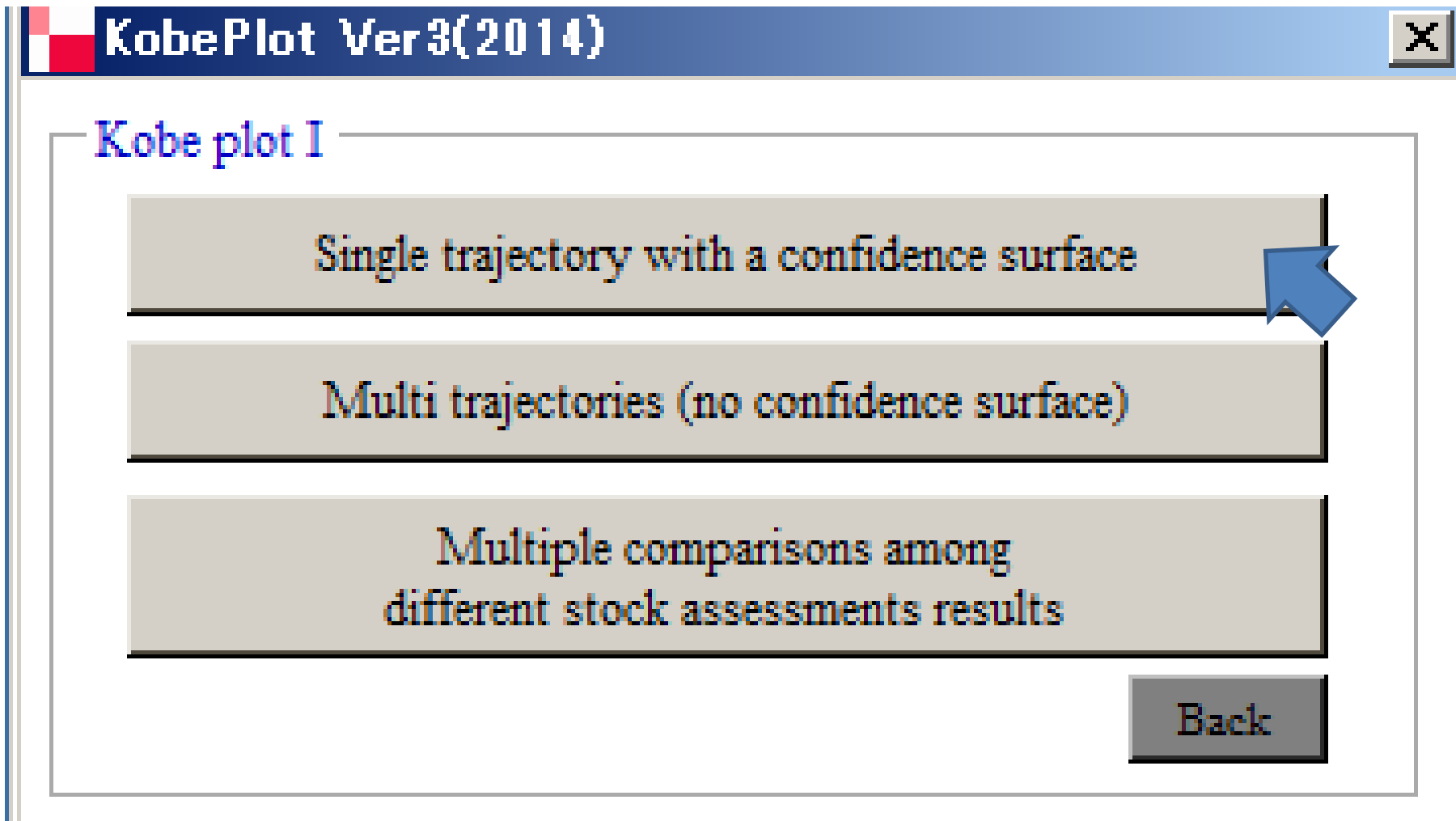
## Make path to “R” (if no “R”, install first)



Then You will see the first window  
(main menu)

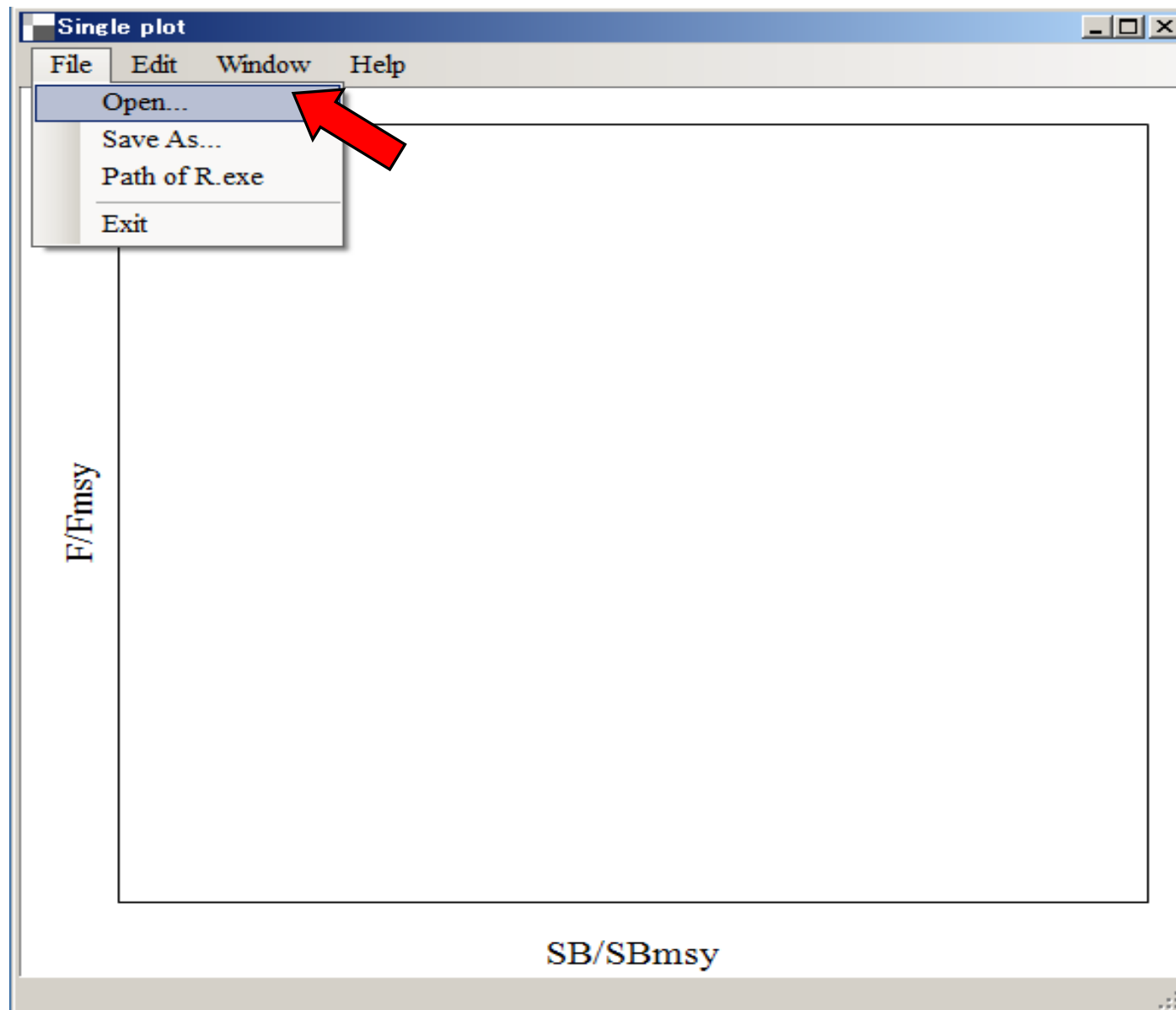


# Then 3 sub menus (Kobe I)





First, you see Canvas, then import the data



**How  
to  
create**

**input  
data?**

**.CSV  
file**

**Columns 1-3**

**Input data  
a single plot  
(trajectory)**

**Columns 4-5  
Input data  
confidence  
surface  
(MCMC,  
bootstrap etc.)**

**Col\_1**

**2  
X**

**3  
Y**

**4  
X**

**5  
Y**

year	B ratio	F ratio	B(ratio)	F(ratio)
1995	1.911	0.467	0.850	0.978
1996	1.740	0.576	0.632	1.289
1997	1.605	0.613	0.778	1.065
1998	1.485	0.720	0.749	1.101
1999	1.398	0.716	0.399	1.959
2000	1.352	0.737	0.814	1.021
2001	1.342	0.692	0.684	1.198
2002	1.345	0.709	0.918	0.912
2003	1.285	0.850	0.771	1.072
2004	1.193	0.918	0.606	1.338
2005	1.177	0.792	0.467	1.692
2006	1.235	0.711	0.834	0.997
2007	1.292	0.696	0.649	1.258
			0.809	1.024
			0.940	0.889
			0.989	0.848
			0.768	1.079

Select the .csv data



(1) single plot sample.csv

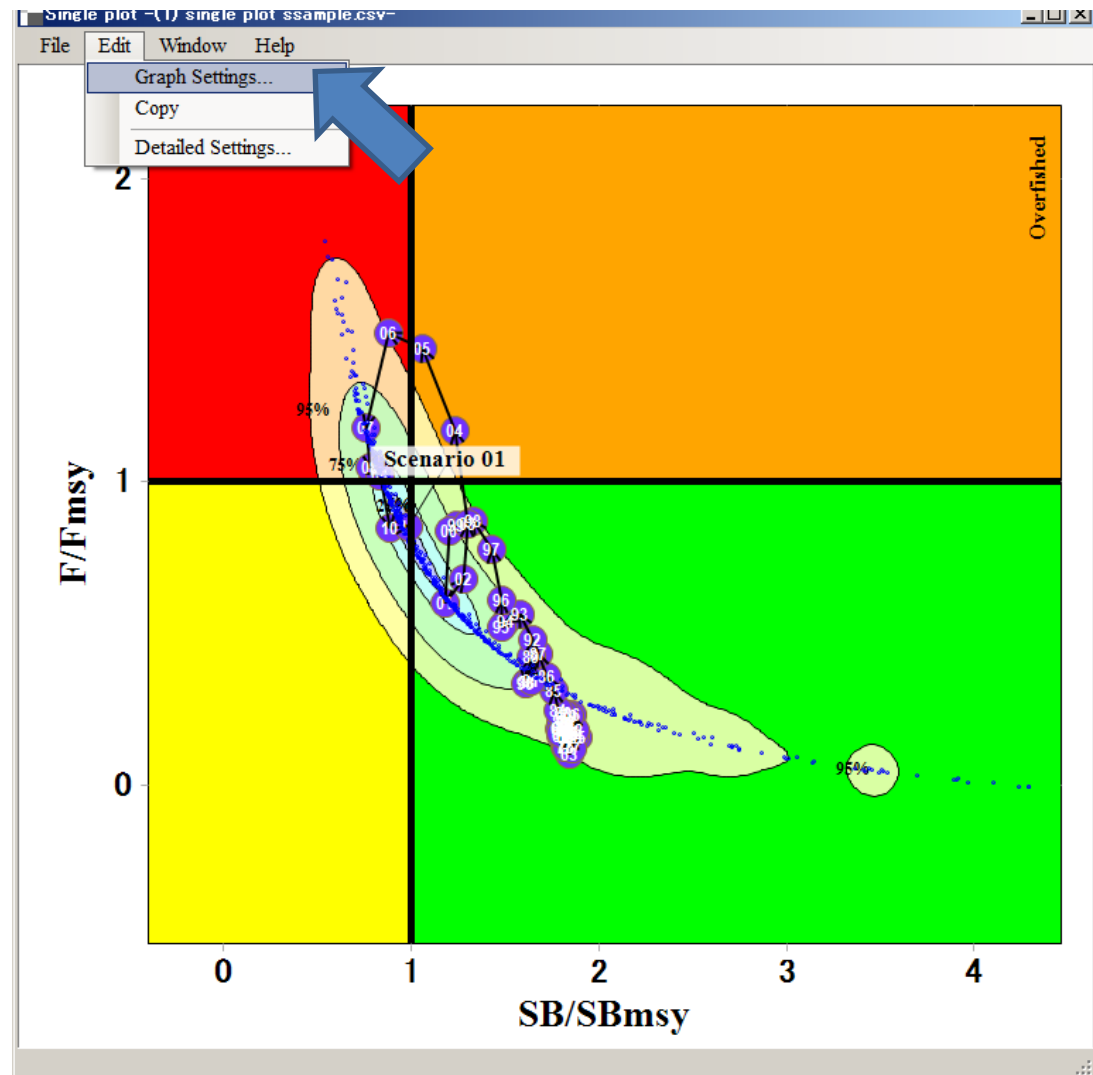


(2) multi plot sample.csv



(3) Multi comparison sample.csv

# First : default plot



Then edit by graph setting

# Editing plot by graph settings

## 2 sheets

# Graph Settings

Points and lines Trajectory, confidence surface and phase

1<sup>st</sup> sheet

1st Year: 1955 57 Years

Select Years to Display ☒ All Years

<input checked="" type="checkbox"/> 1955	<input checked="" type="checkbox"/> 1959	<input checked="" type="checkbox"/> 1963	<input checked="" type="checkbox"/> 1967	<input checked="" type="checkbox"/> 1971
<input checked="" type="checkbox"/> 1956	<input checked="" type="checkbox"/> 1960	<input checked="" type="checkbox"/> 1964	<input checked="" type="checkbox"/> 1968	<input checked="" type="checkbox"/> 1972
<input checked="" type="checkbox"/> 1957	<input checked="" type="checkbox"/> 1961	<input checked="" type="checkbox"/> 1965	<input checked="" type="checkbox"/> 1969	<input checked="" type="checkbox"/> 1973
<input checked="" type="checkbox"/> 1958	<input checked="" type="checkbox"/> 1962	<input checked="" type="checkbox"/> 1966	<input checked="" type="checkbox"/> 1970	<input checked="" type="checkbox"/> 1974

Axis

	Title	Min.	Max.	Increment
X:	SB/SBmsy	-0.32	4.39	1
Y:	F/Fmsy	-0.47	2.19	1

Font Size: 20

**B**

Reset

Change titles of XY axis to other names

☐ X:  ☐ Y:

Mark Size: 10

Mark Font Size: 10

**B**

☐ Title

Kobe plot

Font Size: 18 **B**

☐ Limit Reference Point

X(%): 0.6

Y(%): 1.3

Limit Reference Legend

☐ X:  $SB(limit) = 0.6 \times SBmsy$

☐ Y:  $F(limit) = 1.3 \times Fmsy$

Color:  Width: 1 Style: Solid

Font Size: 10 **B**

☐ Target Reference Point

X(%): 1.0

Y(%): 1.0

Target Reference Legend

☐ X:  $SB(target) = 1.0 \times SBmsy$

☐ Y:  $F(target) = 1.0 \times Fmsy$

Color:  Width: 1 Style: Solid

Font Size: 10 **B**

OK

Cancel

☒ Limit Reference Point

X(%): 0.6

Y(%): 1.3

Limit Reference Legend

☒ X:  $SB(limit) = 0.6 \times SB_{msy}$

☒ Y:  $F(limit) = 1.3 \times F_{msy}$

Color:



Width:

1

Style:

Solid

Font Size:

10

**B**



☒ Target Reference Point

X(%): 1.0

Y(%): 1.0

Target Reference Legend

☒ X:  $SB(target) = 1.0 \times SB_{msy}$

☒ Y:  $F(target) = 1.0 \times F_{msy}$

Color:



Width:

1

Style:

Solid

Font Size:

10

**B**



# Limit and target Reference Point (interim IOTC)

Stock	Target Reference Point	Limit Reference Point
Albacore	$B_{MSY}; F_{MSY}$	$0.4*B_{MSY}; 1.4*F_{MSY}$
Bigeye tuna	$B_{MSY}; F_{MSY}$	$0.5*B_{MSY}; 1.3*F_{MSY}$
Skipjack tuna	$B_{MSY}; F_{MSY}$	$0.4*B_{MSY}; 1.5*F_{MSY}$
Yellowfin tuna	$B_{MSY}; F_{MSY}$	$0.4*B_{MSY}; 1.4*F_{MSY}$
Swordfish	$B_{MSY}; F_{MSY}$	$0.4*B_{MSY}; 1.4*F_{MSY}$



## Points and lines Trajectory, confidence surface and phase

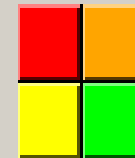
Trajectory Line



Style

Arrow

Phase color

☒ Show Plot Points

Style

Circle

Line width of XY axis

Color:



Width:

5

Style:

Solid

☒ Show Confidence Surface☒ Show Contour Labels☒ 5%☒ 75%☒ 25%☒ 95%☒ 50%

Font Size:

9

**B**

Phase name Label

☒ Overfished

Horizontal

☒ Overfishing

Vertical

☐ Recovering

Horizontal

☐ Safe zone

Horizontal

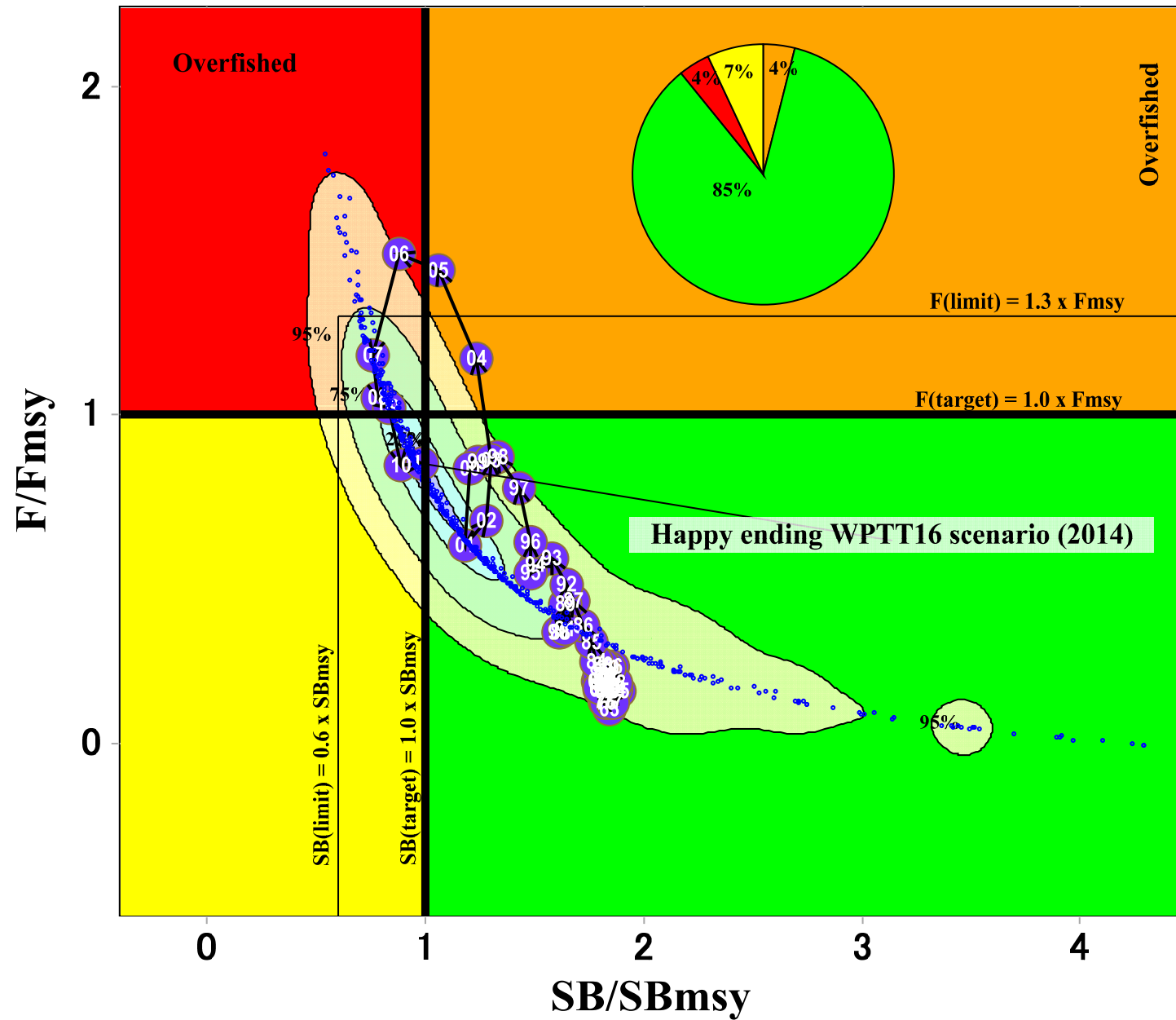
Font Size:

12

**B**☐ Show PieChart(% Composition of 4 phases)

Edited  
plot

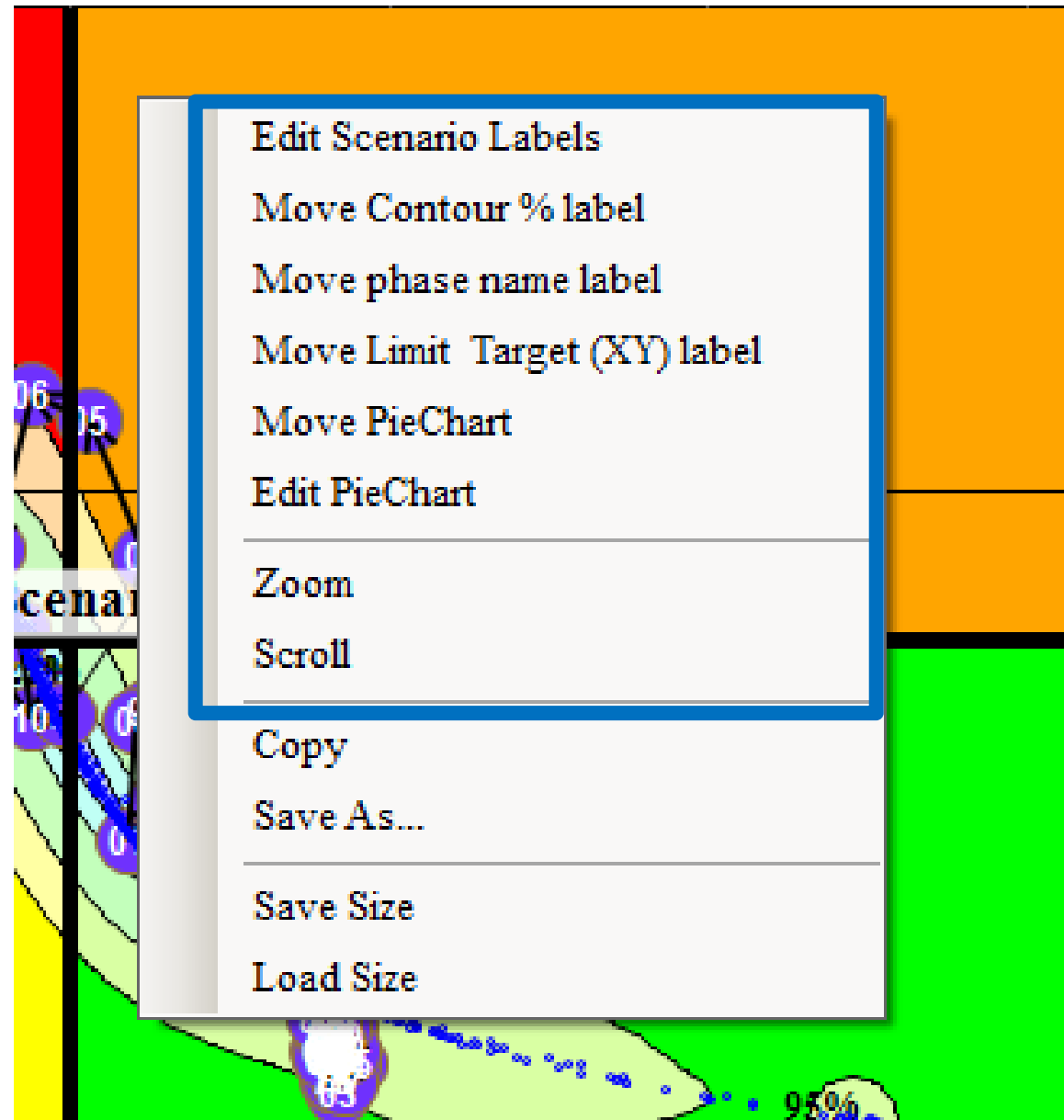
Kobe plot



# Editing Legends

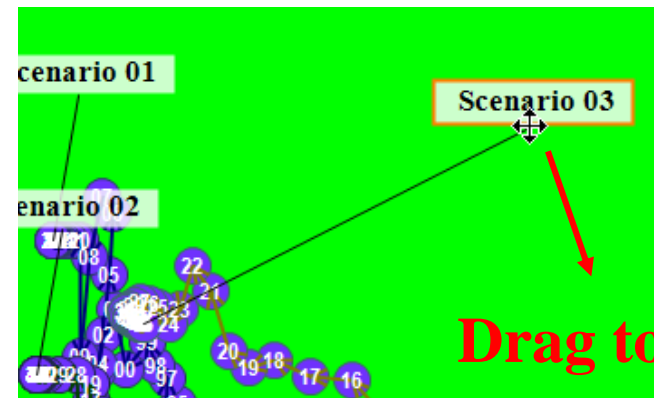
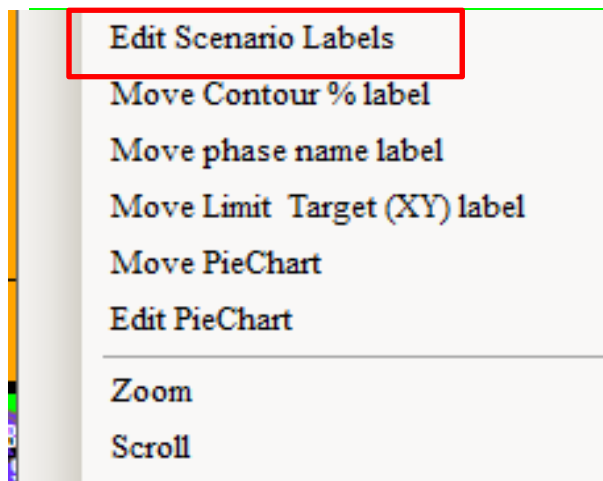
## 8 Editorial function for Legends

(Click right  
button of  
mouse)

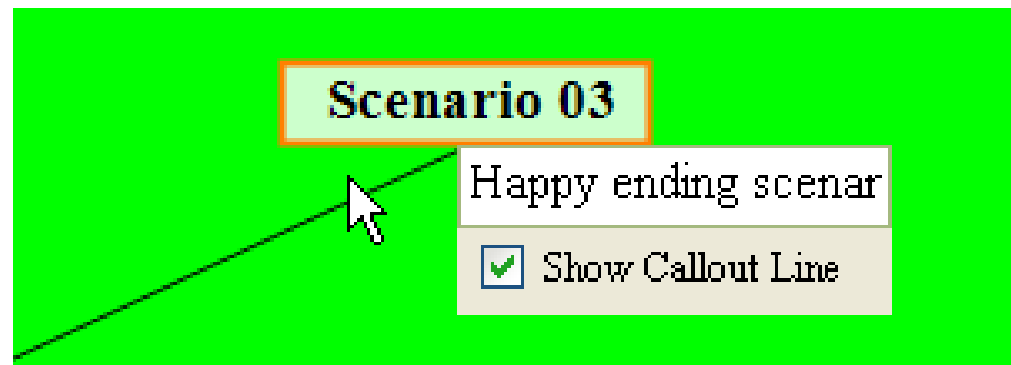


# Editorial functions in Kobe I plot

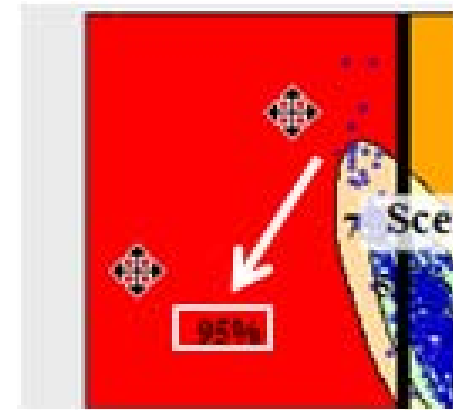
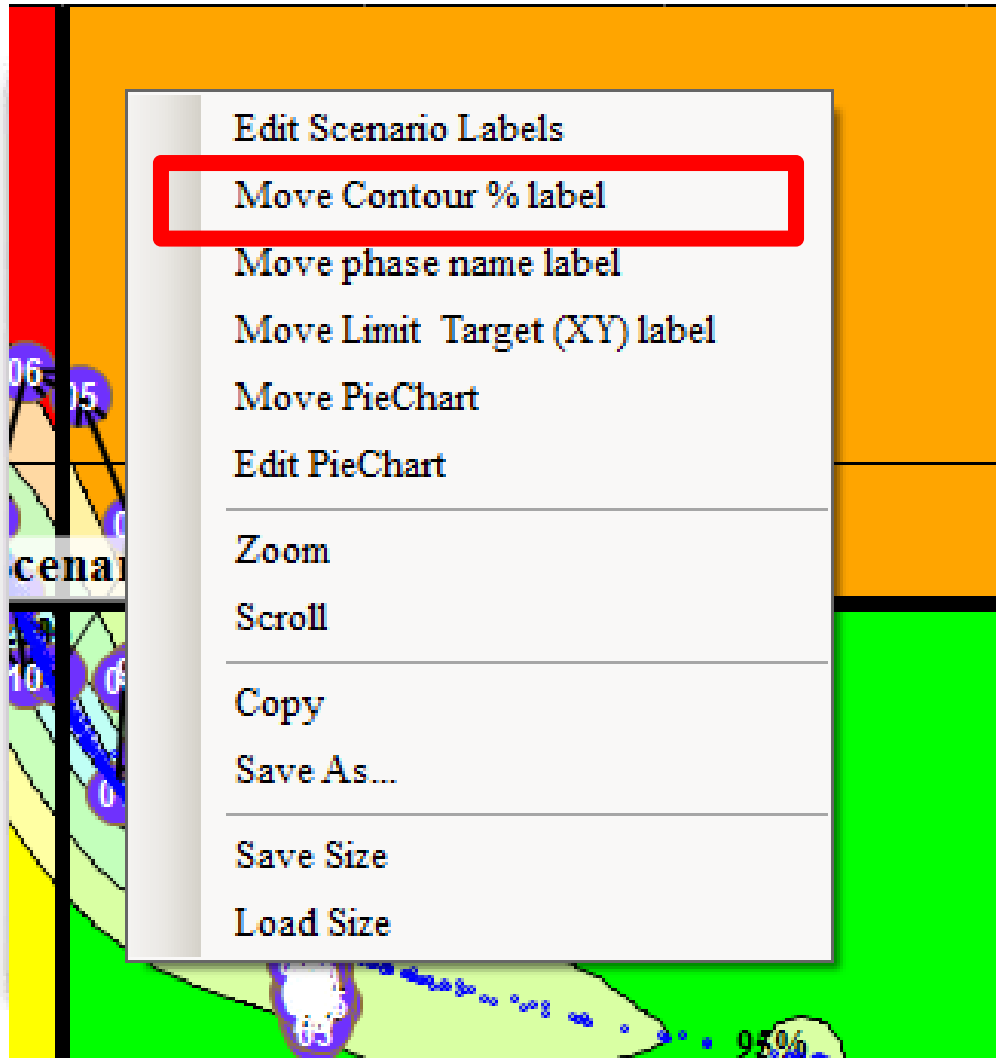
## 1) Editing Scenario Labels



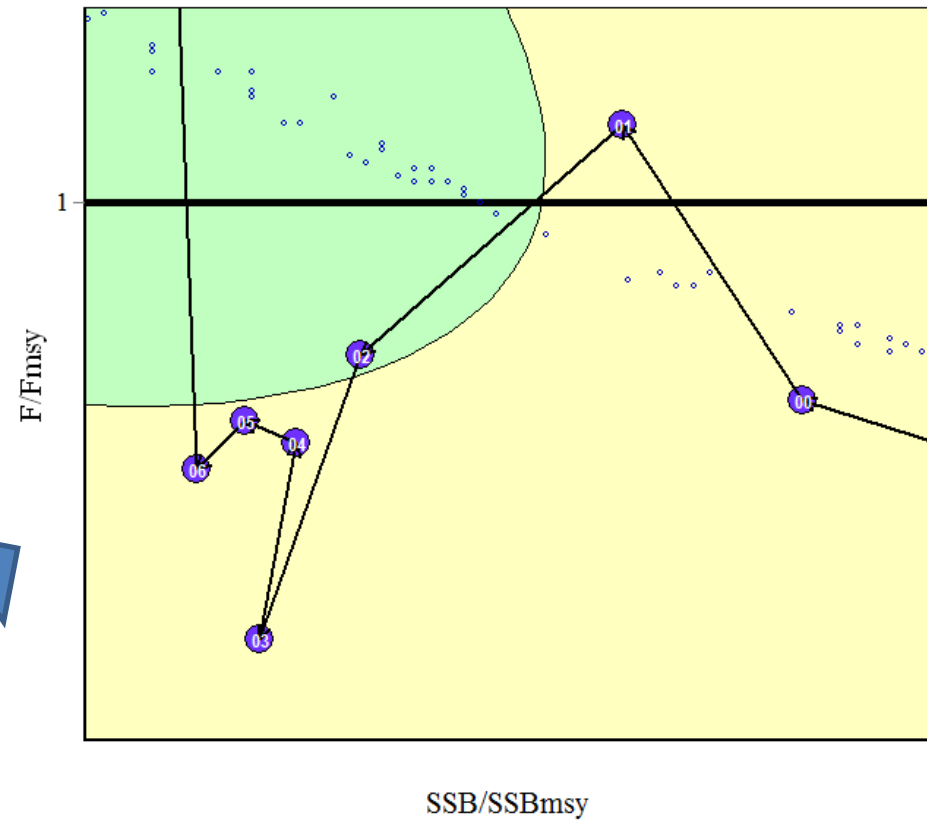
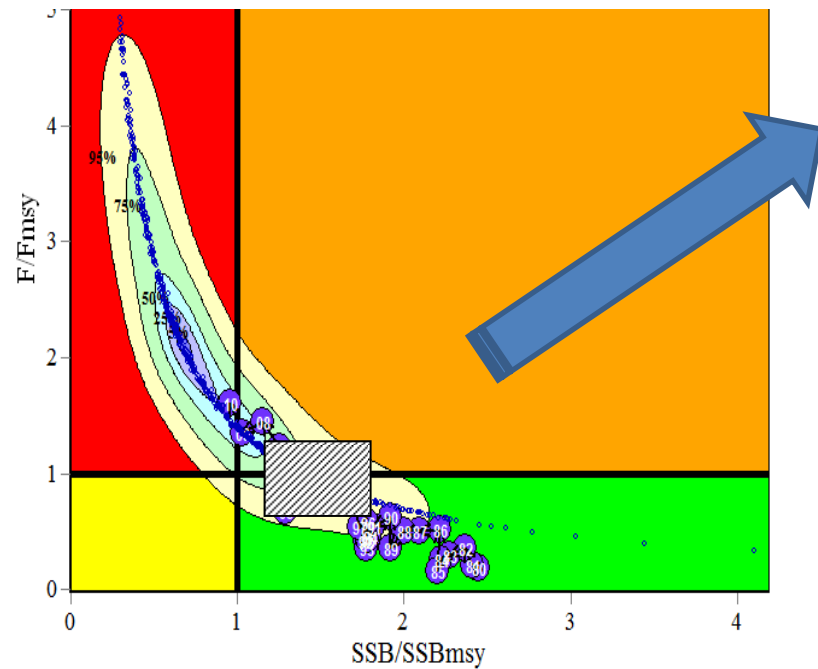
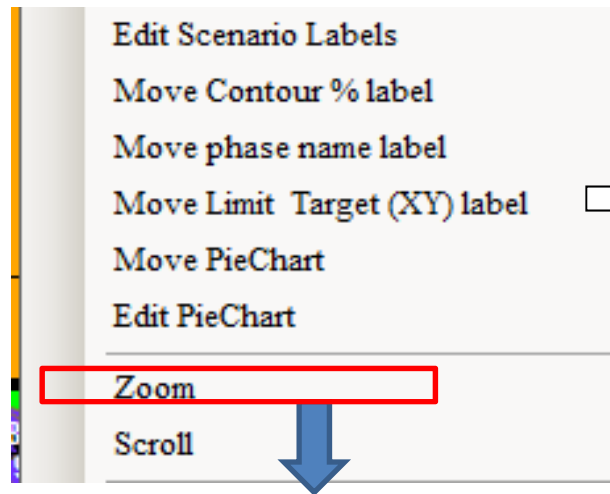
Change the  
label name



# Moving the location of the contour percentage labels



# Zooming the plot area to see details





# Editing confidence surface

Graph Settings

Points and lines Trajectory, confidence surface and phase






2<sup>nd</sup> sheet


Trajectory Line  Style

☒ Show Plot Points  Style


☒ Show Confidence Surface

☒ Show Contour Labels


<input checked="" type="checkbox"/> 5% 	<input checked="" type="checkbox"/> 75% 
<input checked="" type="checkbox"/> 25% 	<input checked="" type="checkbox"/> 95% 
<input checked="" type="checkbox"/> 50% 	

Font Size:   

☐ Show PieChart(% Composition of 4 phases)


Phase color 

Line width of XY axis

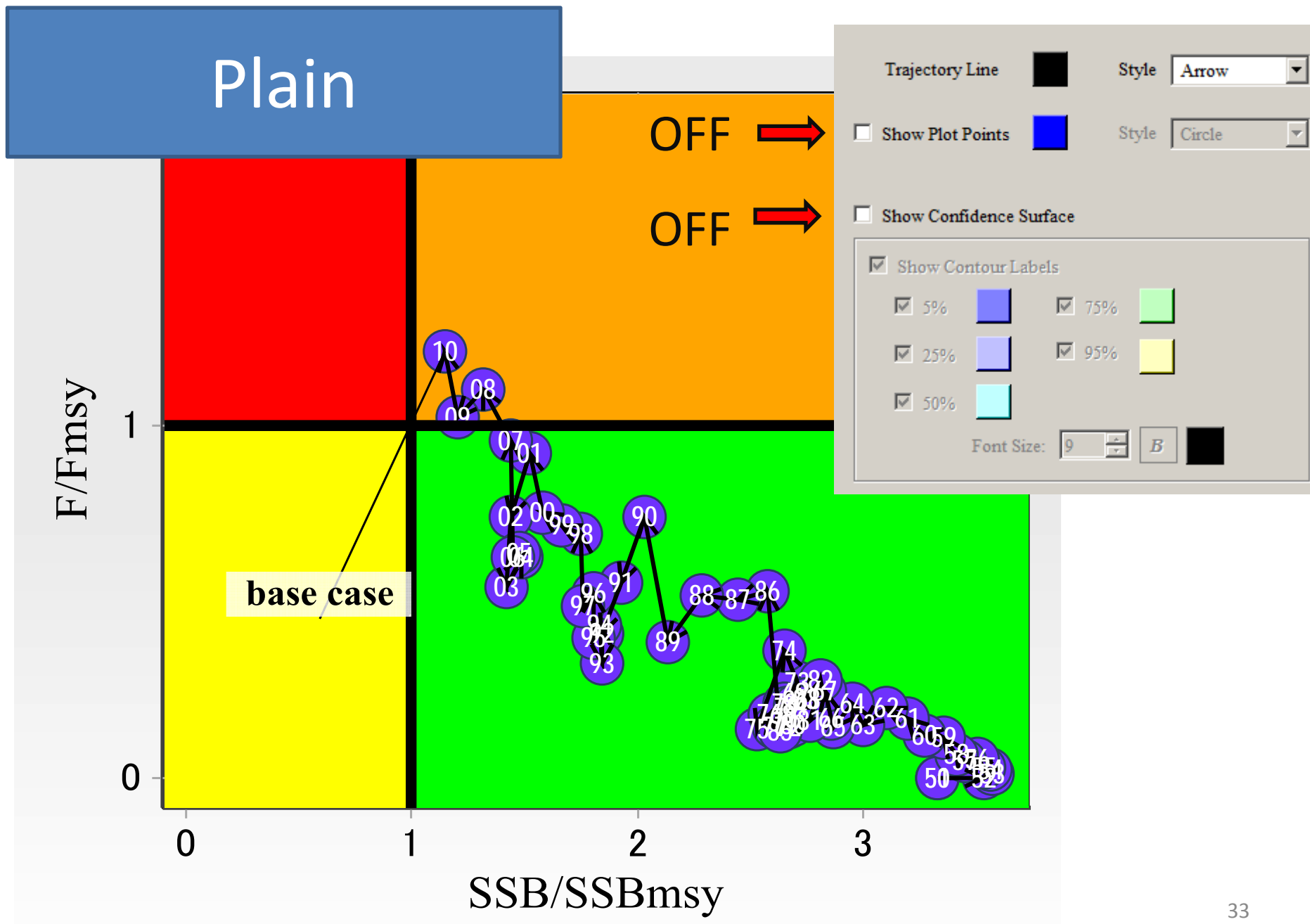
Color:  Width:  Style:

Phase name Label

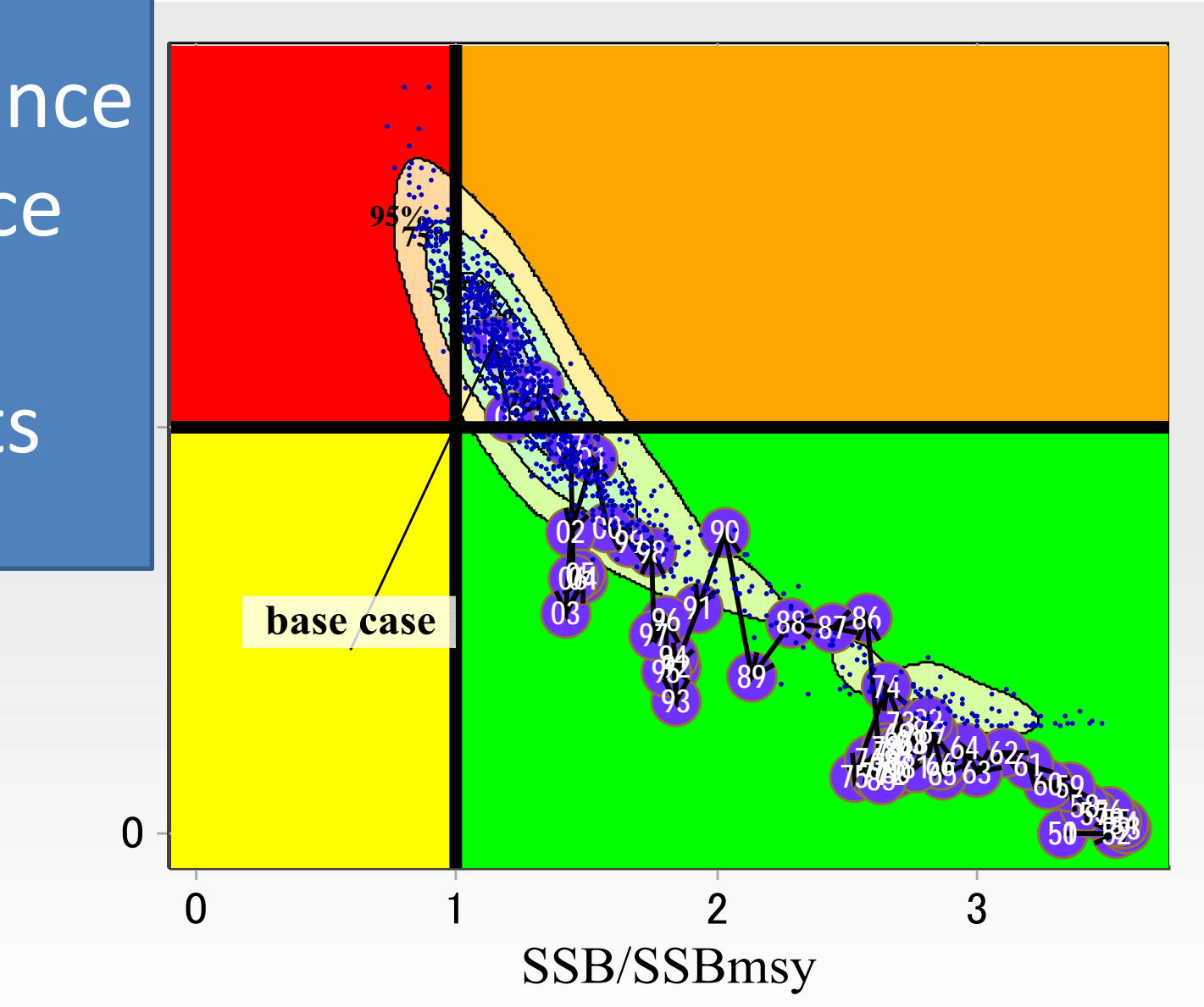
<input checked="" type="checkbox"/> Overfished	<input type="text" value="Horizontal"/>
<input checked="" type="checkbox"/> Overfishing	<input type="text" value="Vertical"/>
<input type="checkbox"/> Recovering	<input type="text" value="Horizontal"/>
<input type="checkbox"/> Safe zone	<input type="text" value="Horizontal"/>

Font Size:   

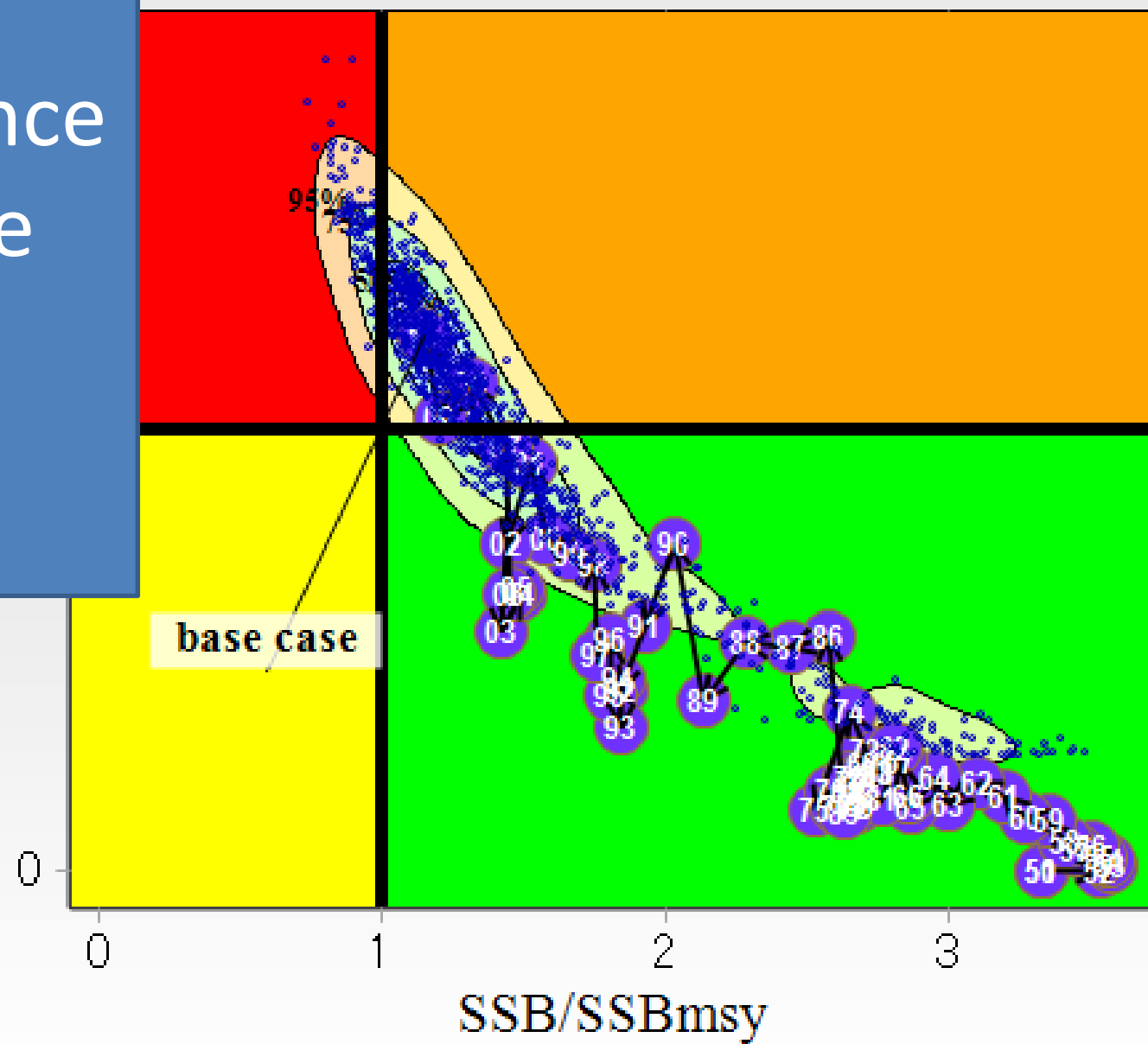




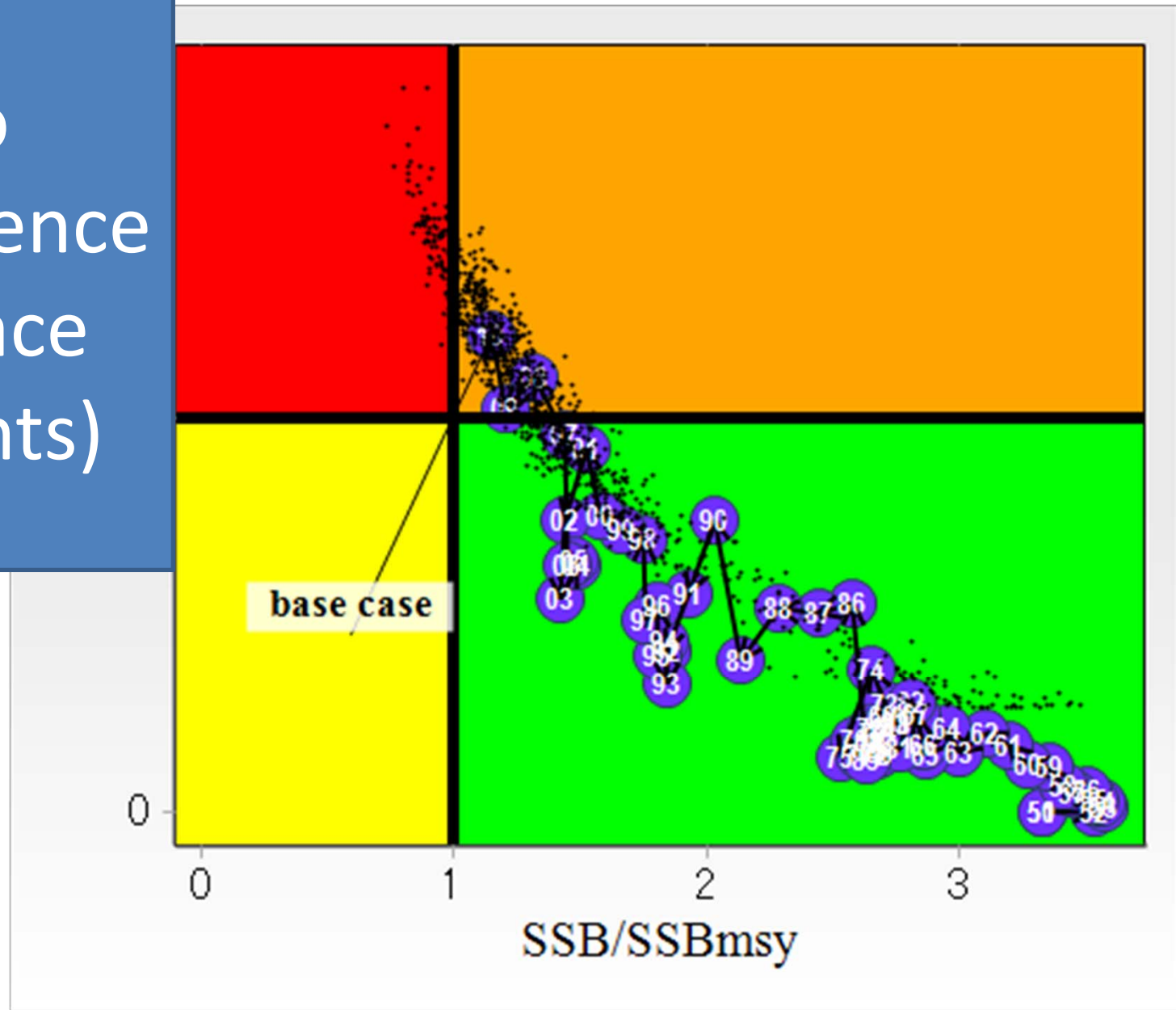
Confidence  
Surface  
+  
points



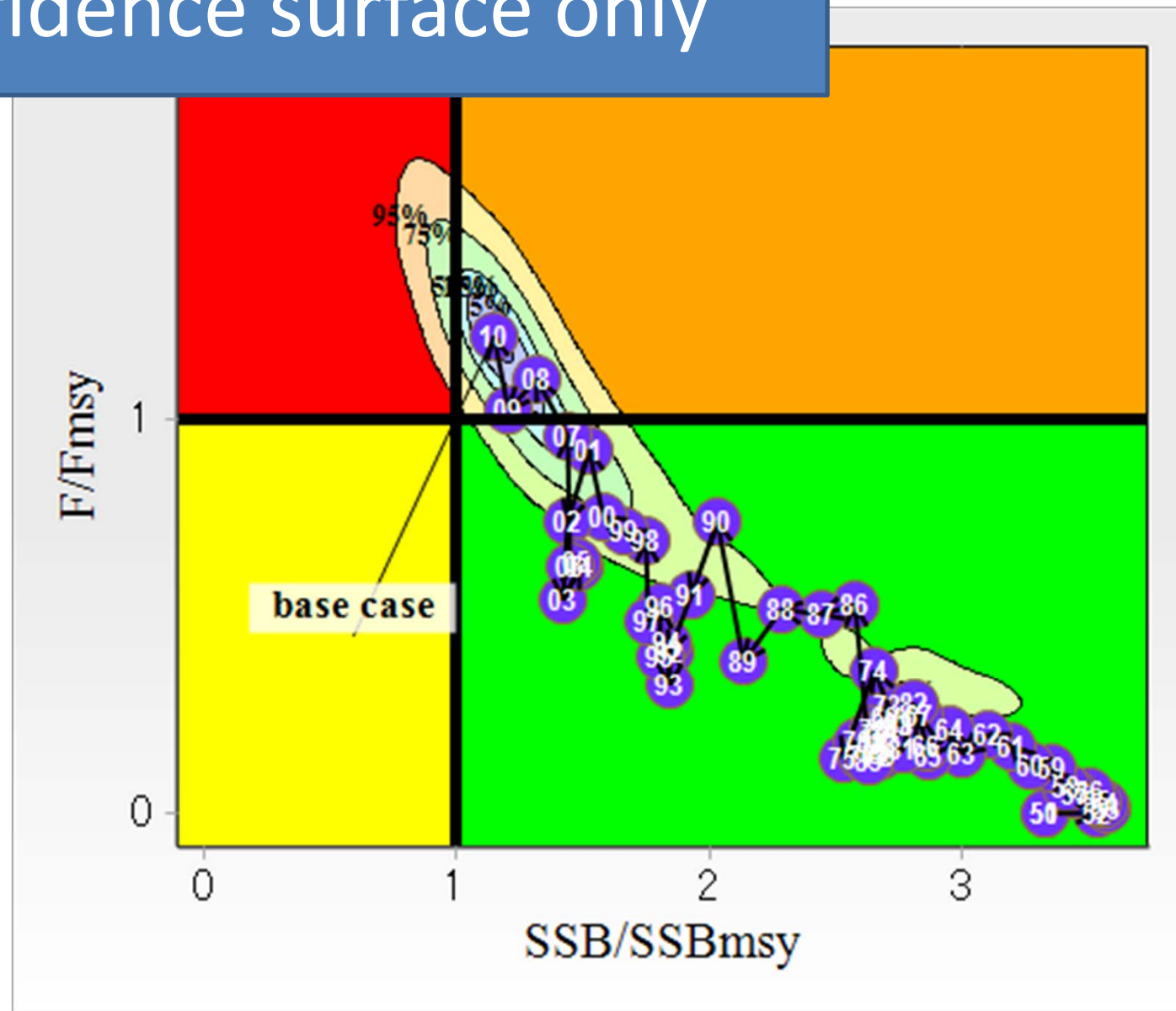
Confidence  
Surface  
+  
dots



No  
confidence  
Surface  
(points)

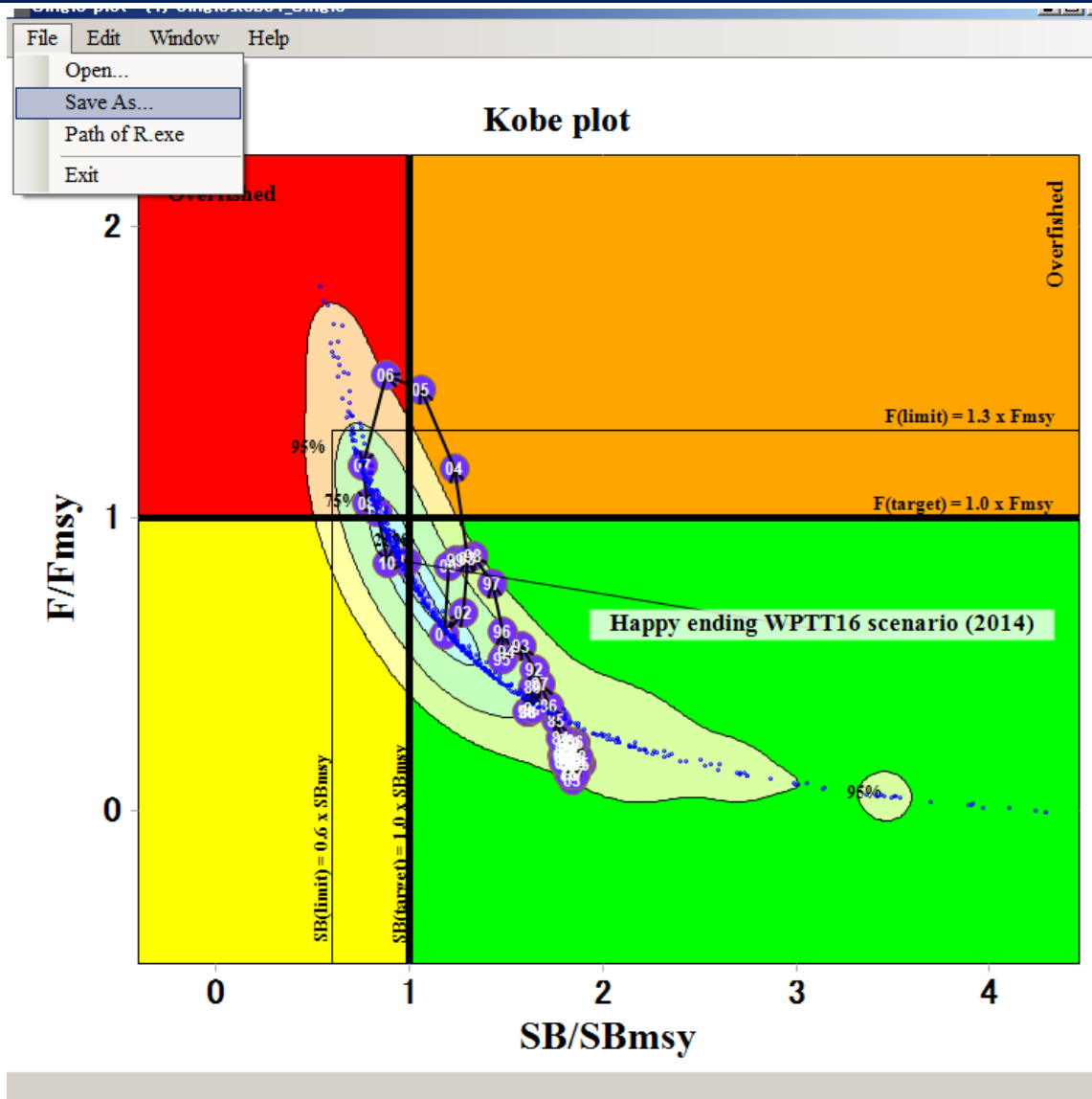


# Confidence surface only



# Saving plots (2 ways)

## (1) whole file to further edition and (2) images



## Kobe plot I

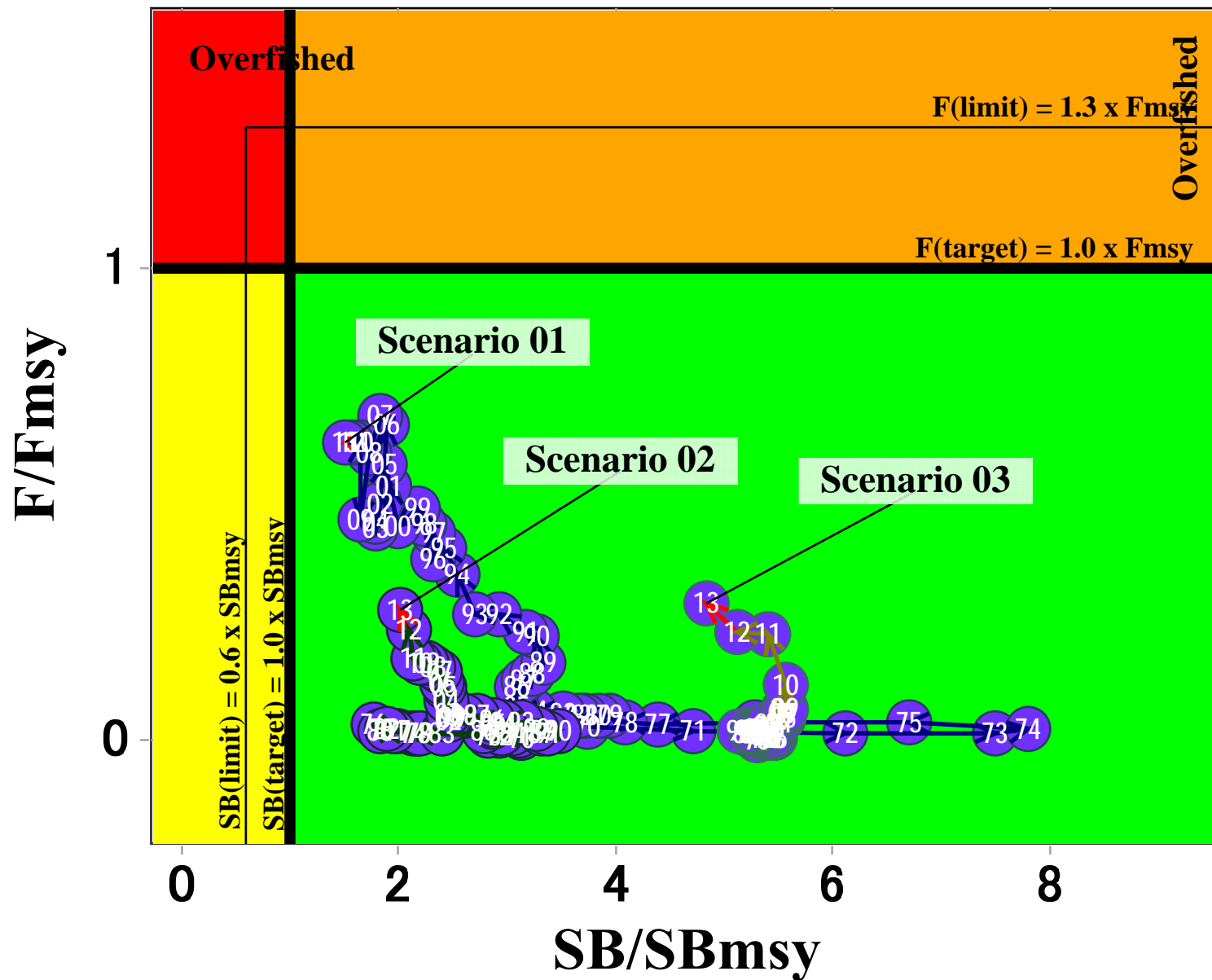
Single trajectory with a confidence surface

Multi trajectories (no confidence surface)

Multiple comparisons among  
different stock assessments results

Back

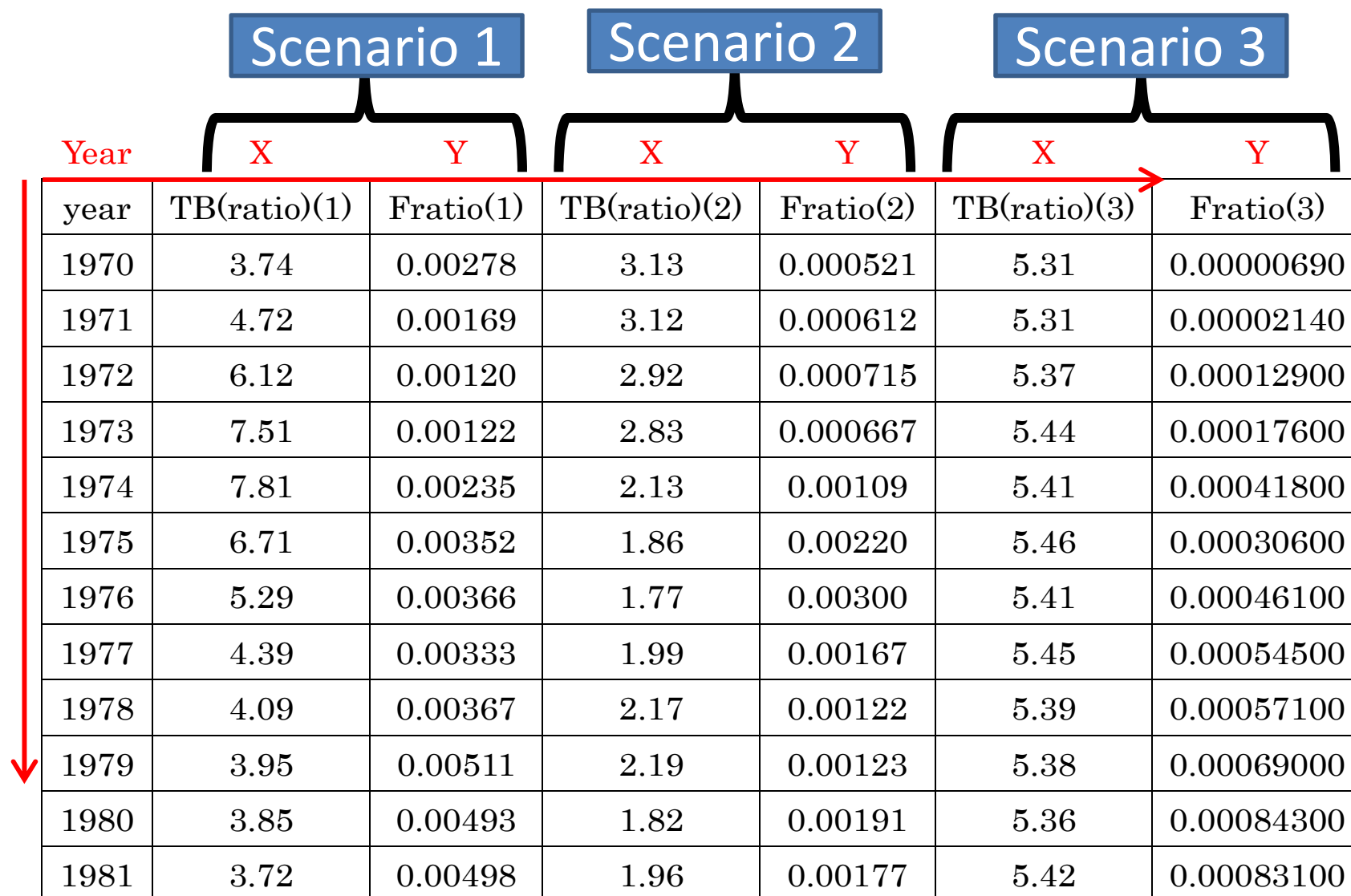
# Multiple Kobe plots (sample)





# Multiple plots

## How to create the input data? .CSV file



Year	X	Y	X	Y	X	Y
year	TB(ratio)(1)	Fratio(1)	TB(ratio)(2)	Fratio(2)	TB(ratio)(3)	Fratio(3)
1970	3.74	0.00278	3.13	0.000521	5.31	0.00000690
1971	4.72	0.00169	3.12	0.000612	5.31	0.00002140
1972	6.12	0.00120	2.92	0.000715	5.37	0.00012900
1973	7.51	0.00122	2.83	0.000667	5.44	0.00017600
1974	7.81	0.00235	2.13	0.00109	5.41	0.00041800
1975	6.71	0.00352	1.86	0.00220	5.46	0.00030600
1976	5.29	0.00366	1.77	0.00300	5.41	0.00046100
1977	4.39	0.00333	1.99	0.00167	5.45	0.00054500
1978	4.09	0.00367	2.17	0.00122	5.39	0.00057100
1979	3.95	0.00511	2.19	0.00123	5.38	0.00069000
1980	3.85	0.00493	1.82	0.00191	5.36	0.00084300
1981	3.72	0.00498	1.96	0.00177	5.42	0.00083100

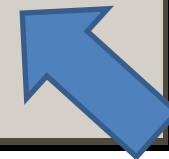


## Kobe plot I

Single trajectory with a confidence surface

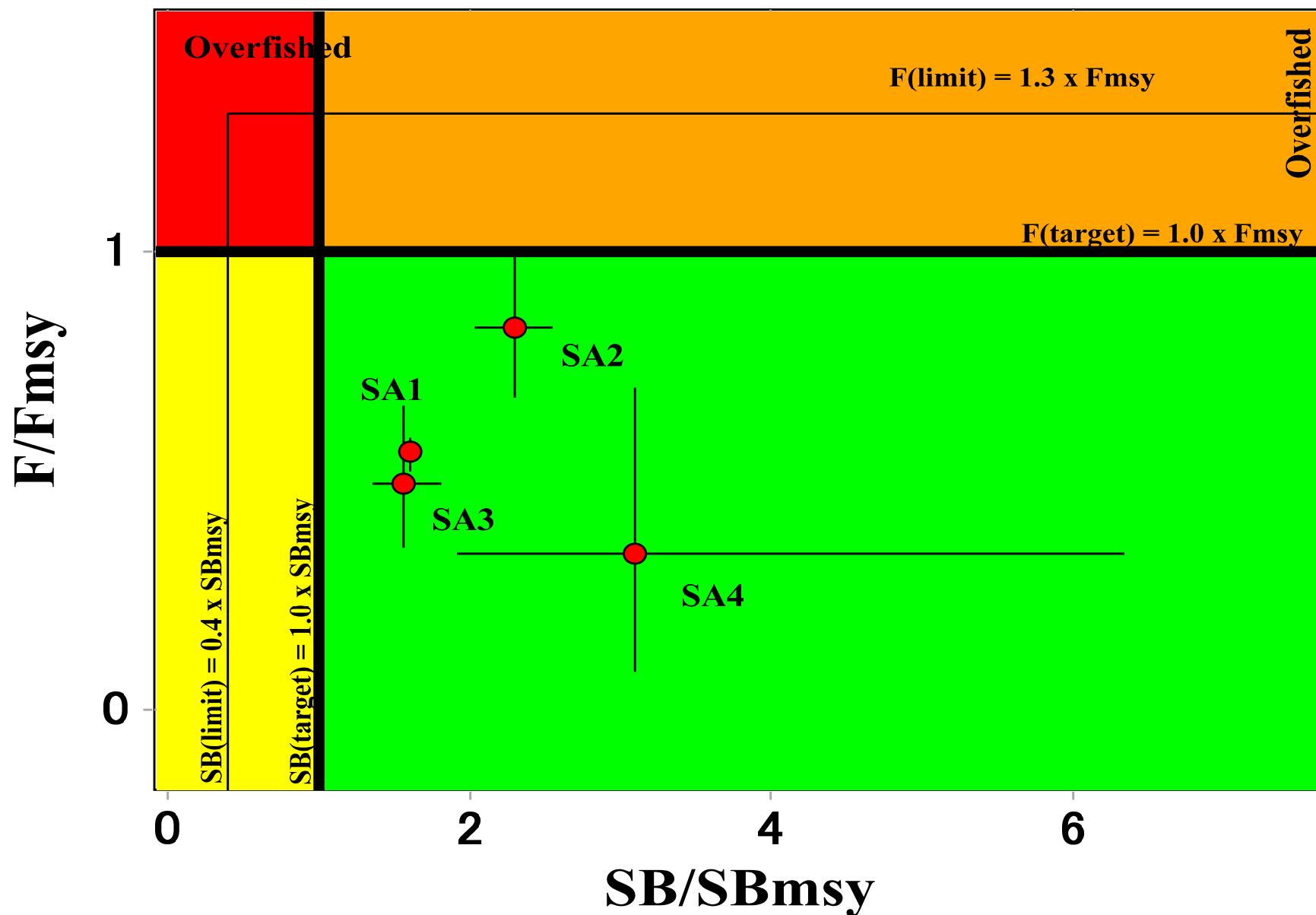
Multi trajectories (no confidence surface)

Multiple comparisons among  
different stock assessments results



Back

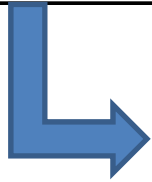
# Comparisons among 4 different stock assessments results



# Multiple comparisons

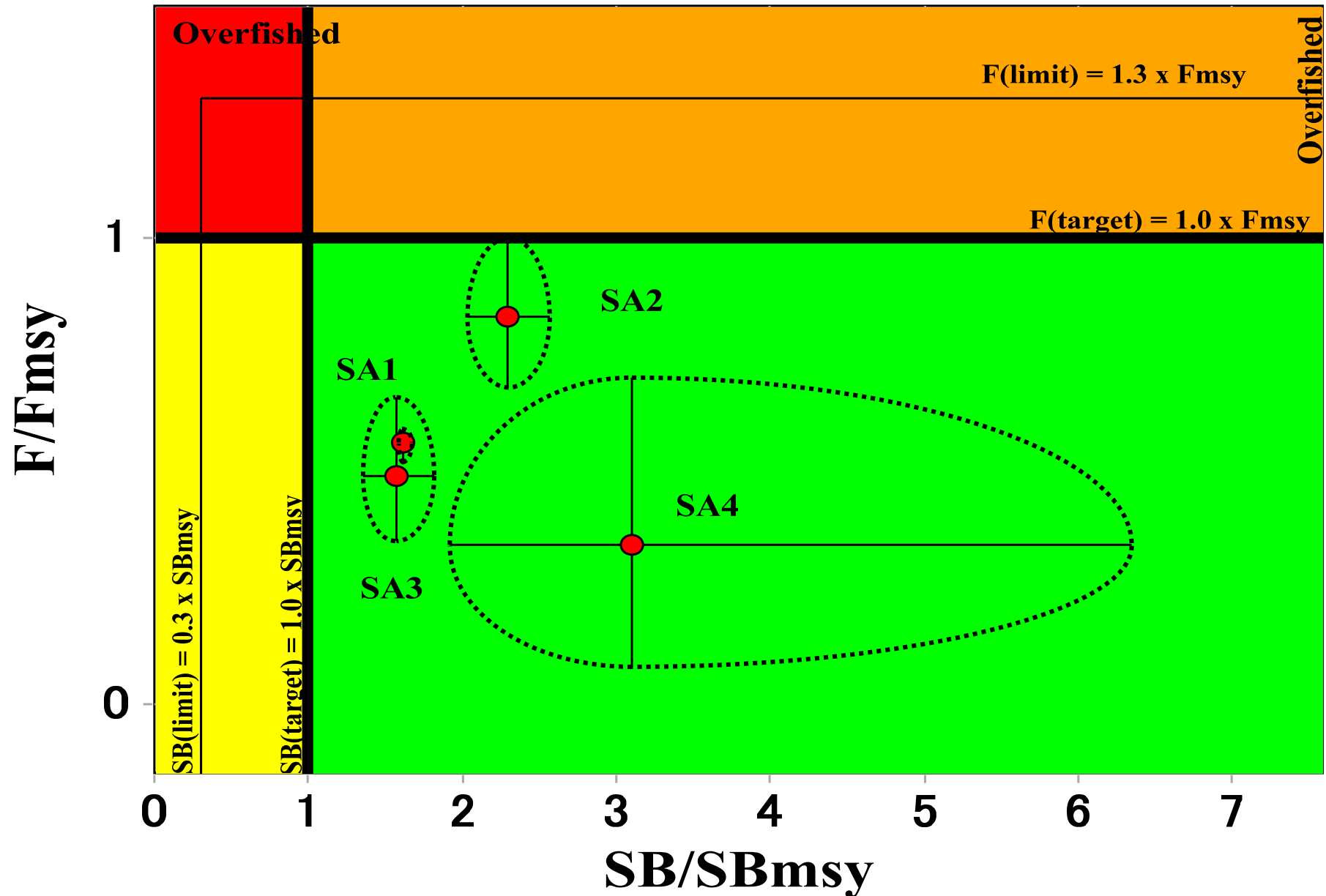
## Input data (.csv file)

stock assessments	SB/Sbmsy (point)	SB/Sbmsy (lower)	SB/Sbmsy (upper)	F/Fmsy (point)	F/Fmsy (lower)	F/Fmsy (upper)
SA1	1.61	1.58	1.68	0.56	0.52	0.59
SA2	2.30	2.04	2.56	0.83	0.68	1.00
SA3	1.57	1.36	1.82	0.49	0.35	0.66
SA4	3.10	1.92	6.35	0.34	0.08	0.70



You can apply for other categories such as  
Species, Scenarios, etc

# Comparisons among 4 SA results with confidence surface



# **Kobe Plot II**

## **(Risk assessment matrix diagram)**

# Probabilities violating MSY levels in the future (B and F) (Matrix form)

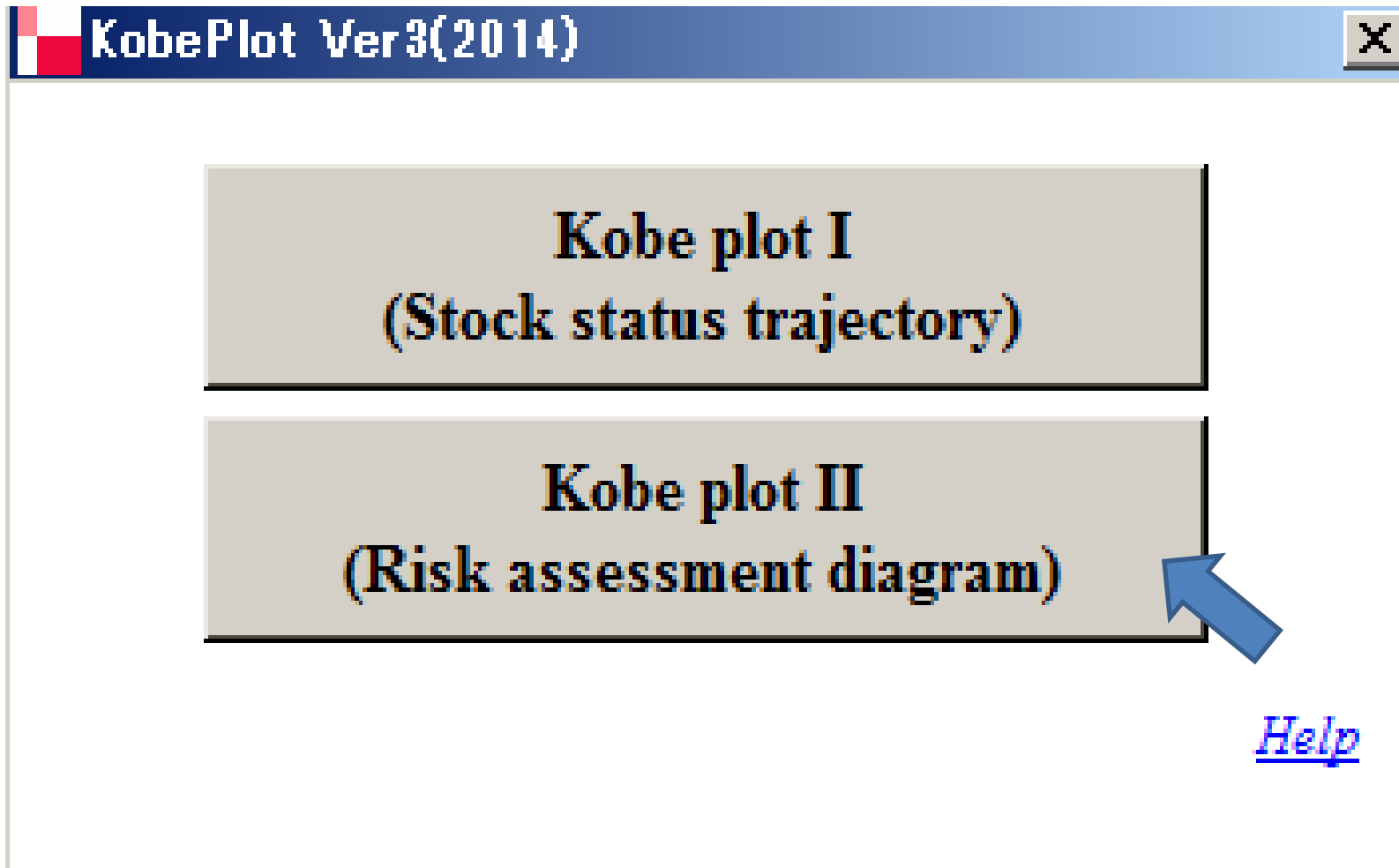
<-----catch level ----->

3 - 10  
Years  
later

Reference point and projection timeframe		Alternative catch projections (relative to the average catch level from 2011–13) and probability (%) of violating MSY-based target reference points ( $B_{\text{targ}} = B_{\text{MSY}}$ ; $F_{\text{targ}} = F_{\text{MSY}}$ )								
		60%	70%	80%	90%	100%	110%	120%	130%	140%
3 Years later	$B_{2016} < B_{\text{MSY}}$	9	13	19	28	40	53	65	82	86
	$F_{2016} > F_{\text{MSY}}$	3	6	30	56	81	91	98	99	100
	$B_{2023} < B_{\text{MSY}}$	0	0	1	3	14	41	87	100	100
	$F_{2023} > F_{\text{MSY}}$	0	0	5	67	92	98	99	100	100

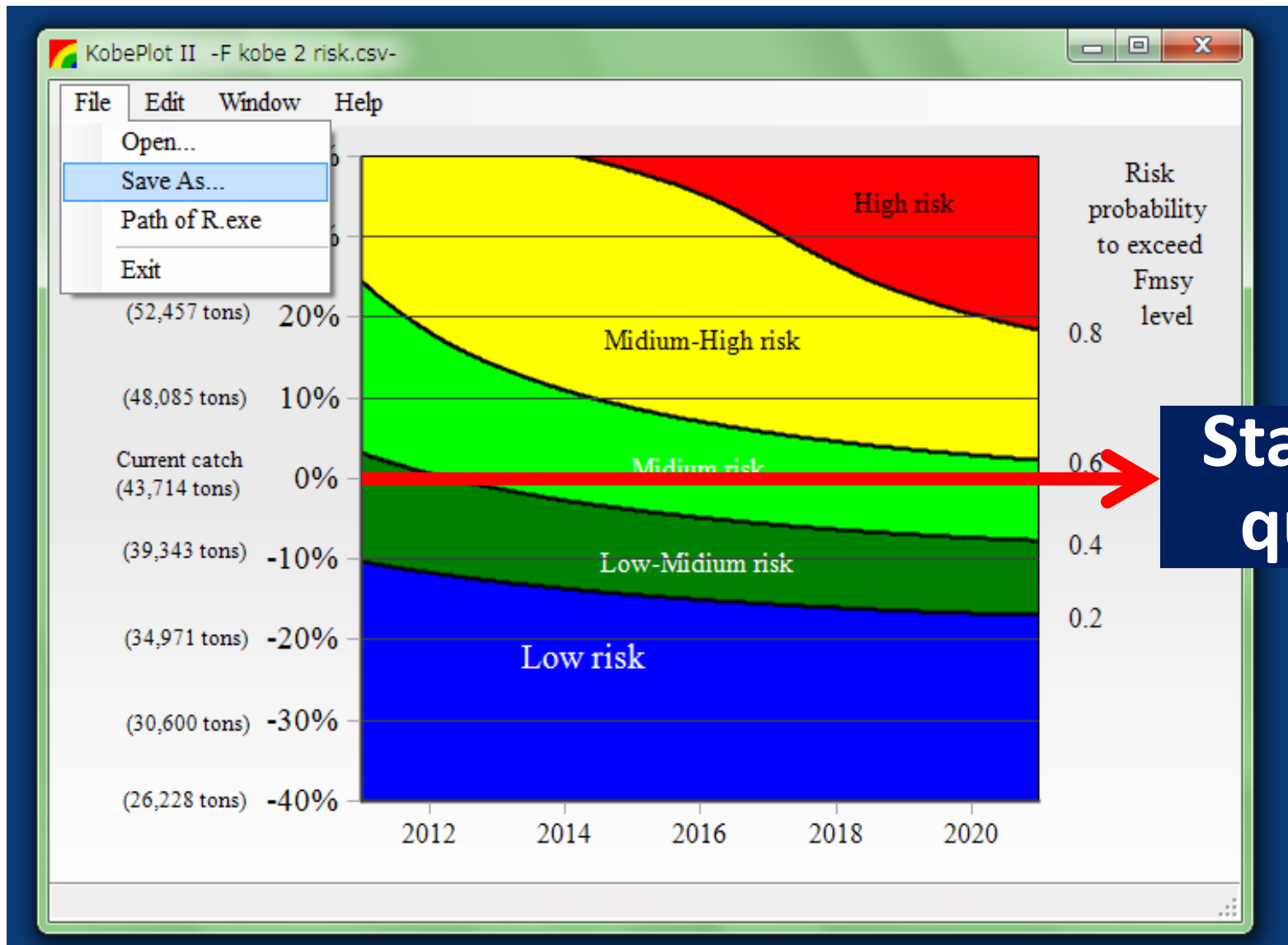
Status  
quo

# Change matrix form to diagram





# Kobe II risk assessment diagram (F)



# Summary

Kobe I +II software

**Quick and effective way to make plots**

especially

for programming illiteracy such as...



Available  
from November 19, 2014

<http://ocean-info.ddo.jp/kobeaspm/kobeplot/KobePlot.zip>

**Free of Charge**

Terima kasih  
and  
Thank you