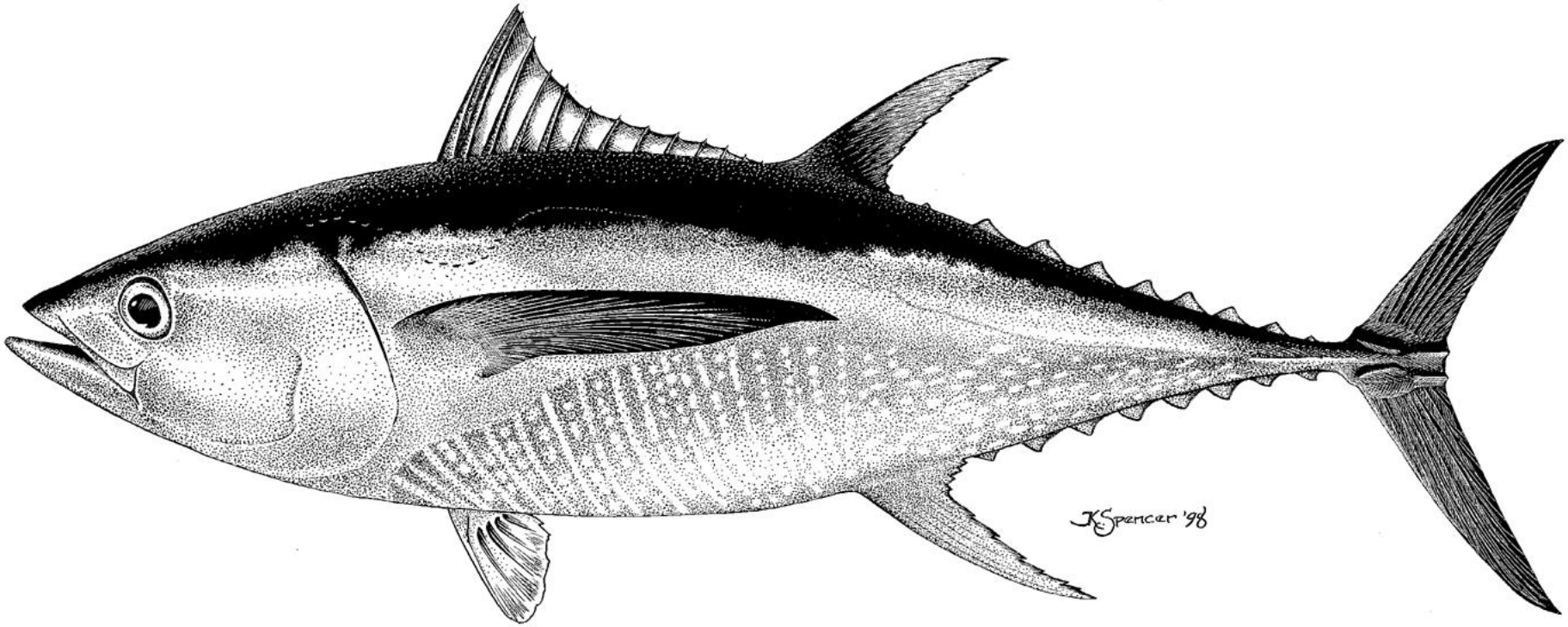
Yellowfin Tuna Assessment Update 1975-2009



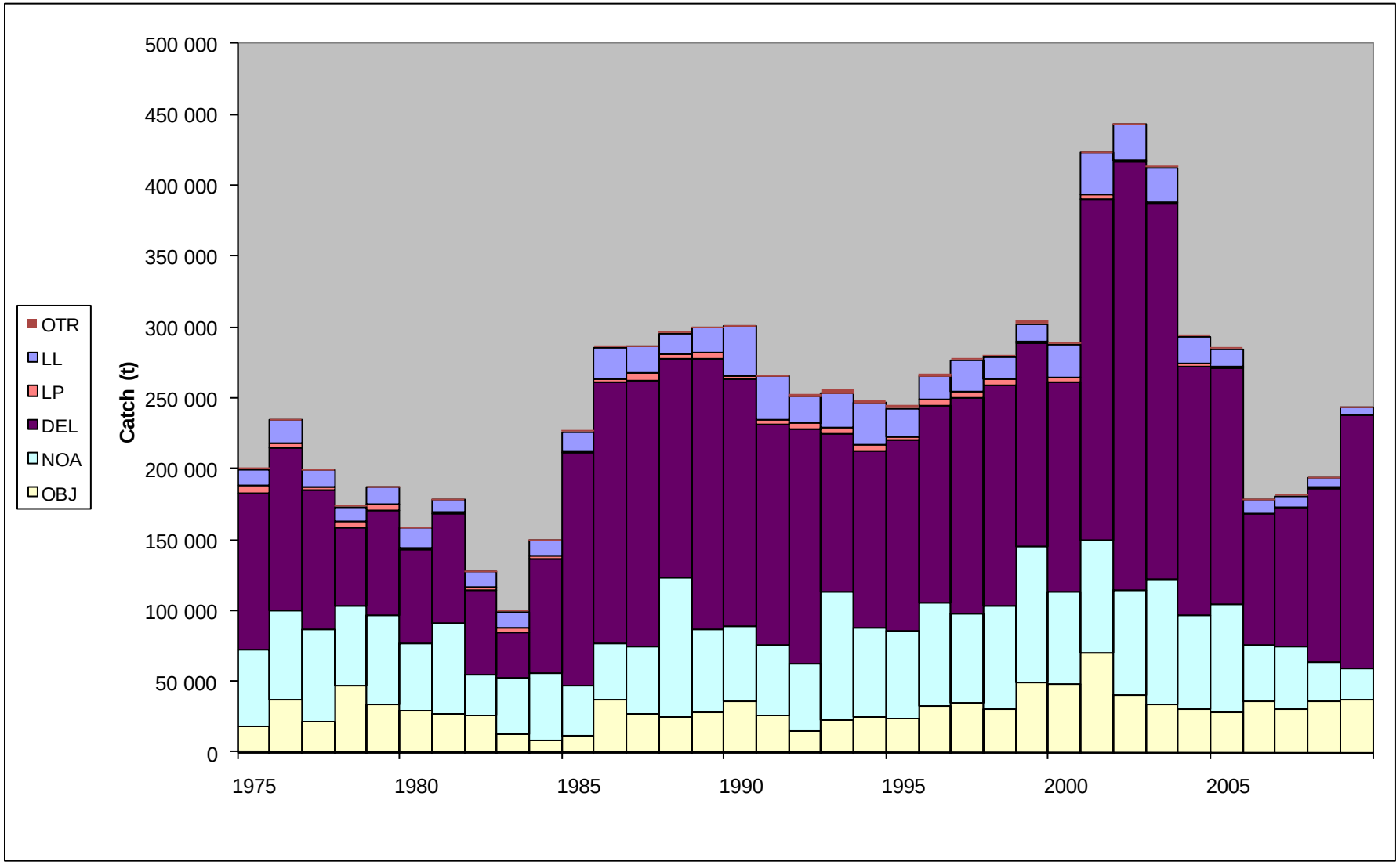
Methodology

- Stock Synthesis
- Similar to BET assessment
- Only update data
- Also conduct stock-recruitment sensitivity

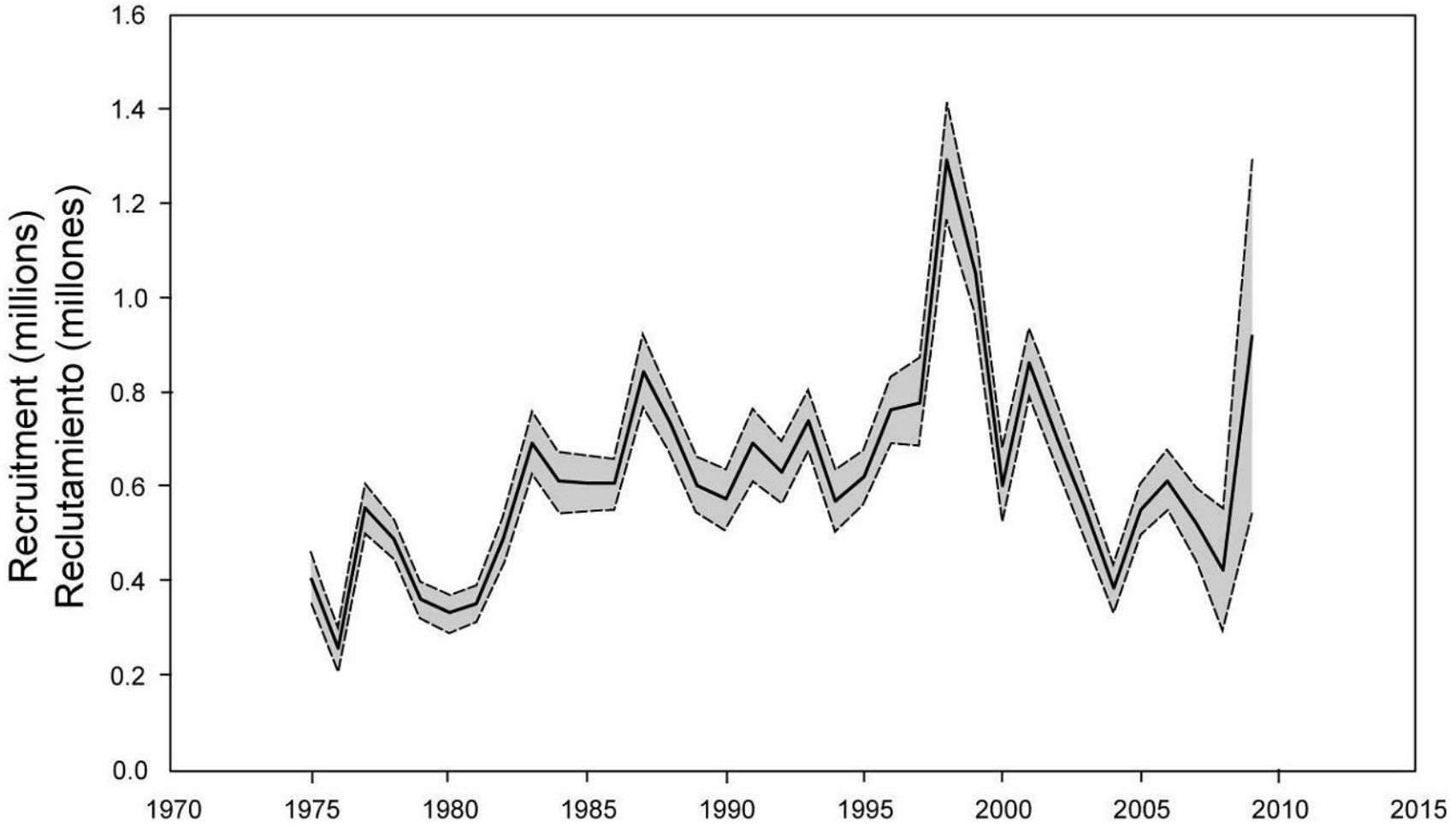
Major Changes

- Catch, effort, and length composition data for the surface fisheries have been updated to include new data for 2009 and revised data for earlier years.
- New or updated longline catch data are available for China (2008), Chinese Taipei (2006-2009), French Polynesia (2008), Korea (2007-2008) and the United States (2007-2008).
- No new longline CPUE or length composition data

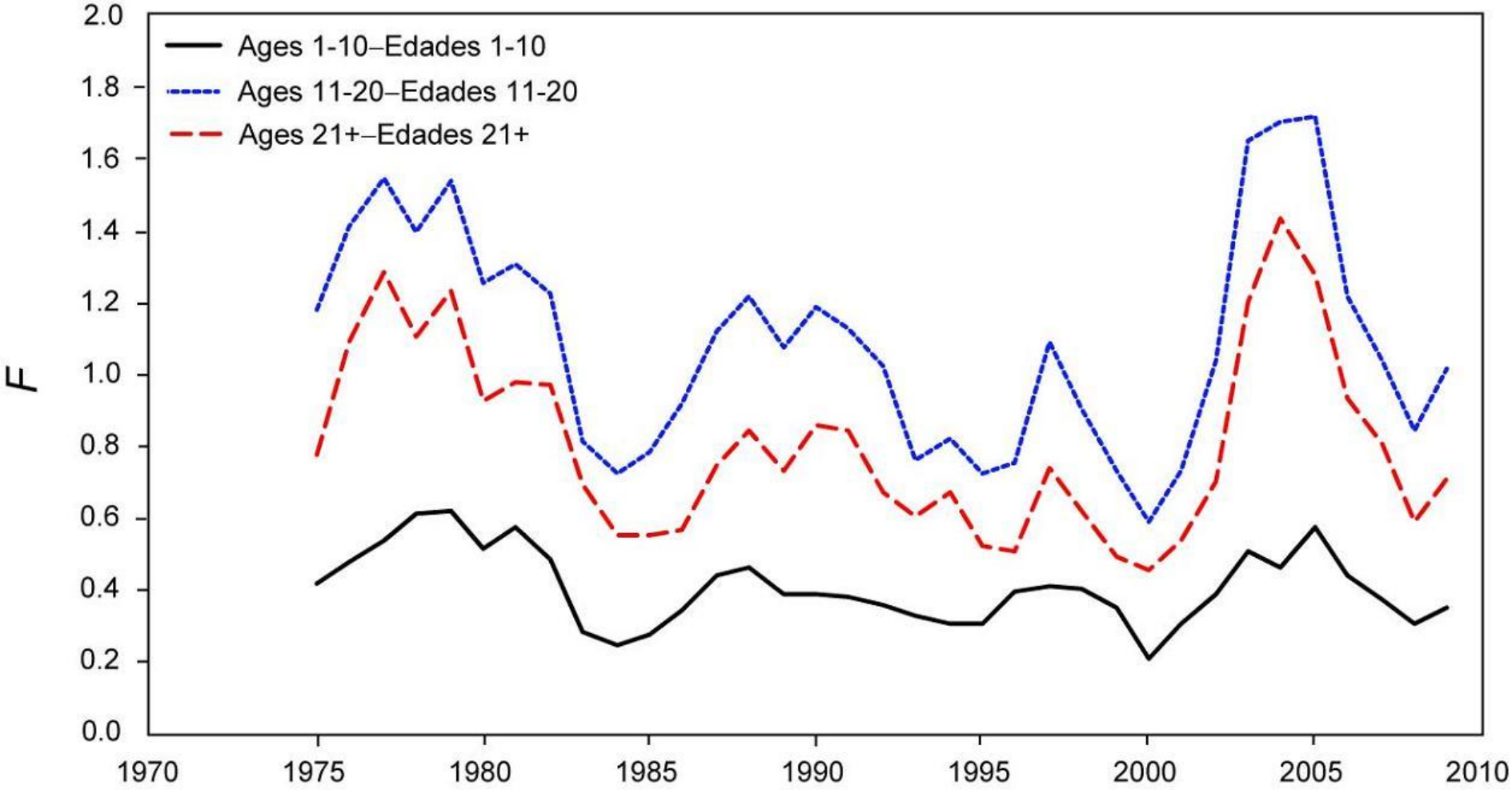
Catch


OTR
LL
LP
DEL
NOA
OBJ
Catch (t)
500 000
450 000
400 000
350 000
300 000
250 000
200 000
150 000
100 000
50 000
0
1975
1980
1985
1990
1995
2000
2005

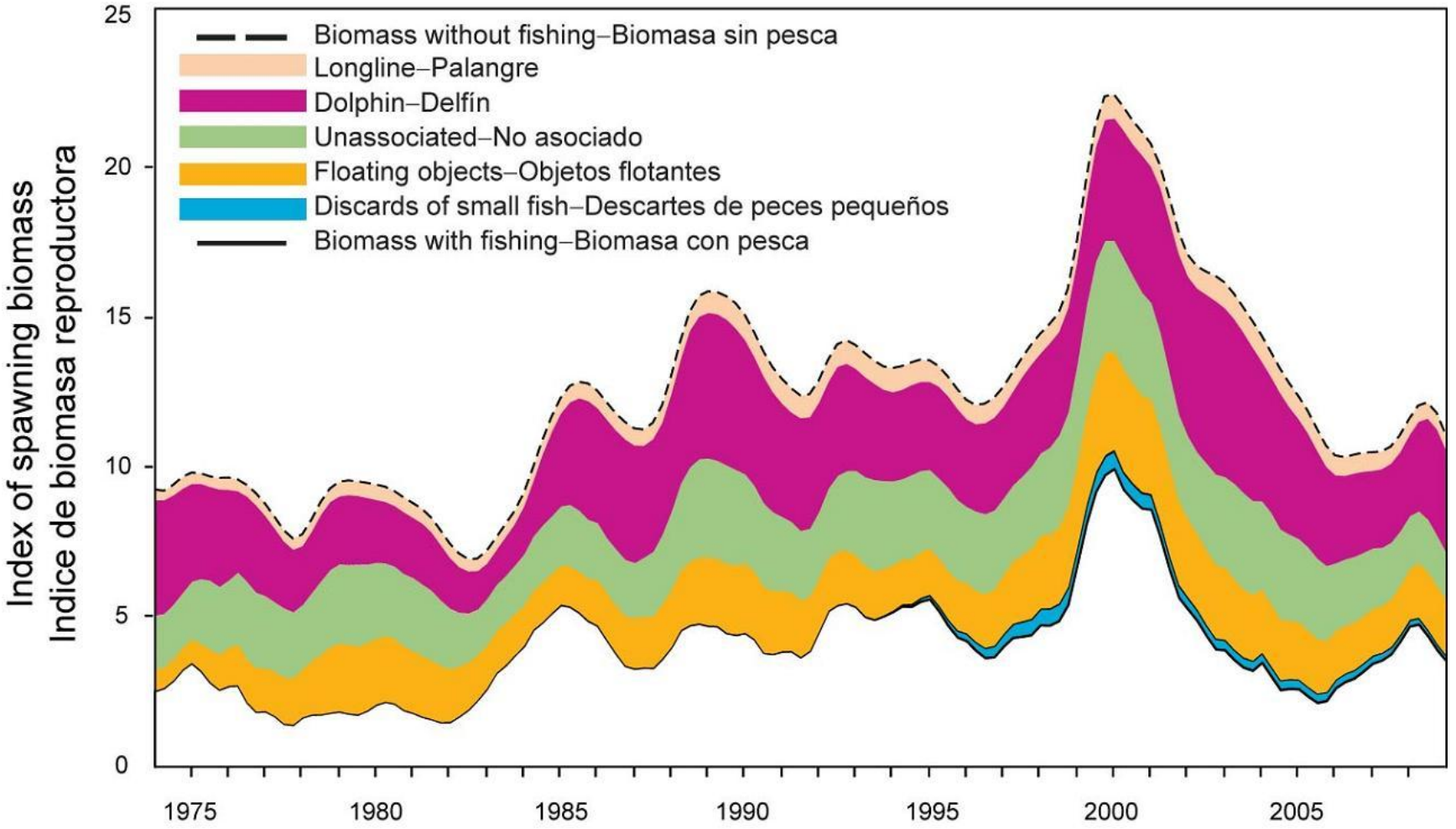
Recruitment



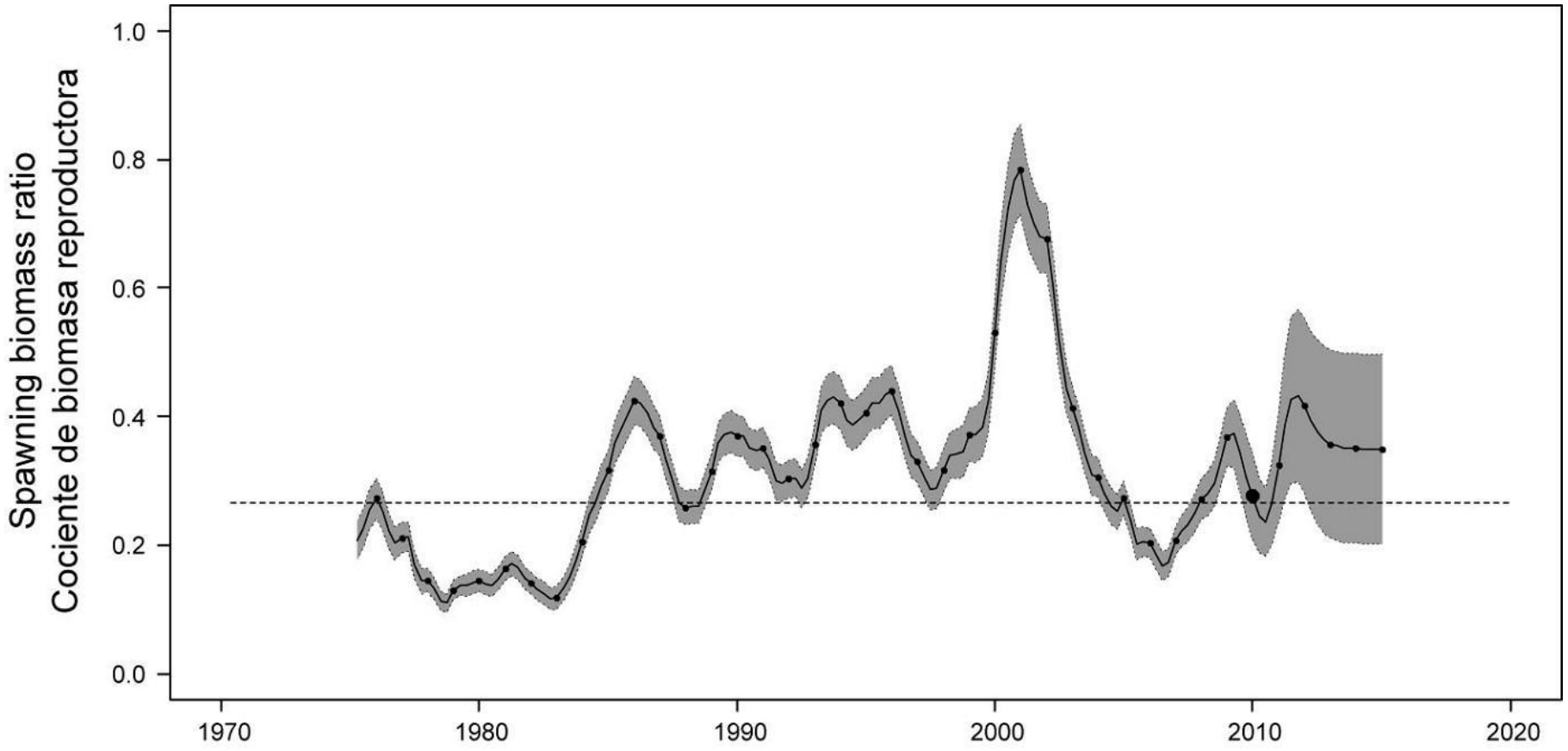
Fishing mortality



Fishery impact



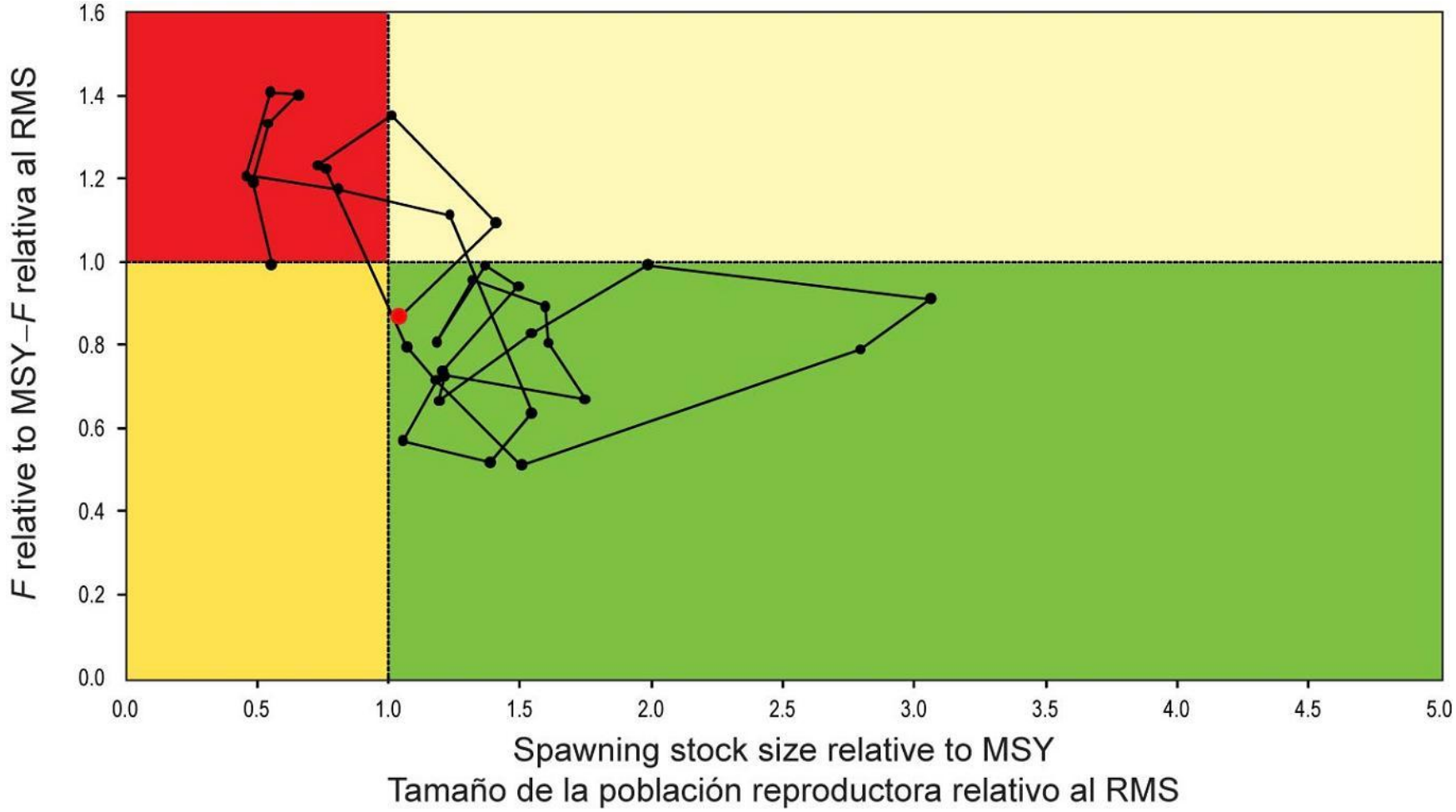
Spawning biomass ratio



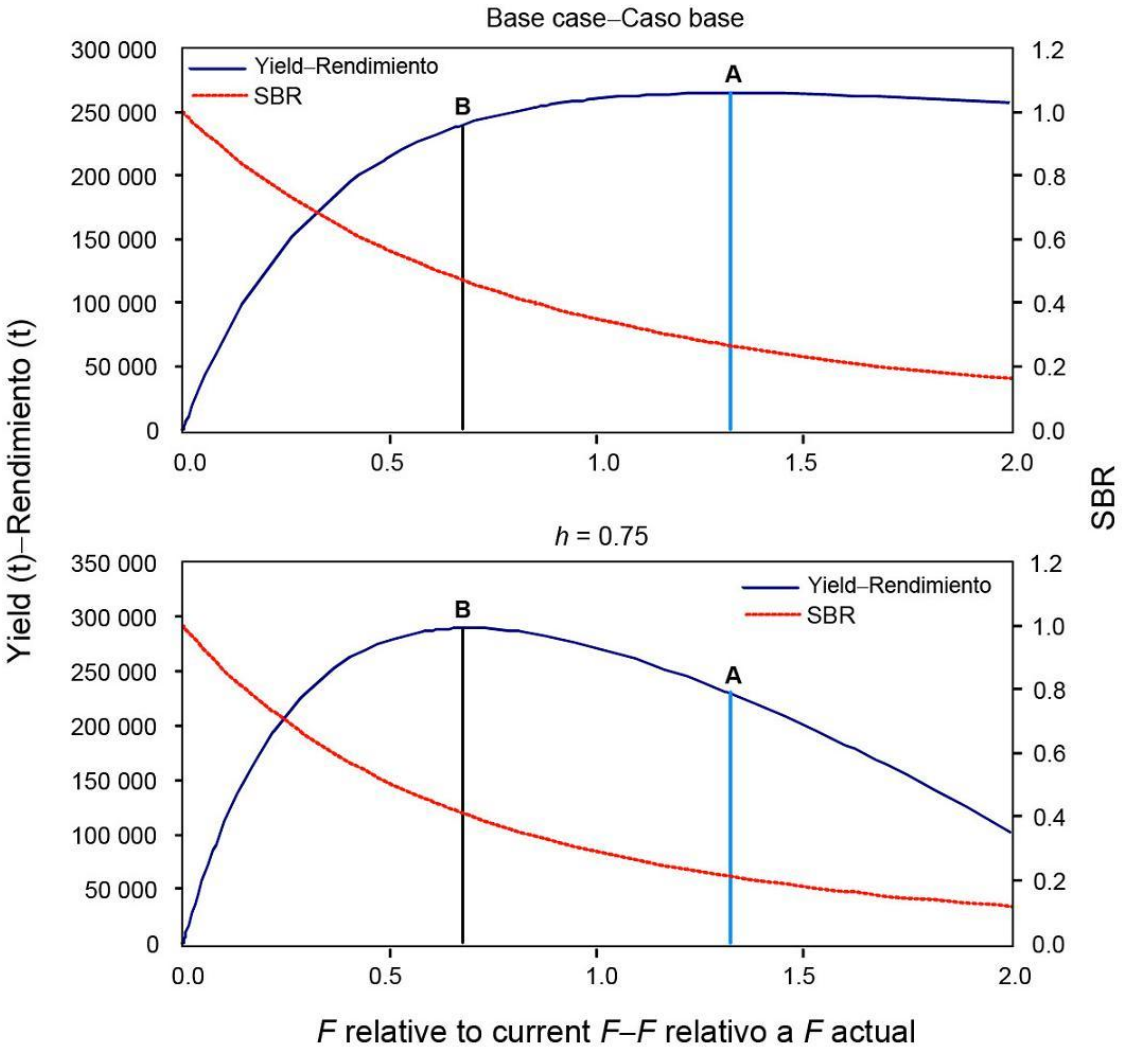
Management quantities

	Base case – Caso base	***h* = 0.75**
MSY–RMS	264,967	289,896
B_{MSY} –B_{RMS}	357,780	555,182
S_{MSY} —S_{RMS}	3,367	5,974
C_{recent}/MSY—$C_{reciente}$/RMS	0.94	0.86
B_{recent}/B_{MSY} –$B_{reciente}/B_{RMS}$	1.10	0.71
S_{recent}/S_{MSY} –$S_{reciente}/S_{RMS}$	1.05	0.59
$S_{MSY}/S_{F=0}$ –$S_{RMS}/S_{F=0}$	0.27	0.35
F multiplier—Multiplicador de *F*	1.33	0.69

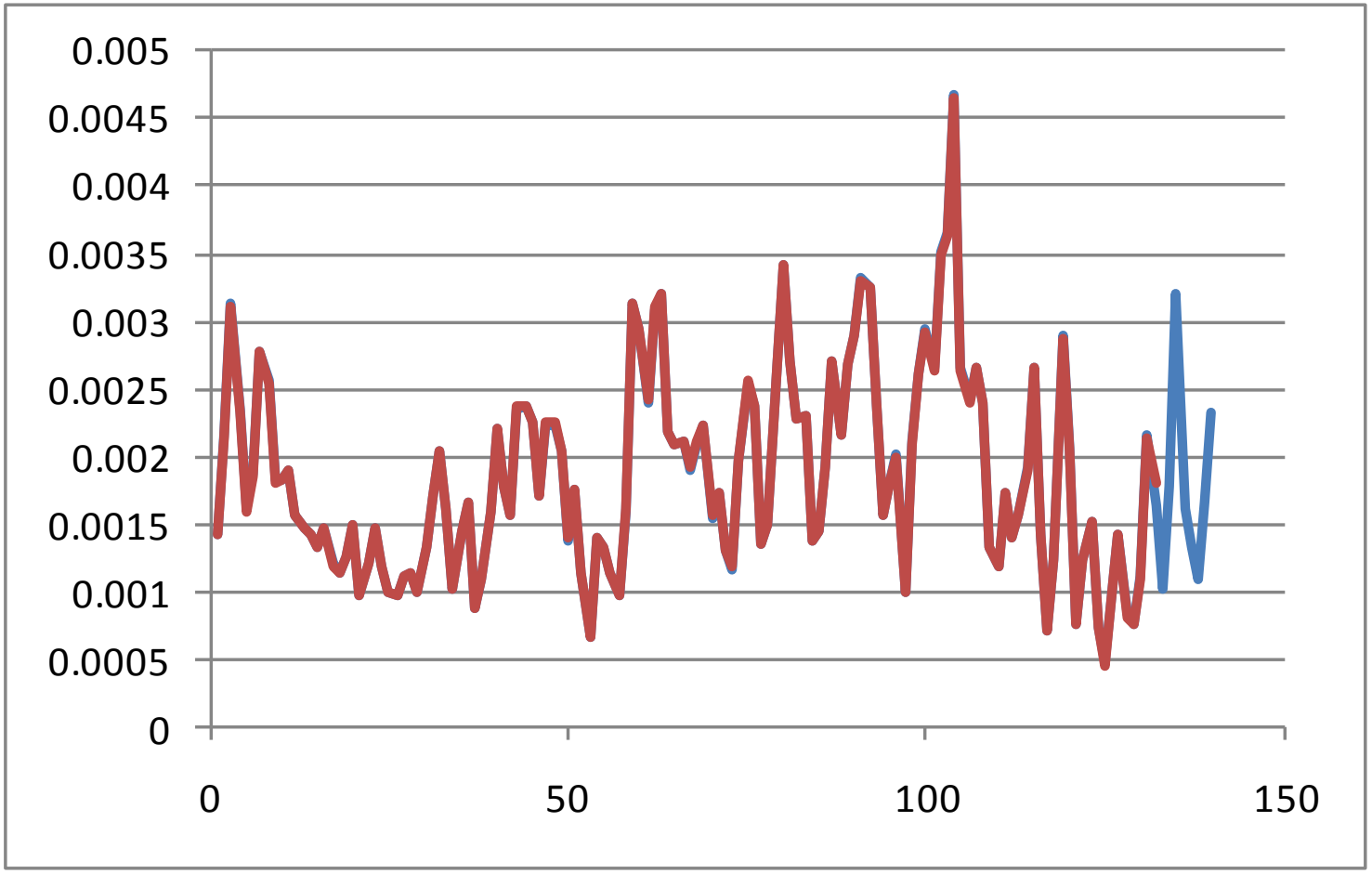
Management phase plot



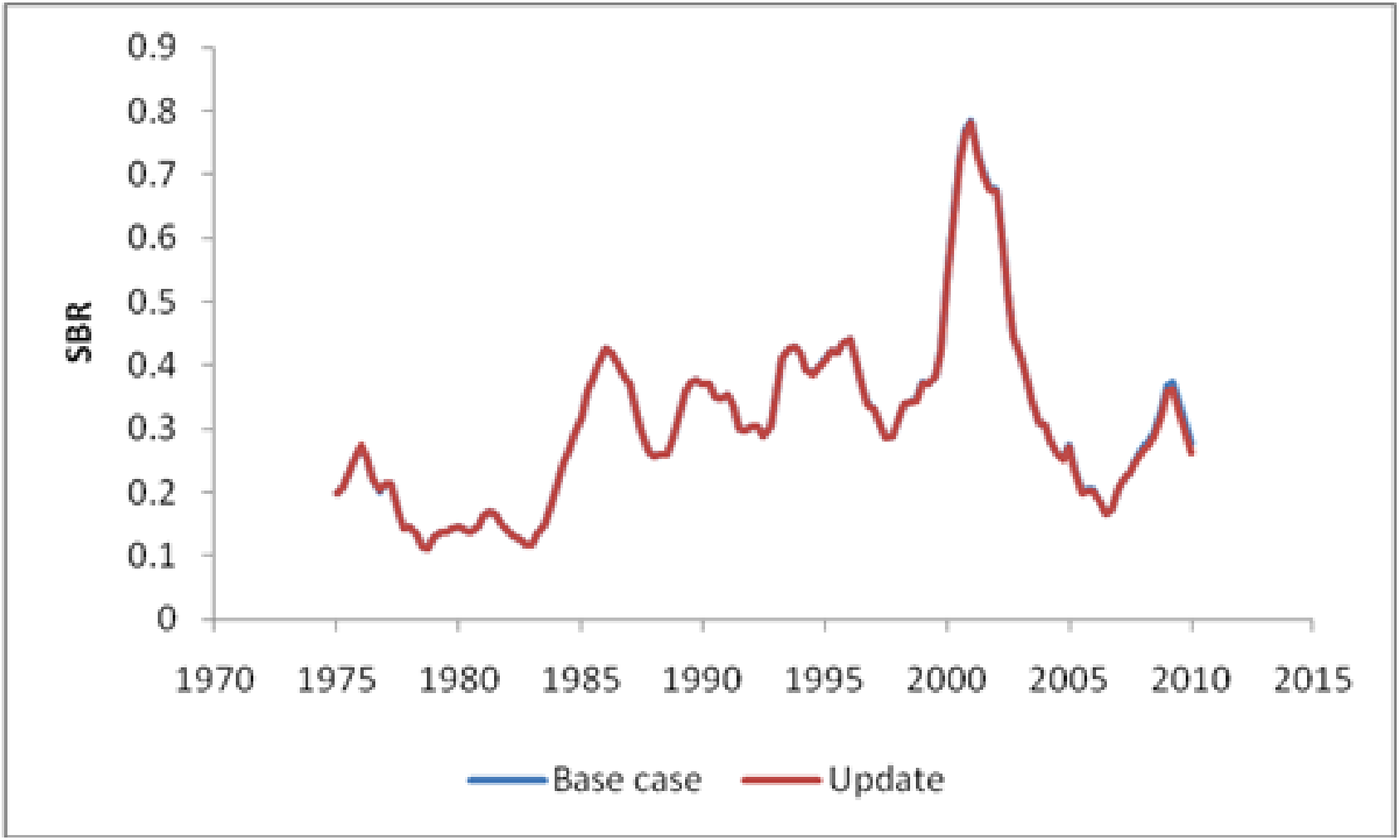
Yield curves



Updated Japanese CPUE data



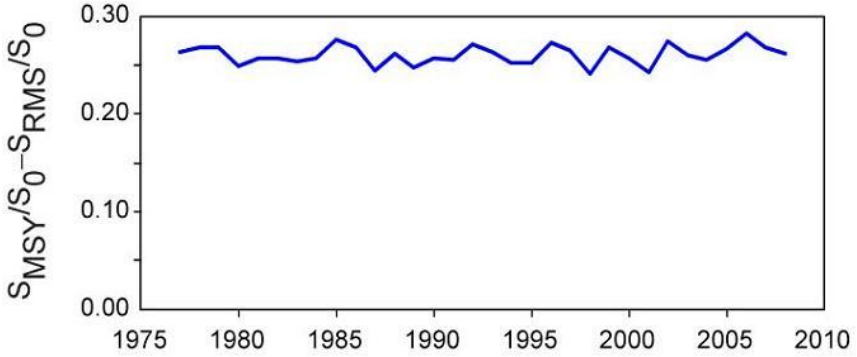
SBR comparison

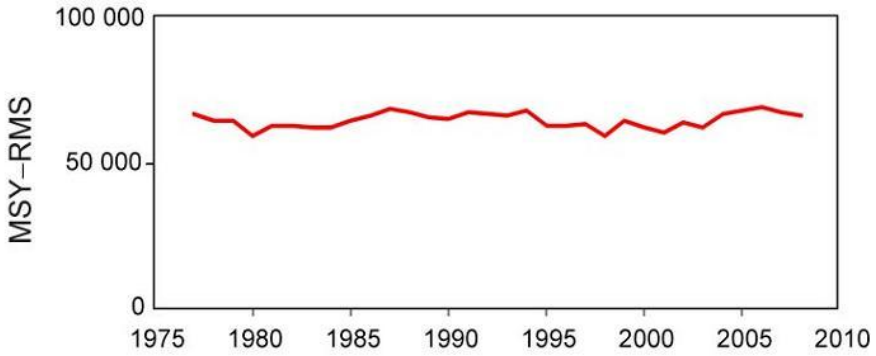


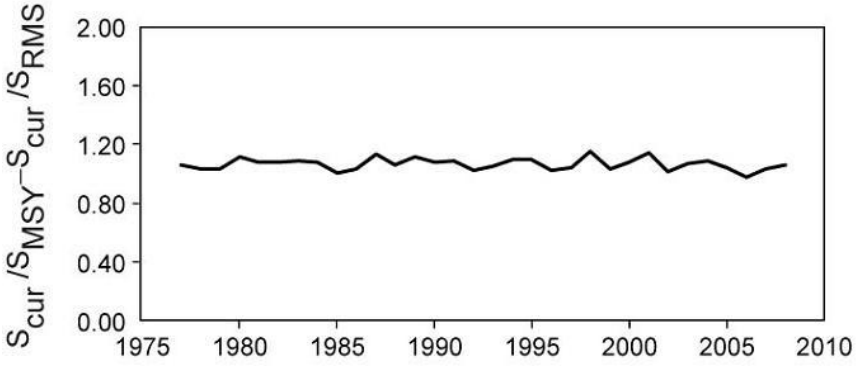
Conclusions

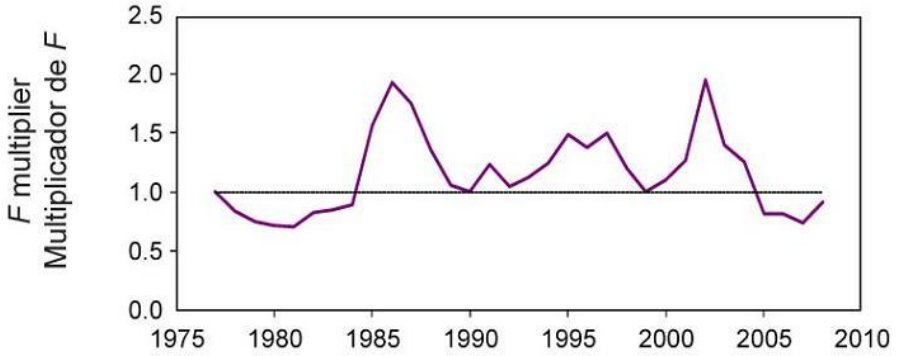
1. There is uncertainty about recent and future recruitment and biomass levels.
2. The recent fishing mortality rates are lower than those corresponding to the MSY.
3. Increasing the average weight of the yellowfin caught could increase the MSY.
4. There have been two, and possibly three, different productivity regimes, and the levels of MSY and the biomasses corresponding to the MSY may differ among the regimes. The population may have recently switched from the high to an intermediate productivity regime.
5. The results are more pessimistic if a stock-recruitment relationship is assumed.

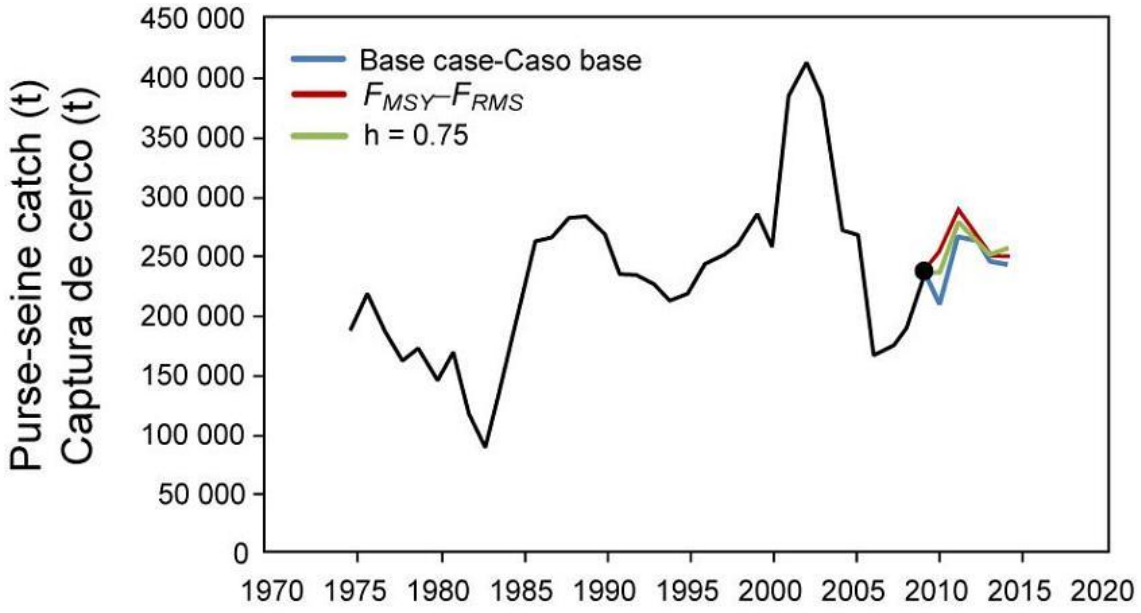
The END

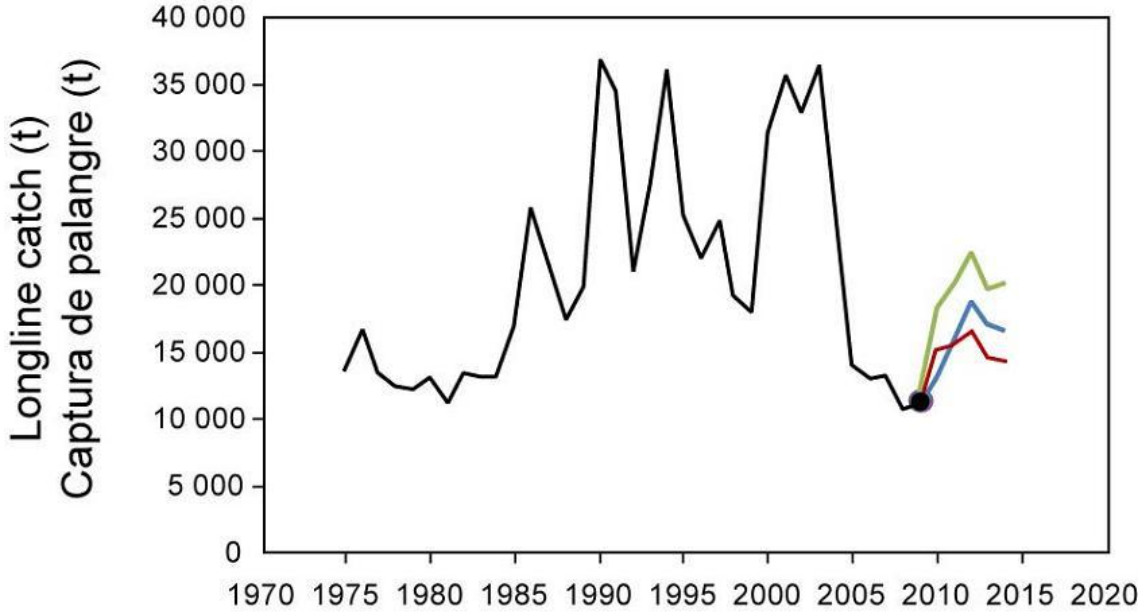

$S_{MSY}/S_0-S_{RMS}/S_0$
0.30
0.20
0.10
0.00
1975
1980
1985
1990
1995
2000
2005
2010


MSY–RMS
100 000
50 000
0
1975
1980
1985
1990
1995
2000
2005
2010


$S_{cur}/S_{MSY}-S_{cur}/S_{RMS}$
2.00
1.60
1.20
0.80
0.40
0.00
1975
1980
1985
1990
1995
2000
2005
2010


F multiplier
Multiplicador de *F*
2.5
2.0
1.5
1.0
0.5
0.0
1975
1980
1985
1990
1995
2000
2005
2010


Purse-seine catch (t)
Captura de cerco (t)
Base case-Caso base
F_{MSY}–F_{RMS}
h = 0.75
450 000
400 000
350 000
300 000
250 000
200 000
150 000
100 000
50 000
0
1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020


Longline catch (t)
Captura de palangre (t)
40 000
35 000
30 000
25 000
20 000
15 000
10 000
5 000
0
1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020