Dear Ana,

Thank you sincerely for submitting assessments to the Myers II database. We have entered 7 of your assessments, and now wish to quality assure/quality control (QA/QC) these data for a release version of the database. Please follow the steps below to ensure that your assessments have been dutifully represented:

QA/QC steps

For each assessment:

1. Ensure that the General assessment details are correct.
2. Ensure that the units for all Biometrics and Time Series shown are correct. To aid in this, we have included the minimum, maximum, first year, and last year of the spawning stock biomass, recruitment, fishing mortality, total biomass, and catch (where provided).
3. If there are blank values in the Biometrics table, please include these in your response (see below), where they are available. Please note that in the Biometrics table, the following abbreviations are used:
    - SSB-AGE-yr = Ages for which the spawning stock biomass is defined
    - REC-AGE = Age at recruitment
    - F-AGE-yr = Ages for which the fishing mortality is defined
    - TB-AGE-yr = Ages for which the total biomass is defined
    - M = Natural mortality
    - A50-yr = The age at 50% maturity
    - L50-cm = The length at 50% maturity
    - MORATOR-yr-yr = Moratorium years
    - LME = Large Marine Ecosystem
4. To ensure that the recruitment time series has been offset by the age at recruitment so that yearclass matches up with spawner biomass, please make sure that the difference between the last year of the recruitment and last year of the SSB time series is equal to the age at recruitment supplied (unless there is another reason, e.g. estimates unavailable).
5. Provide Large Marine Ecosystem (LME) designation(s) for your stock (unless it is a high seas stock). Please enter a primary, secondary and tertiary LME (if they exist) in the issue you submit (see below). A map of the LMEs is provided on the last page of this document.

QA/QC submission process

If you (or someone else) submitted the assessments via the RAM legacy site, please log into : http://www.marinebiodiversity.ca/RAMlegacy/ramlegacy-bug-reporting
and locate the issue(s) associated with your spreadsheet submission(s). Once you locate your assessment, open the associated issue and choose “Add response”. At the top of this response write:
QAQC: Assessment ID (this ID is located at the top of each assessment in the current document)

If you did not submit via the RAM Legacy site, please go to the url above and click “Submit a new issue” with the title: *QAQC: Assessment ID* (located at the top of each assessment in this pdf).

If you found no issues with the QA/QC document, please type:
“QA/QC correct”. If you have found issues, please update the assessment spreadsheet accordingly or write the details of corrections to be made in the dialogue box. Once we have received and processed your response, the assessment will be flagged as quality controlled and the data it contains will be used for analyses.

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Assessment of Northern Argentina argentine anchoita (*Engraulis anchoita*)

Assessment ID:INIDEP-ARGANCHONARG-1989-2007-Parma
Issue URL: http://www.marinebiodiversity.ca/RAMlegacy/ramlegacy-bug-reporting/122

Area ID: Argentina-CFP-ARG-N

General assessment details.

Detail	Value
Management body	CFP
Assessment group	Instituto Nacional de Investigacion y Desarrollo Pesquero
Assessment authors	Hansen, Jorge
Assessment method	A general approach to fitting VPA models. ADAPT is based on minimising the sum-of-squares over any number of indices of abundance to find best-fit parameters.
Publication year	2008
Timeseries span	1989-2007
Document	Hansen-ANCHOVY-N-2007.pdf (pdf in database)
Recorder	Parma
Date entered	2008-12-20
Date last loaded	2009-04-24
QA/QC complete	YES
Date approved	2009-04-23

Biometrics provided. Note that the assumed timeseries to which the reference point pertains is indicated in parentheses.

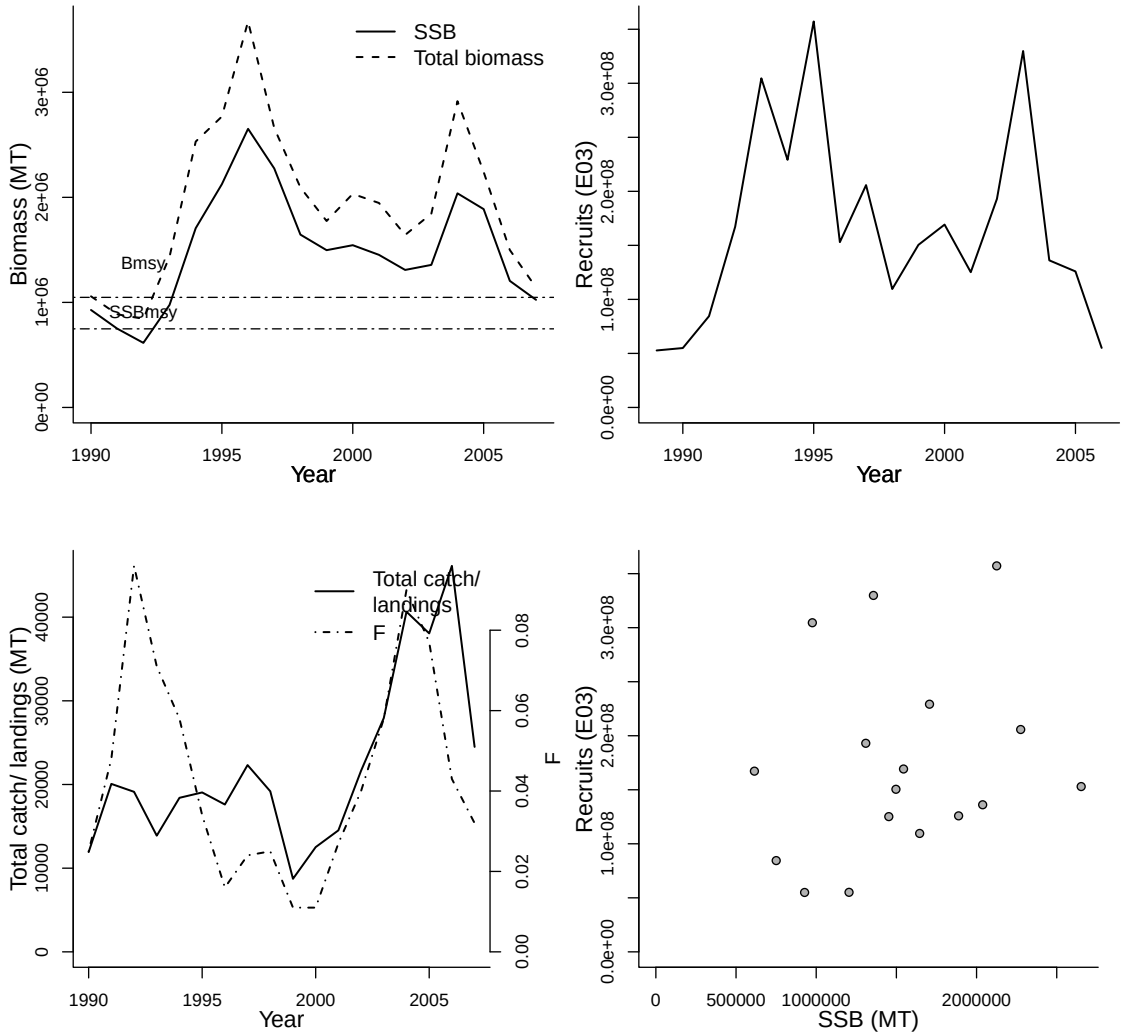
primary LME	secondary LME	tertiary LME
14 - Patagonian Shelf	na	na

Parameter	Value	Units
SSB-AGE-yr	1.2	yr
REC-AGE-yr	1	yr
F-AGE-yr-yr	1-6	yr-yr
TB-AGE-yr	1+	yr
A50-yr	1	yr
L50-cm	10	cm
M-1/yr	1.02	1/yr
NATMORT-1/yr M	1.02	1/yr

Reference points

Parameter	Value	Units
Fmsy-1/yr (F)	0.1898	1/yr
Fpa-1/yr (F)	0.18	1/yr
Fcurrent-1/T (F)	0.04	1/T
NATMORT-1/yr (M)	1.02	1/yr
F40%-1/T	0.4722	1/T
SSBmsy-MT (SSB)	748152	MT
MSY-MT (TB)	424027.80	MT
BH-h-dimless	0.90	dimless
Bmsy-MT (TB)	1047948.41	MT
TB_{2007}/B_{msy}	1.526	
F_{2007}/F_{msy}	0.169	
SSB_{2007}/SSB_{msy}	1.370	

Time series minima and maxima					
	SSB	R	F	TB	Catch
Minimum year	1990	1989	1990	1990	1990
Maximum year	2007	2006	2007	2007	2007
Time series minimum	614617.83	52734570	0.011	843773.89	8727.7
Time series maximum	2652436.6	357208920	0.096	3674349.79	46128.48
Units	MT	E03	1/yr	MT	MT



Assessment of Southern Argentina argentine anchoita (*Engraulis anchoita*)

Assessment ID:INIDEP-ARGANCHOSARG-1992-2007-Parma
Issue URL: http://www.marinebiodiversity.ca/RAMlegacy/ramlegacy-bug-reporting/121

Area ID: Argentina-CFP-ARG-S

General assessment details.

Detail	Value
Management body	CFP
Assessment group	Instituto Nacional de Investigacion y Desarrollo Pesquero
Assessment authors	Hansen, Jorge
Assessment method	Age-structured surplus production model
Publication year	2008
Timeseries span	1992-2007
Document	Hansen-ANCHOVY-S-2007.pdf (pdf in database)
Recorder	Parma
Date entered	2008-12-20
Date last loaded	2009-04-24
QA/QC complete	YES
Date approved	2009-04-23

Biometrics provided. Note that the assumed timeseries to which the reference point pertains is indicated in parentheses.

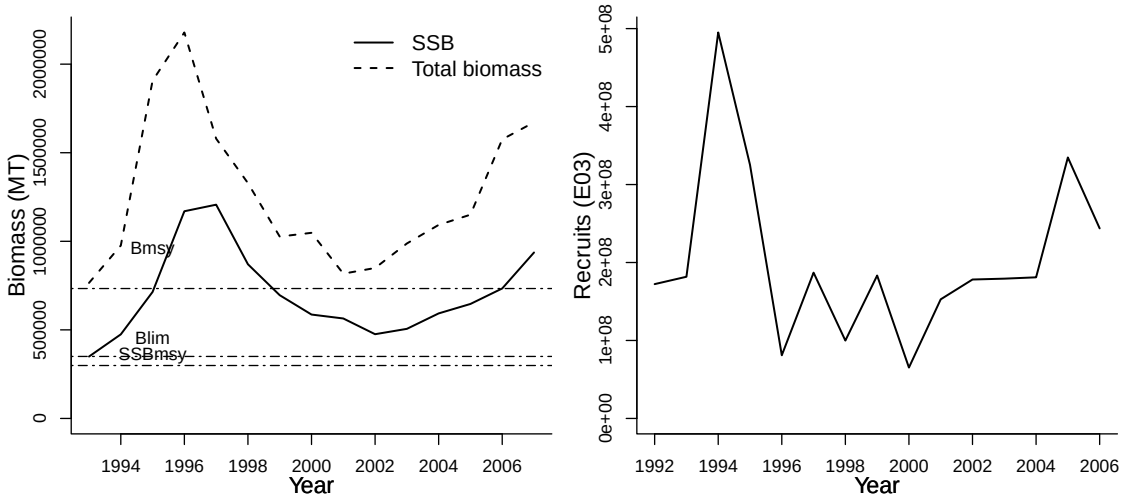
primary LME	secondary LME	tertiary LME
14 - Patagonian Shelf	na	na

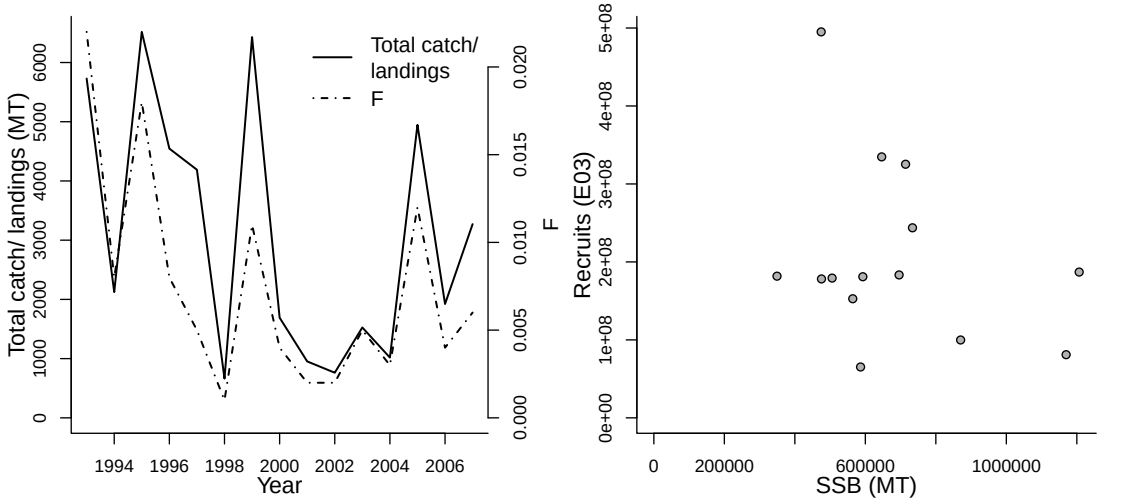
Parameter	Value	Units
SSB-AGE-yr	1.7	yr
REC-AGE-yr	1	yr
F-AGE-yr-yr	1-6	yr-yr
TB-AGE-yr	1+	yr
A50-yr	1	yr
L50-cm	13.2	cm
M-1/yr	1.05	1/yr
NATMORT-1/yr M	1.05	1/yr

Reference points

Parameter	Value	Units
Fmax-1/yr (F)	1.89330	1/yr
Fmsy-1/yr (F)	0.1700	1/yr
Fpa-1/yr (F)	0.17	1/yr
Fcurrent-1/T (F)	0.006	1/T
NATMORT-1/yr (M)	1.05	1/yr
F40%-1/T	0.2052	1/T
SSBmsy-MT (SSB)	298839	MT
MSY-MT (TB)	289825.38	MT
BH-h-dimless	0.73	dimless
Blim-MT (SSB)	350000	MT
Bmsy-MT (TB)	733418.85	MT
Bpa-MT (SSB)	1260000	MT
SSB_{2007}/B_{lim}	2.677	
TB_{2007}/B_{msy}	5.594	
F_{2007}/F_{msy}	0.035	
SSB_{2007}/SSB_{msy}	3.135	

Time series minima and maxima					
	SSB	R	F	TB	Catch
Minimum year	1993	1992	1993	1993	1993
Maximum year	2007	2006	2007	2007	2007
Time series minimum	349381.69	65263840	0.001	765224.53	662.86
Time series maximum	1206672.22	495050030	0.022	2178898.56	6517.37
Units	MT	E03	1/yr	MT	MT





Assessment of Northern Argentina argentine hake (*Merluccius hubbsi*)

Assessment ID:INIDEP-ARGHAKENARG-1985-2007-Parma
Issue URL: http://www.marinebiodiversity.ca/RAMlegacy/ramlegacy-bug-reporting/104

Area ID: Argentina-CFP-ARG-N

General assessment details.

Detail	Value
Management body	CFP
Assessment group	Instituto Nacional de Investigacion y Desarrollo Pesquero
Assessment authors	Irusta, Gabriela
Assessment method	Virtual Population Analysis
Publication year	2007
Timeseries span	1985-2007
Document	Irusta-hake-N-2007.pdf (pdf in database)
Recorder	Parma
Date entered	2008-12-11
Date last loaded	2009-04-24
QA/QC complete	YES
Date approved	2009-04-23

Biometrics provided. Note that the assumed timeseries to which the reference point pertains is indicated in parentheses.

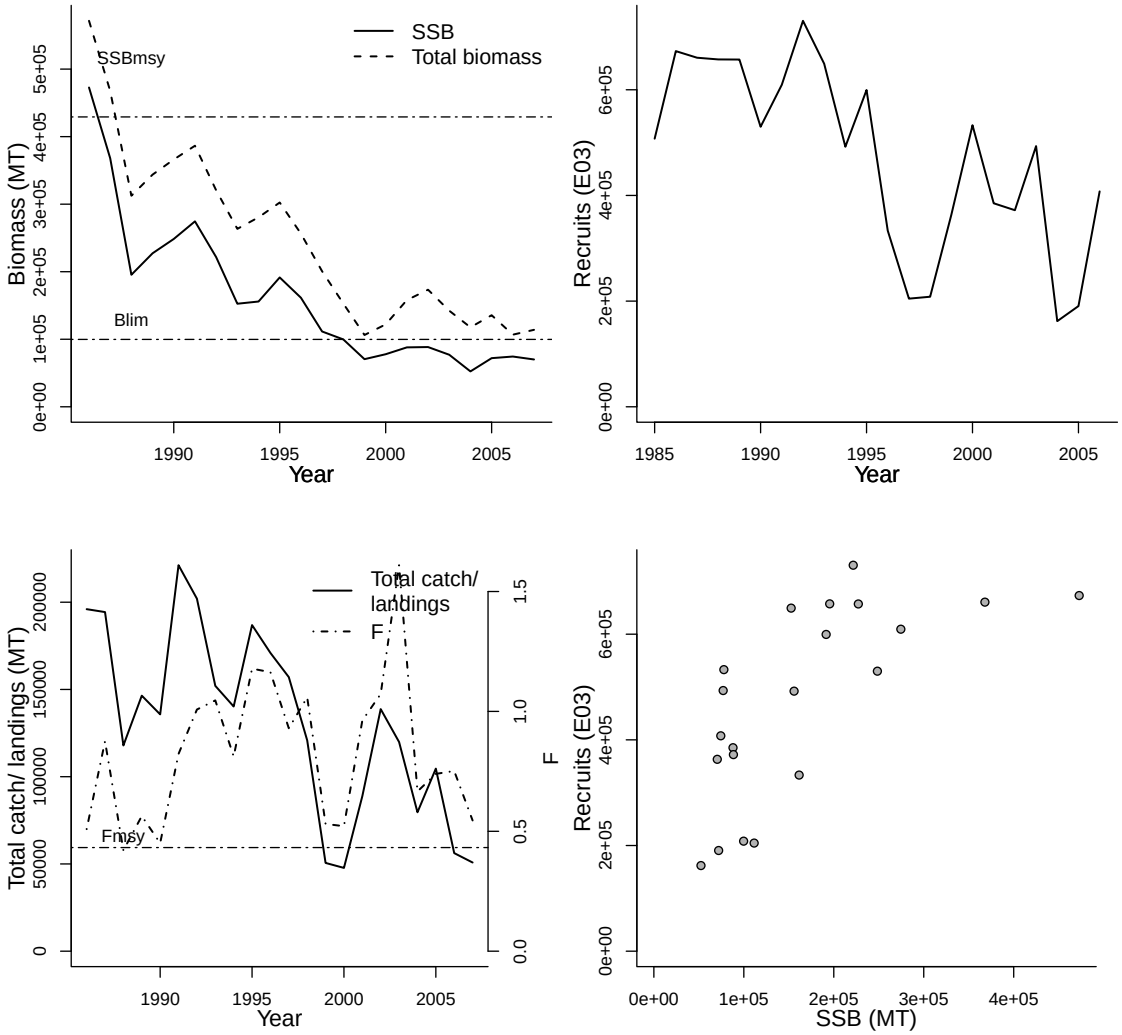
primary LME	secondary LME	tertiary LME
14 - Patagonian Shelf	na	na

Parameter	Value	Units
REC-AGE-yr	1	yr
F-AGE-yr-yr	3-6	yr-yr
TB-AGE-yr	1+	yr
A50-yr	2.62	yr
M-1/yr	0.3	1/yr
NATMORT-1/yr	0.3	1/yr
SSB-AGE-yr		
M		
L50-cm		

Reference points

Parameter	Value	Units
Fmax-1/yr (F)	0.2978	1/yr
Fmsy-1/yr (F)	0.4322	1/yr
NATMORT-1/yr (M)	0.3	1/yr
F40%-1/T	0.18791	1/T
SSBmsy-MT (SSB)	429200	MT
MSY-MT (TB)	169416	MT
Umsy-ratio (U)	0.28133	ratio
Blim-MT (SSB)	99764	MT
Bmsy-MT (TB)	602198.00	MT
Brebuild-MT (SSB)	200000.00	MT
Bbuf-MT (SSB)	99764	MT
SSB_{2007}/B_{lim}	0.702	
TB_{2007}/B_{msy}	0.265	
F_{2007}/F_{msy}	1.261	
SSB_{2007}/SSB_{msy}	0.163	

Time series minima and maxima					
	SSB	R	F	TB	Catch
Minimum year	1986	1985	1986	1986	1986
Maximum year	2007	2006	2007	2007	2007
Time series minimum	52371	162065	0.4208	106288	47723
Time series maximum	472775	730545	1.6097	571523	221201
Units	MT	E03	1/yr	MT	MT



Assessment of Southern Argentina argentine hake (*Merluccius hubbsi*)

Assessment ID:INIDEP-ARGHAKESARG-1985-2008-Parma
Issue URL: http://www.marinebiodiversity.ca/RAMlegacy/ramlegacy-bug-reporting/103

Area ID: Argentina-CFP-ARG-S

General assessment details.

Detail	Value
Management body	CFP
Assessment group	Instituto Nacional de Investigacion y Desarrollo Pesquero
Assessment authors	Renzi, Marta
Assessment method	Virtual Population Analysis
Publication year	2009
Timeseries span	1985-2008
Document	Renzi-hake-S-2009.pdf (pdf in database)
Recorder	Parma
Date entered	2010-01-13
Date last loaded	2010-02-05
QA/QC complete	YES
Date approved	2009-04-23

Biometrics provided. Note that the assumed timeseries to which the reference point pertains is indicated in parentheses.

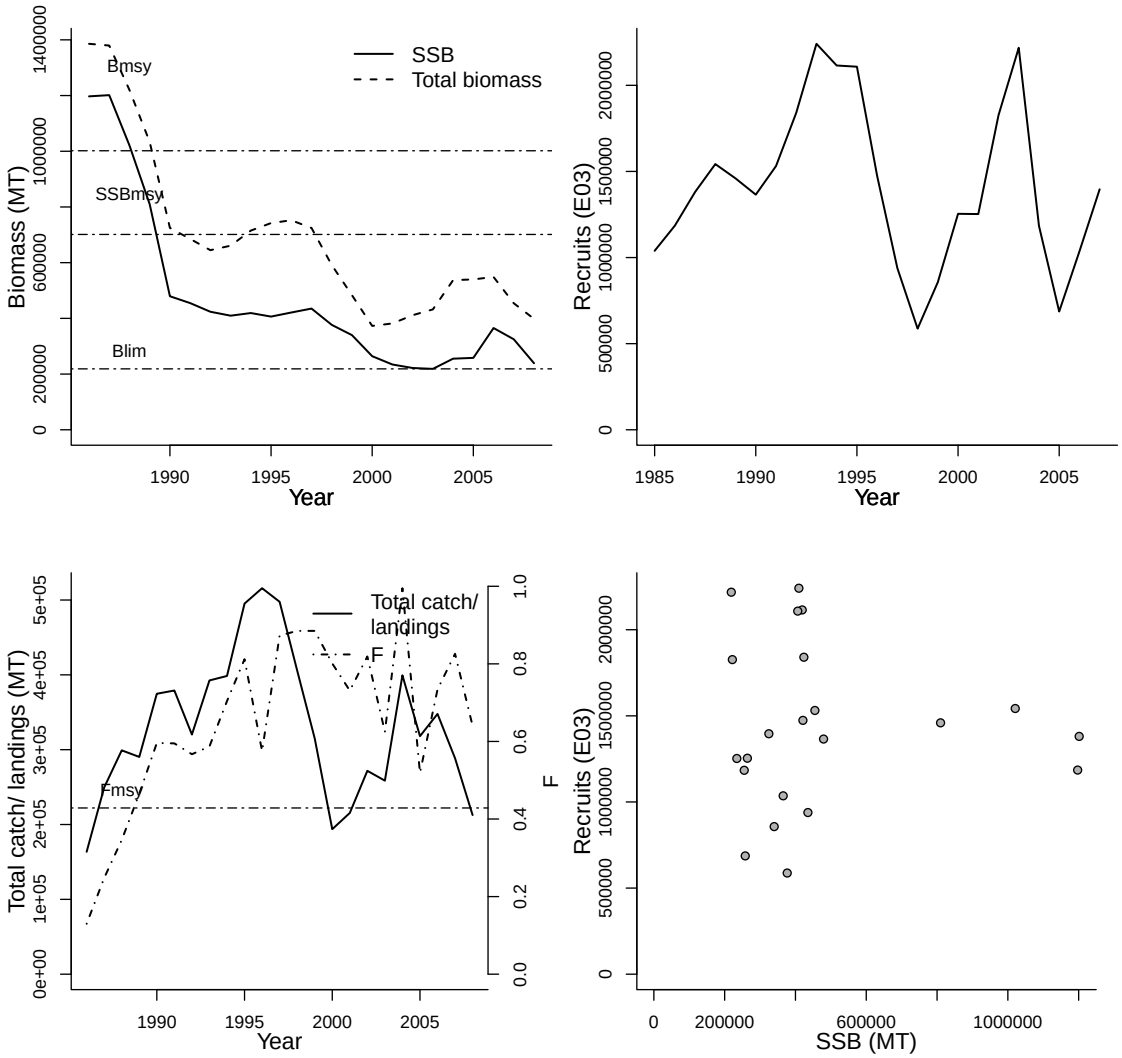
primary LME	secondary LME	tertiary LME
14 - Patagonian Shelf	na	na

Parameter	Value	Units
REC-AGE-yr	1	yr
F-AGE-yr-yr	3-6	yr-yr
TB-AGE-yr	1+	yr
A50-yr	2.62	yr
M-1/yr	0.3	1/yr
NATMORT-1/yr	0.3	1/yr
SSB-AGE-yr		
M		
L50-cm		

Reference points

Parameter	Value	Units
Fmax-1/yr (F)	0.3117	1/yr
Fmsy-1/yr (F)	0.4285	1/yr
NATMORT-1/yr (M)	0.3	1/yr
F40%-1/T	0.19080	1/T
SSBmsy-MT (SSB)	701328.02	MT
MSY-MT (TB)	277675.26	MT
Umsy-ratio (U)	0.27718	ratio
Blim-MT (SSB)	218713	MT
Bmsy-MT (TB)	1001788.06	MT
Brebuild-MT (SSB)	500000	MT
Bbuf-MT (SSB)	376680	MT
SSB_{2008}/B_{lim}	1.092	
TB_{2008}/B_{msy}	0.568	
F_{2008}/F_{msy}	1.494	
SSB_{2008}/SSB_{msy}	0.341	

Time series minima and maxima					
	SSB	R	F	TB	Catch
Minimum year	1986	1985	1986	1986	1986
Maximum year	2008	2007	2008	2008	2008
Time series minimum	218713	587405	0.13	372877	163565
Time series maximum	1201451	2241059	0.995	1385781	515771
Units	MT	E03	1/yr	MT	MT



Assessment of Southern Argentina patagonian grenadier (*Macruronus magellanicus*)

Assessment ID:INIDEP-PATGRENADIERSARG-1983-2006-Parma
Issue URL: http://www.marinebiodiversity.ca/RAMlegacy/ramlegacy-bug-reporting/148

Area ID: Argentina-CFP-ARG-S

General assessment details.

Detail	Value
Management body	CFP
Assessment group	Instituto Nacional de Investigacion y Desarrollo Pesquero
Assessment authors	Giussi, Analia
Assessment method	Virtual Population Analysis
Publication year	2007
Timeseries span	1983-2006
Document	Giussi-hoki-2007.pdf (pdf in database)
Recorder	Parma
Date entered	2008-12-30
Date last loaded	2009-04-24
QA/QC complete	YES
Date approved	2009-04-23

Biometrics provided. Note that the assumed timeseries to which the reference point pertains is indicated in parentheses.

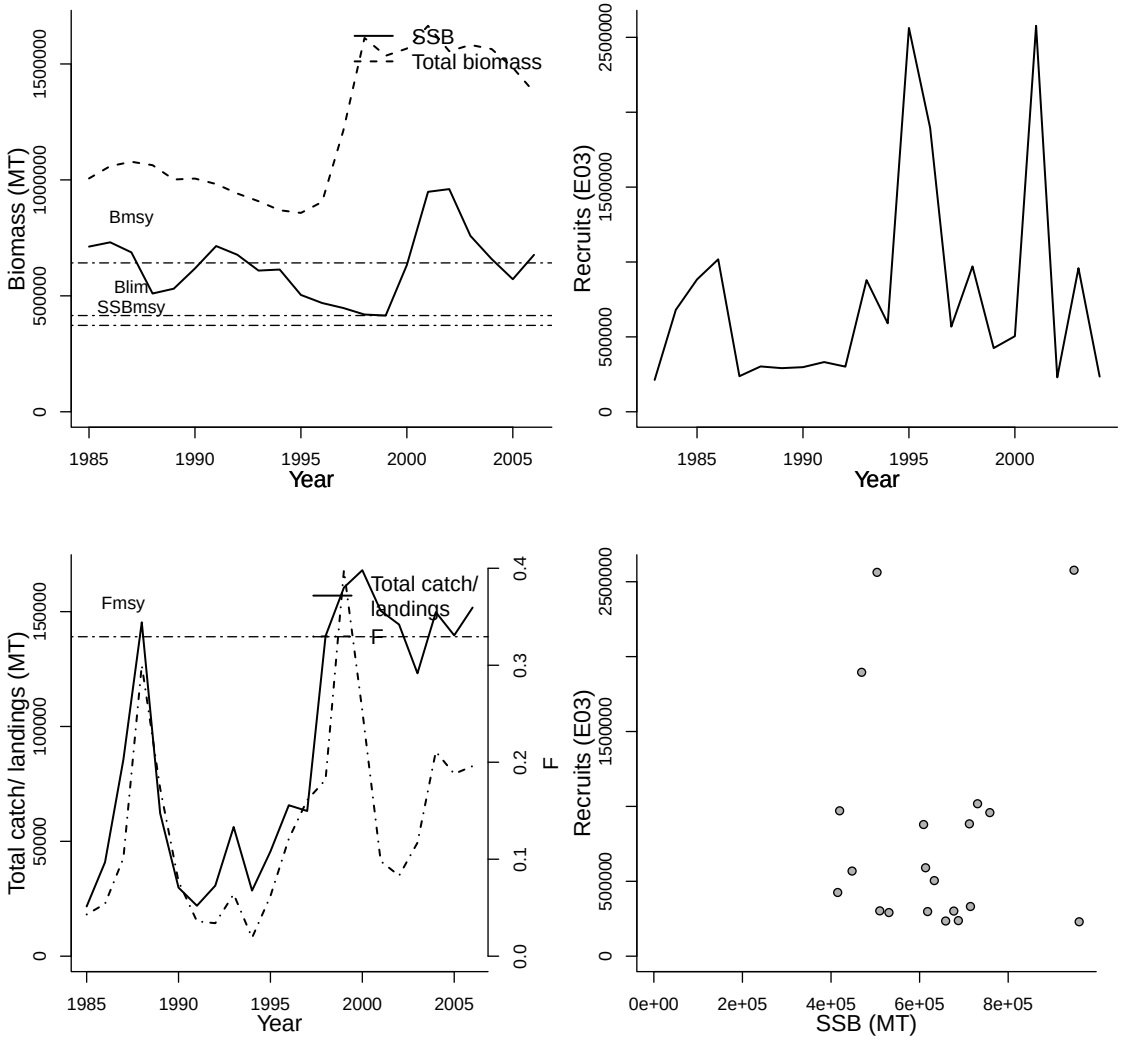
primary LME	secondary LME	tertiary LME
14 - Patagonian Shelf	na	na

Parameter	Value	Units
SSB-AGE-yr	3+	yr
REC-AGE-yr	1	yr
F-AGE-yr-yr	5- 12	yr-yr
TB-AGE-yr	1+	yr
A50-yr	3.59	yr
L50-cm	57.79	cm
M-1/yr	0.3	1/yr
NATMORT-1/yr M	0.3	1/yr

Reference points

Parameter	Value	Units
Fmax-1/yr (F)	0.3630	1/yr
Fmsy-1/yr (F)	0.3294	1/yr
NATMORT-1/yr (M)	0.3	1/yr
F40%-1/T	0.1842	1/T
SSBmsy-MT (SSB)	372542.00	MT
MSY-MT (TB)	132131.00	MT
Umsy-ratio (U)	0.2058	ratio
Blim-MT (SSB)	415041.00	MT
Bmsy-MT (TB)	642031.00	MT
Brebuild-MT (SSB)	500000.00	MT
Bbuf-MT (SSB)	712405.00	MT
SSB_{2006}/B_{lim}	1.631	
TB_{2006}/B_{msy}	3.701	
F_{2006}/F_{msy}	0.595	
SSB_{2006}/SSB_{msy}	1.817	

Time series minima and maxima					
	SSB	R	F	TB	Catch
Minimum year	1985	1983	1985	1985	1985
Maximum year	2006	2004	2006	2006	2006
Time series minimum	415041	212795	0.019	857676	21663
Time series maximum	960291	2576934	0.398	1664567	168031
Units	MT	E03	1/yr	MT	MT



Assessment of Southern Argentina southern blue whiting (*Micromesistius australis*)

Assessment ID:INIDEP-SBWHITARGS-1985-2007-Parma
Issue URL: http://www.marinebiodiversity.ca/RAMlegacy/ramlegacy-bug-reporting/119

Area ID: Argentina-CFP-ARG-S

General assessment details.

Detail	Value
Management body	CFP
Assessment group	Instituto Nacional de Investigacion y Desarrollo Pesquero
Assessment authors	Giussi, Analia
Assessment method	Virtual Population Analysis
Publication year	2008
Timeseries span	1985-2007
Document	Giussi-polaca-2007.pdf (pdf in database)
Recorder	Parma
Date entered	2008-12-30
Date last loaded	2009-04-24
QA/QC complete	YES
Date approved	2009-04-23

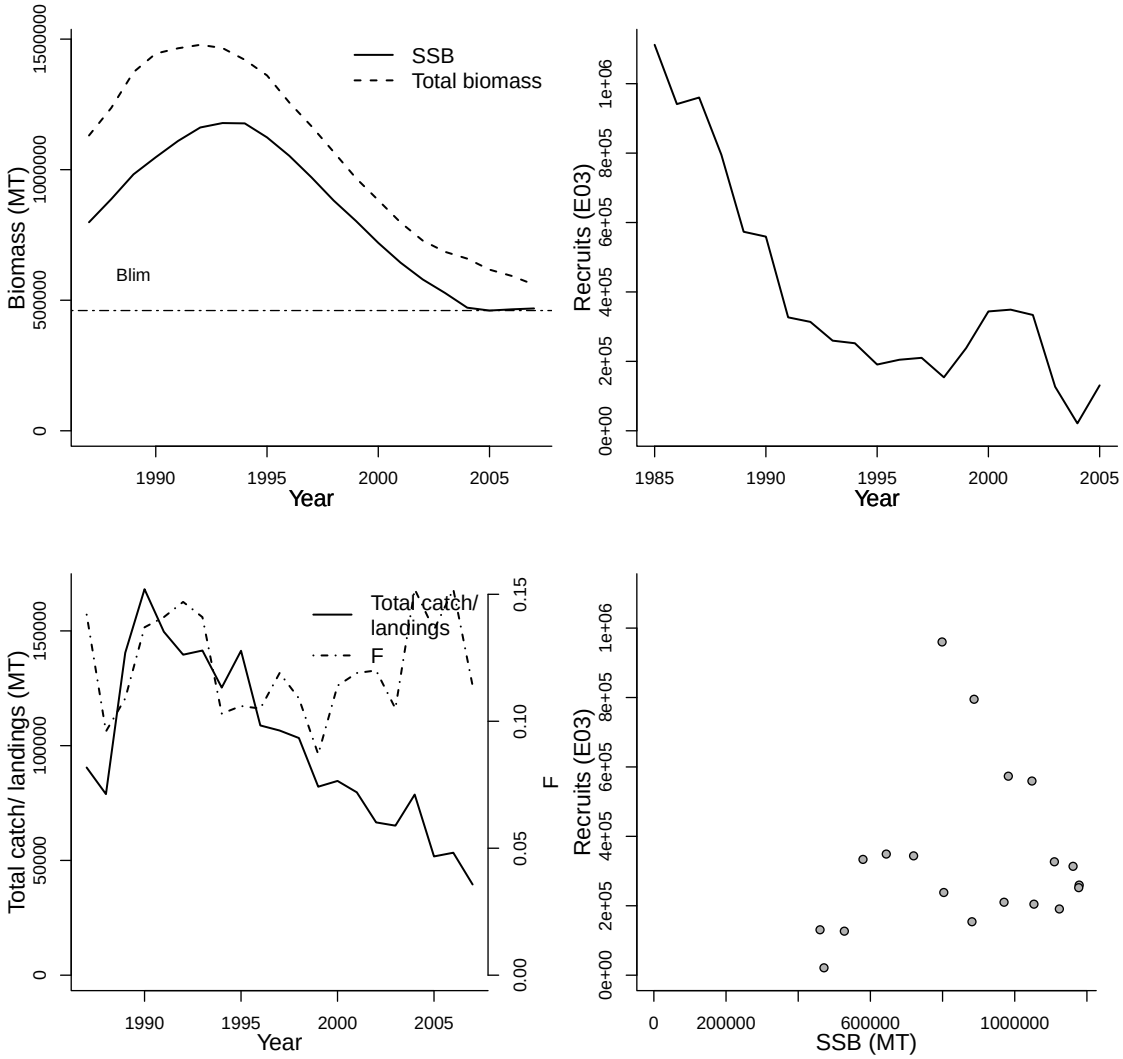
Biometrics provided. Note that the assumed timeseries to which the reference point pertains is indicated in parentheses.

primary LME	secondary LME	tertiary LME
14 - Patagonian Shelf	na	na

Parameter	Value	Units
SSB-AGE-yr	3+	yr
REC-AGE-yr	1	yr
F-AGE-yr-yr	7 - 21	yr-yr
TB-AGE-yr	1+	yr
A50-yr	3.3	yr
L50-cm	35.5	cm
M-1/T	0.15	1/T
NATMORT-1/yr	0.15	1/yr
M		

Reference points		
Parameter	Value	Units
Fmax-1/yr (F)	0.566	1/yr
Fpa-1/yr (F)	0.05	1/yr
NATMORT-1/yr (M)	0.15	1/yr
F40%-1/T	0.1930	1/T
Blim-MT (SSB)	460473	MT
Brebuild-MT (SSB)	600000	MT
Bbuf-MT (SSB)	471387	MT
SSB_{2007}/B_{lim}	1.018	

Time series minima and maxima					
	SSB	R	F	TB	Catch
Minimum year	1987	1985	1987	1987	1987
Maximum year	2007	2005	2007	2007	2007
Time series minimum	460473	21293	0.087	559839	39522
Time series maximum	1178558	1112030	0.152	1478240	168162
Units	MT	E03	1/yr	MT	MT



Assessment of North Pacific pacific halibut (*Hippoglossus stenolepis*)

Assessment ID:IPHC-PHALNPAC-1988-2009-Parma
Issue URL: http://www.marinebiodiversity.ca/RAMlegacy/ramlegacy-bug-reporting/187

Area ID: multinational-IPHC-NPAC

General assessment details.

Detail	Value
Management body	IPHC
Assessment group	International Pacific Halibut Commission
Assessment authors	Hare, Steven
Assessment method	an AD-Model builder statistical Catch at Age Model
Publication year	2009
Timeseries span	1988-2009
Document	hare-clark08.pdf (pdf in database)
Recorder	Parma
Date entered	2009-03-12
Date last loaded	2009-04-24
QA/QC complete	YES
Date approved	2009-04-23

Biometrics provided. Note that the assumed timeseries to which the reference point pertains is indicated in parentheses.

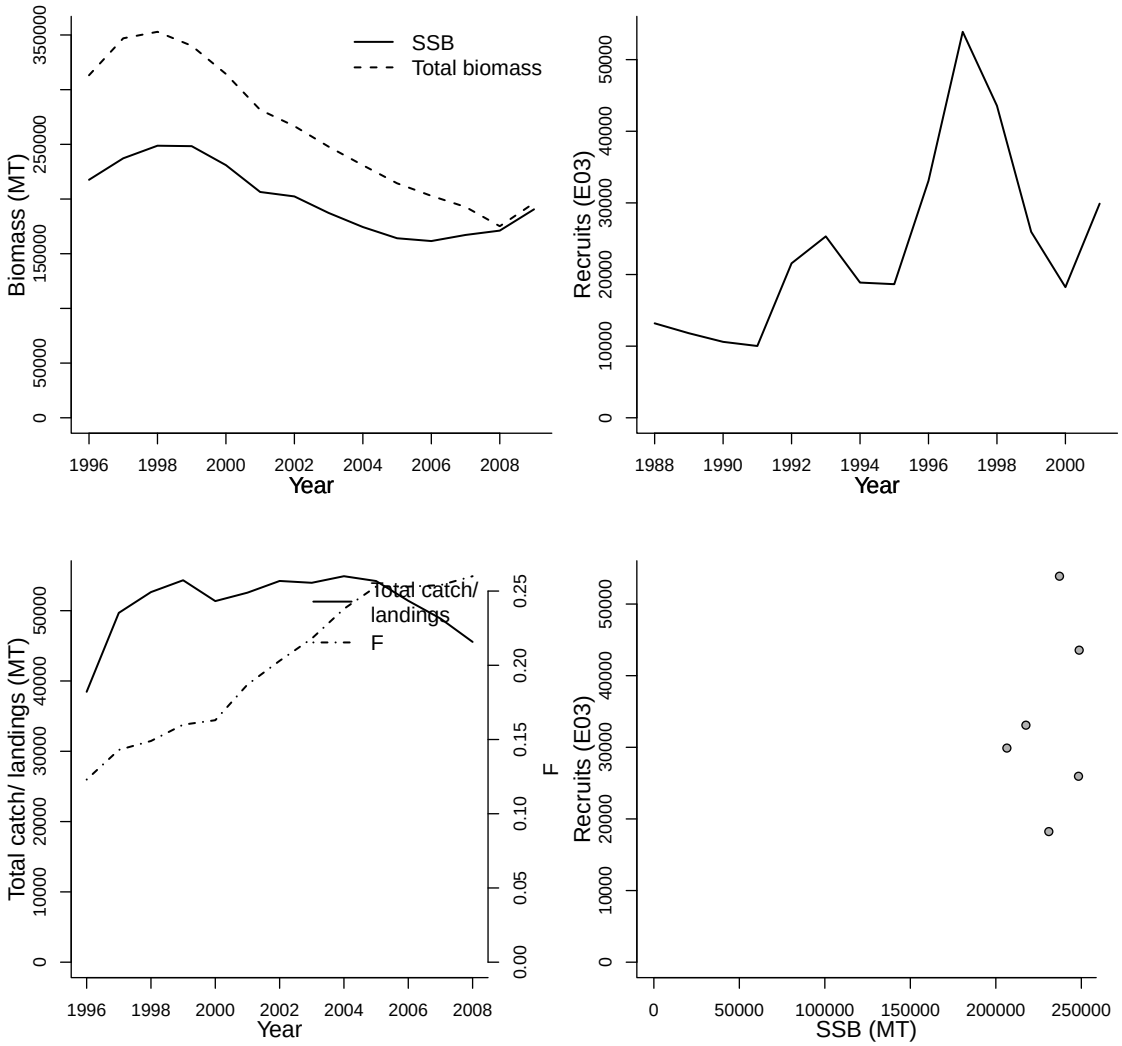
primary LME	secondary LME	tertiary LME
2 - Gulf of Alaska	1 - East Bering Sea	na

Parameter	Value	Units
SSB-AGE-yr	11.59	yr
REC-AGE-yr	8	yr
F-AGE-yr-yr	6+	yr-yr
TB-AGE-yr	6	yr
A50-yr	11.59	yr
L50-cm	97.63	cm
M-1/yr	0.15	1/yr
NATMORT-1/yr M	0.15	1/yr

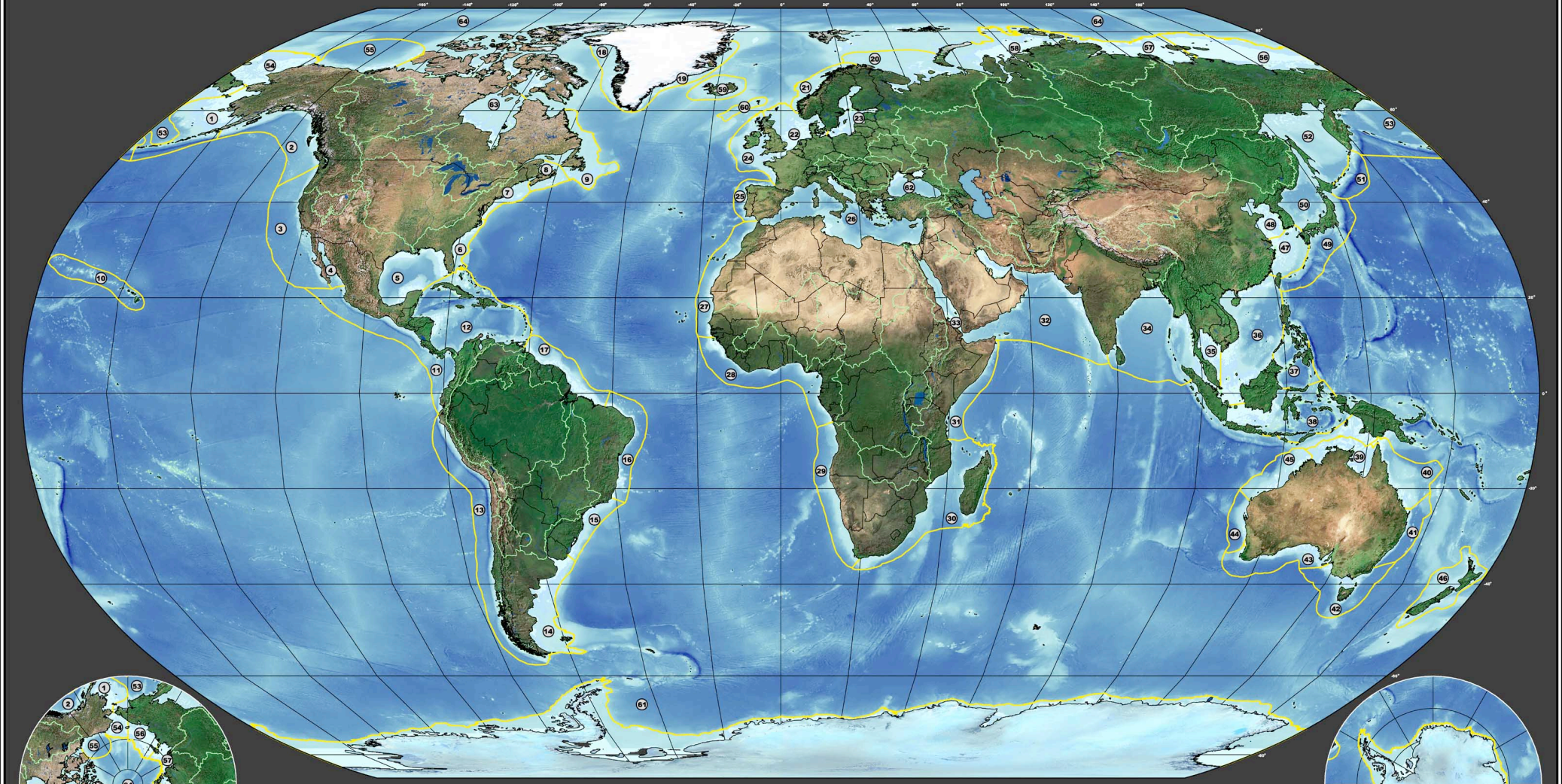
Reference points

Parameter	Value	Units
Flim-1/yr (F)	available	1/yr
SSBlimit30%-MT	142758.76	MT
SSBlimit20%-MT	106464.16	MT
SSB0-MT (SSB)	531110.98	MT
ERtarget-ratio	0.2	ratio
ERcurrent-ratio	0.26	ratio
NATMORT-1/yr (M)	0.15	1/yr
SPRF0-E01 (SPR)	29.82	E01
F40%-1/T	0.17	1/T
F0.1-1/yr (F)	0.26	1/yr

Time series minima and maxima					
	SSB	R	F	TB	Catch
Minimum year	1996	1988	1996	1996	1996
Maximum year	2009	2001	2008	2009	2008
Time series minimum	161580.08	10022.68	0.123	175147.11	38462.26
Time series maximum	248746.72	53885.1	0.26	352901.09	54902.89
Units	MT	E03	ratio	MT	MT



Large Marine Ecosystems of the World
and Linked Watersheds



MAP KEY:

LME Numbers:

1 East Bering Sea
2 Gulf of Alaska
3 California Current
4 Gulf of California
5 Gulf of Mexico
6 Southeast U.S. Continental Shelf
7 Northeast U.S. Continental Shelf
8 Scotian Shelf
9 Newfoundland-Labrador Shelf
10 Insular Pacific-Hawaiian
11 Pacific Central-American Coastal
12 Caribbean Sea
13 Humboldt Current
14 Patagonian Shelf
15 South Brazil Shelf
16 East Brazil Shelf
17 North Brazil Shelf
18 West Greenland Shelf
19 East Greenland Shelf
20 Barents Sea
21 Norwegian Shelf
22 North Sea
23 Baltic Sea
24 Celtic-Biscay Shelf
25 Iberian Coastal
26 Mediterranean Sea
27 Canary Current
28 Guinea Current
29 Benguela Current
30 Agulhas Current
31 Somali Coastal Current
32 Arabian Sea
33 Red Sea
34 Bay of Bengal
35 Gulf of Thailand
36 South China Sea
37 Sulu-Celebes Sea
38 Indonesian Sea
39 North Australian Shelf
40 Northeast Australian Shelf - Great Barrier Reef
41 East-Central Australian Shelf
42 Southeast Australian Shelf
43 Southwest Australian Shelf
44 West-Central Australian Shelf
45 Northwest Australian Shelf
46 New Zealand Shelf
47 East China Sea
48 Yellow Sea
49 Kuroshio Current
50 Sea of Japan
51 Oyashio Current
52 Sea of Okhotsk
53 West Bering Sea
54 Chukchi Sea
55 Beaufort Sea
56 East Siberian Sea
57 Laptev Sea
58 Kara Sea
59 Iceland Shelf
60 Faroe Plateau
61 Antarctic
62 Black Sea
63 Hudson Bay
64 Arctic Ocean

Large Marine Ecosystems

Watershed Bounds

Political Borders

DEPTH

Feet (ft)	Meters (m)
-36,080	-11,000
-32,800	-10,000
-29,520	-9,000
-26,240	-8,000
-22,960	-7,000
-19,680	-6,000
-16,400	-5,000
-13,120	-4,000
-9,840	-3,000
-6,560	-2,000
-3,280	-1,000
-1,640	-500
-246	-75
0	0

SCALE = 1 : 31,700,000
Robinson Projection
Units Meters

Miles
0 300 600 900 1200

Kilometers
0 400 800 1200 1600 2000 2400

Data Sources:
Bathymetry (2-minute) : Smith and Sadnwell, 1997
Bathymetry (5-minute) : NAVOCEANO, DBDB5
Watersheds (HYDRO 1k) : USGS Eros Data Center
Terrestorial Image, Political Boundaries : ESRI

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NORTH POLAR REGION

SOUTH POLAR REGION

***LARGE MARINE ECOSYSTEMS** are areas of the ocean characterized by distinct bathymetry, hydrography, productivity, and trophic interactions. They annually produce 95 percent of the world's fish catch. They are national and regional focal areas of a global effort to reduce the degradation of linked watersheds, marine resources, and coastal environments from pollution, habitat loss, and over-fishing.*

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