Baltic cod stocks

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Conference on State of Fish Stocks in the Baltic Sea

Szczecin, 15th June 2018

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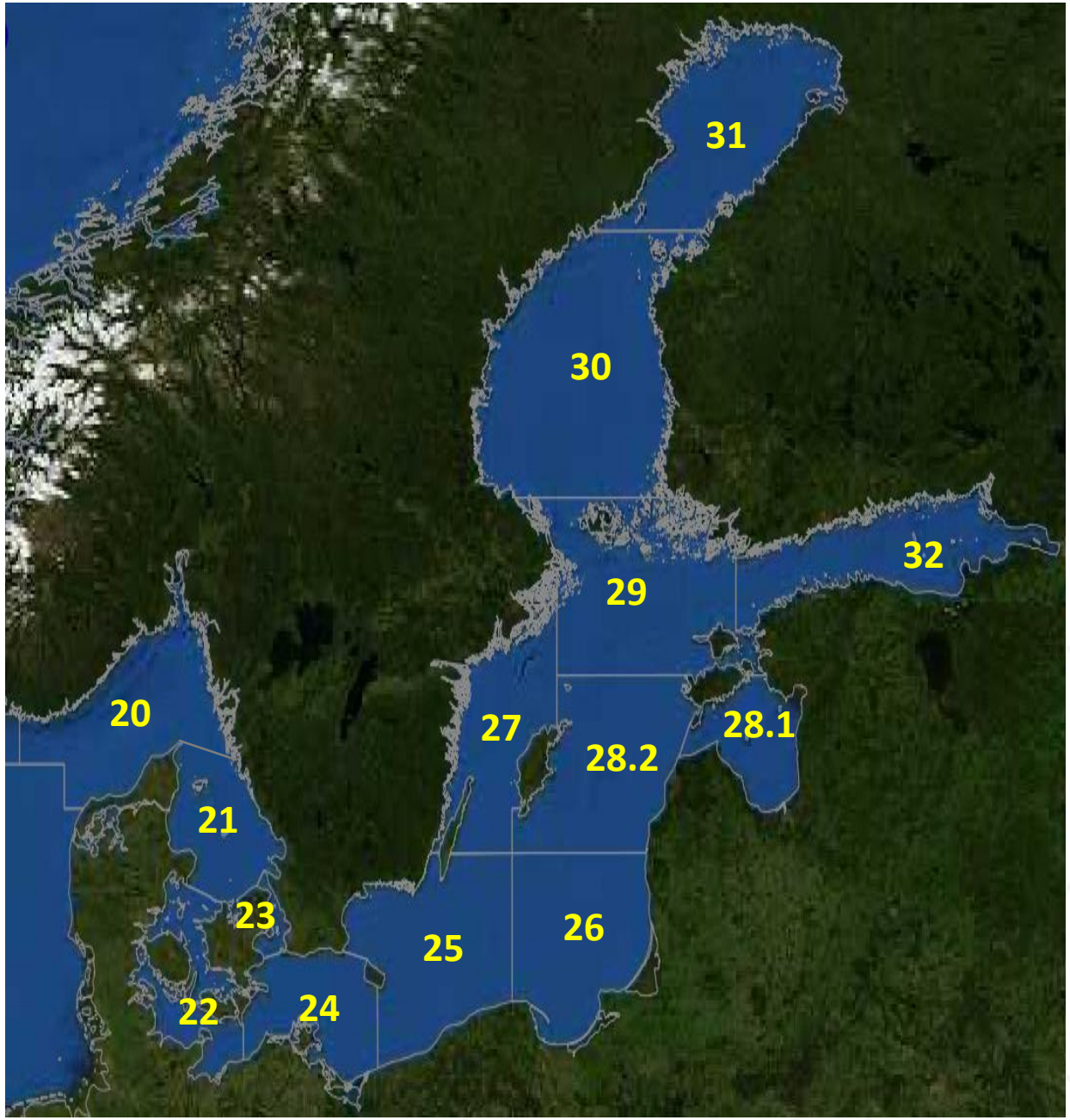
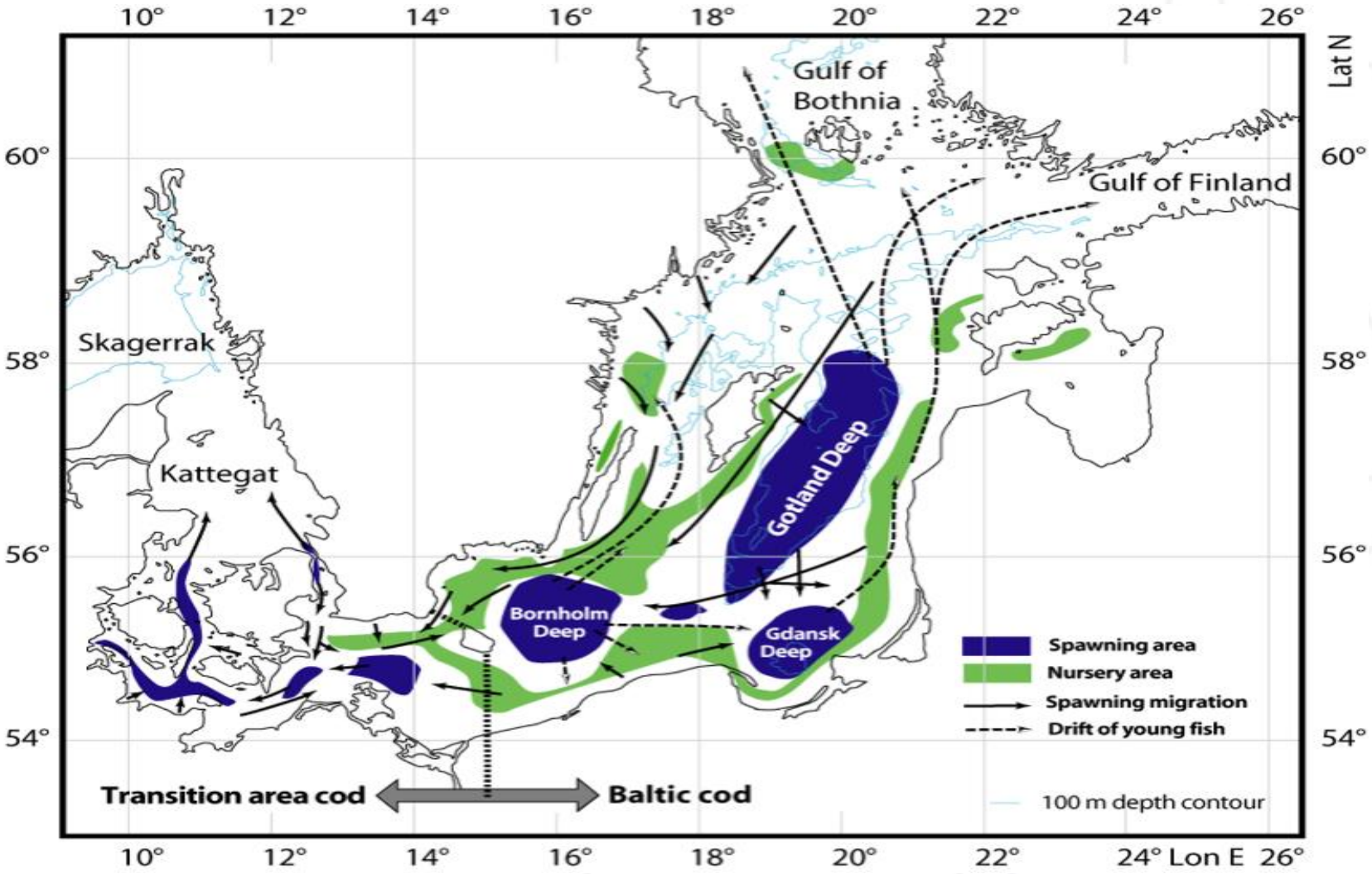
Science for sustainable seas



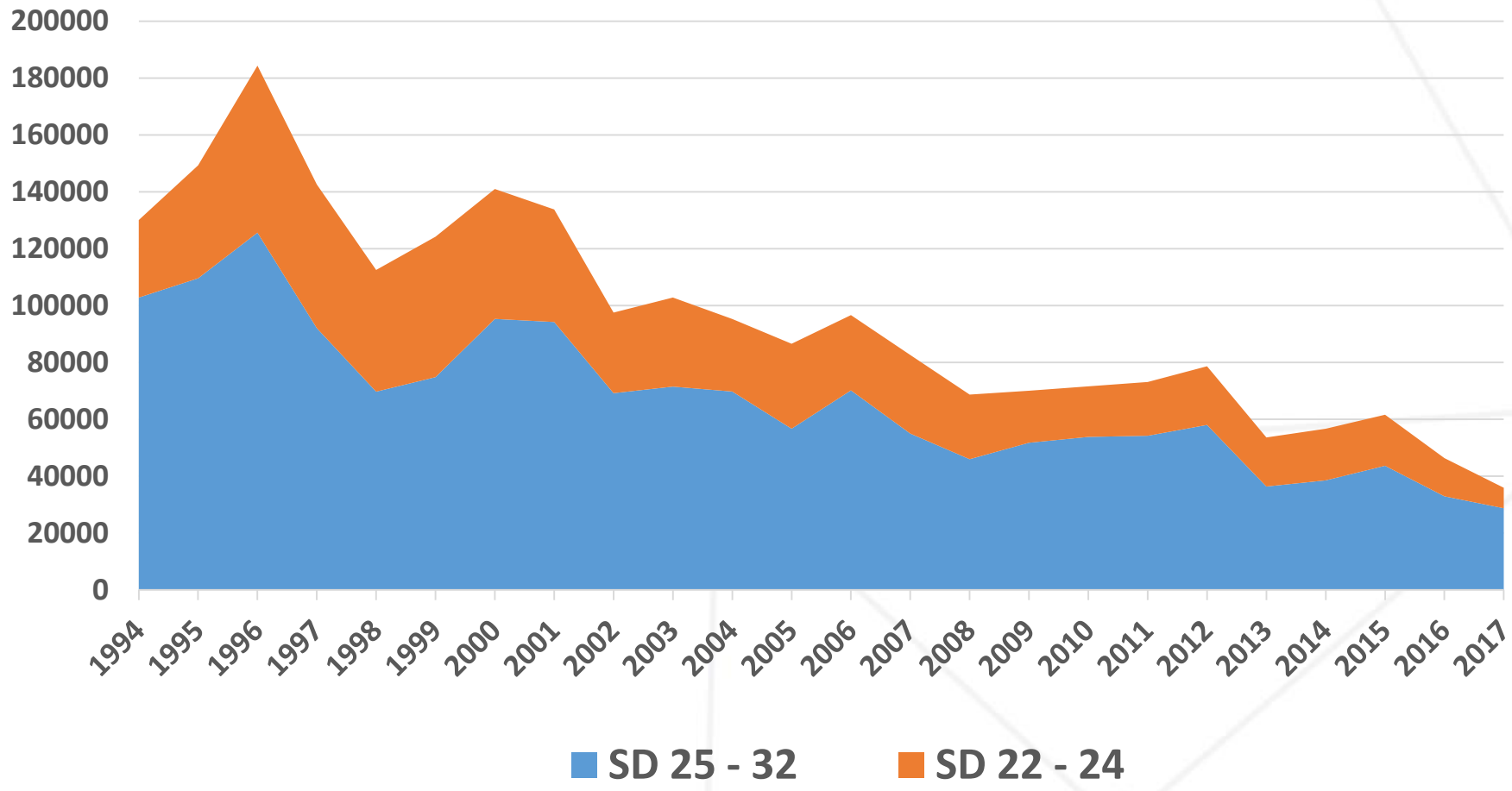
Baltic Sea Subdivisions

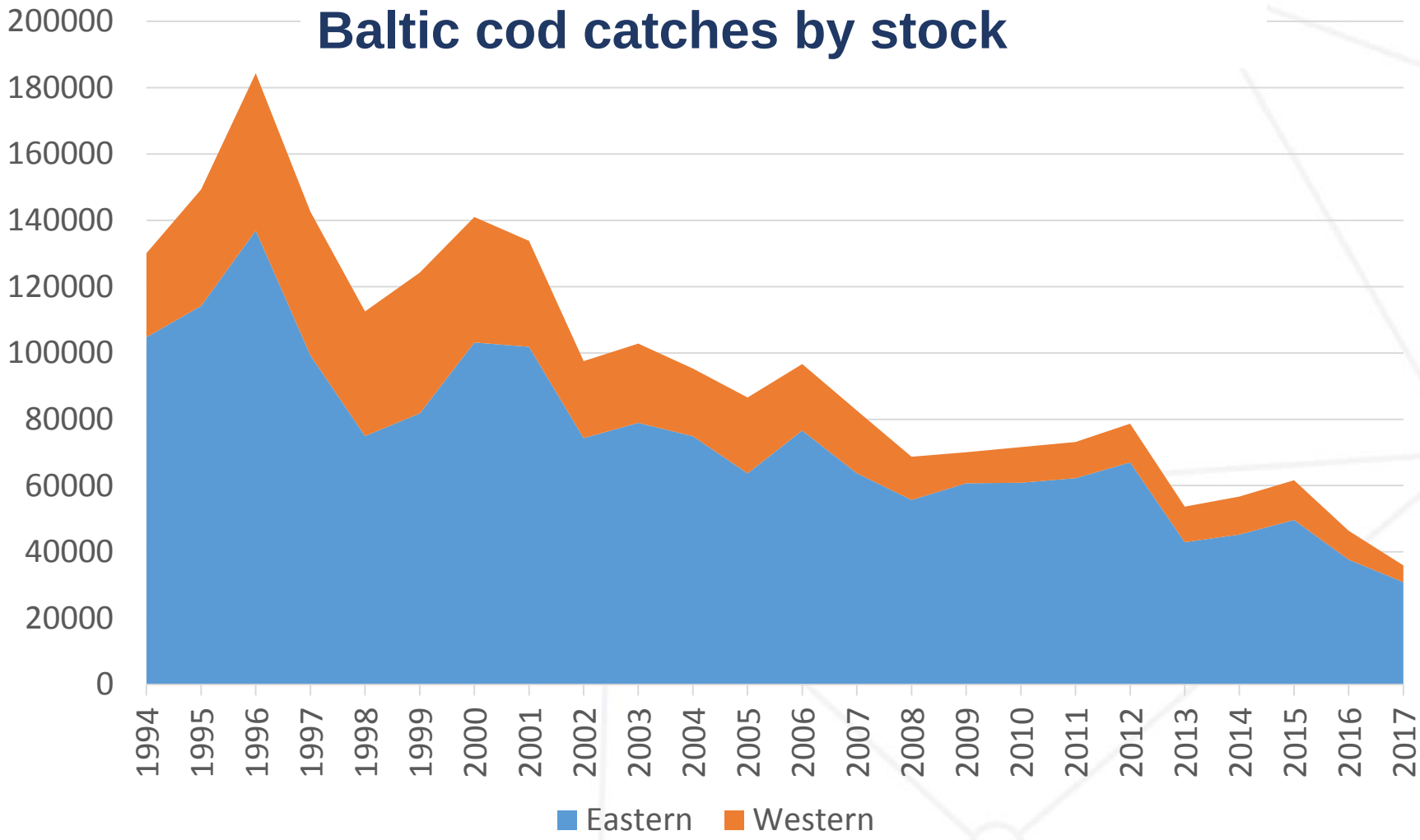
Baltic cod stocks



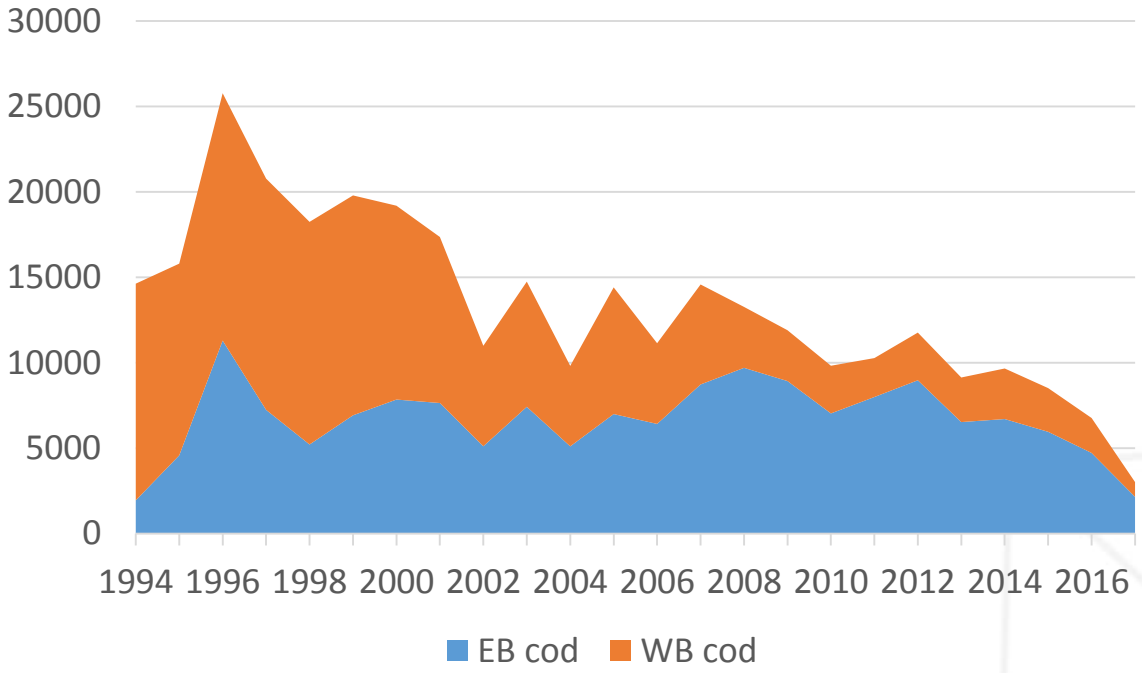
Bagge et al., 1994

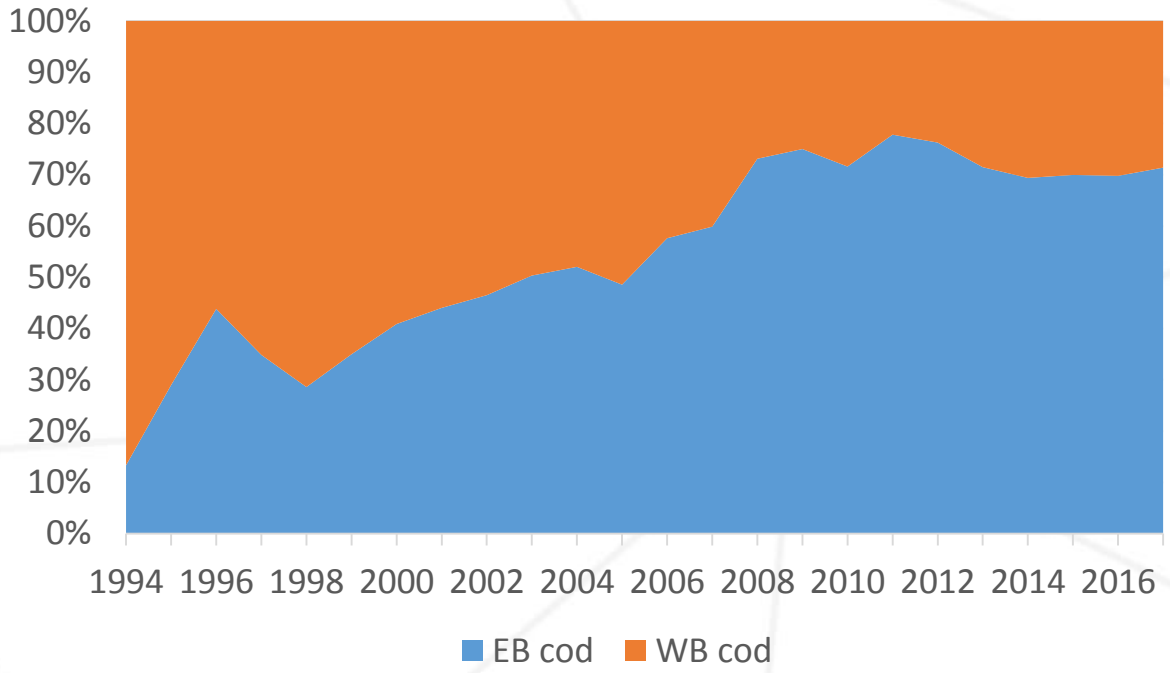
Baltic cod catches by management area




Baltic cod catches by stock
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Eastern
Western

Baltic cod catches in SD 24 by stock

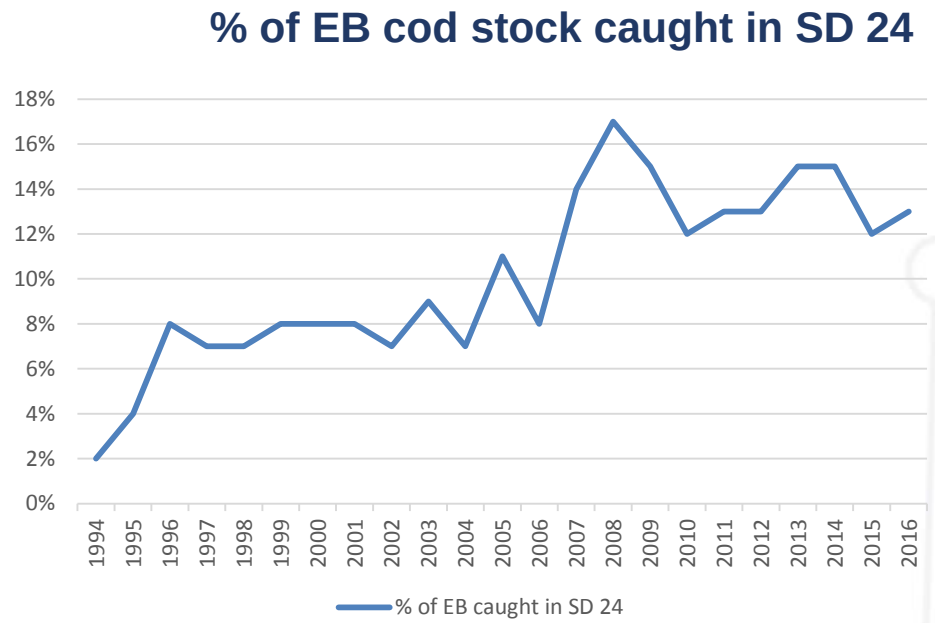


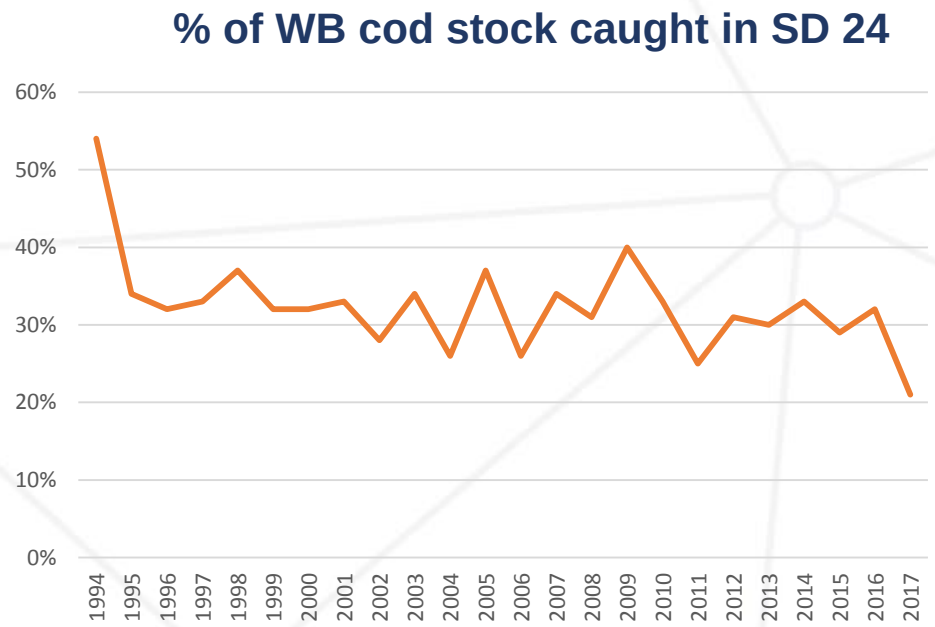


Eastern Baltic cod stocks

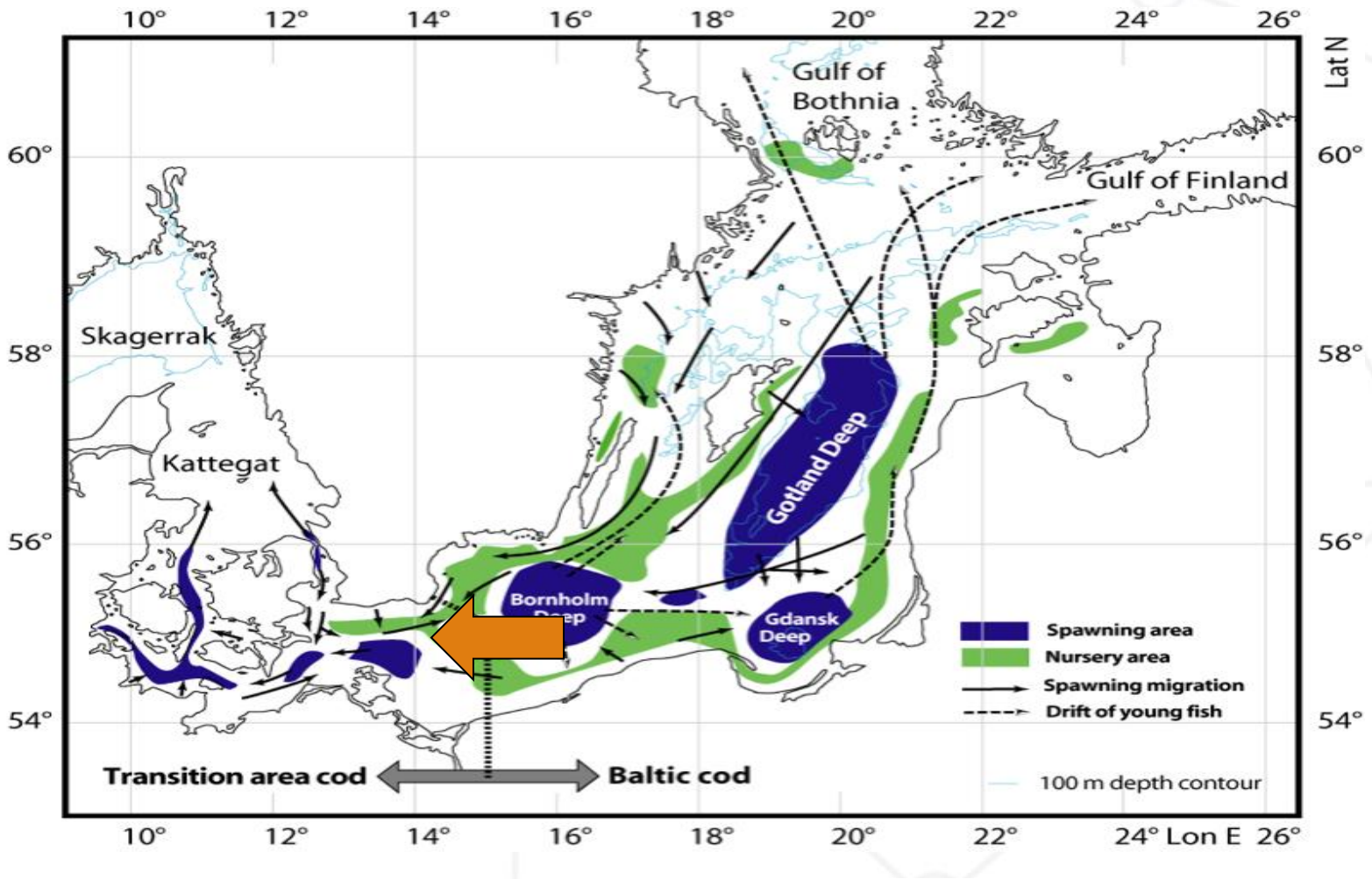
Change in distribution of Eastern cod stock

Separation of stocks: otolith macrostructure and genetic studies

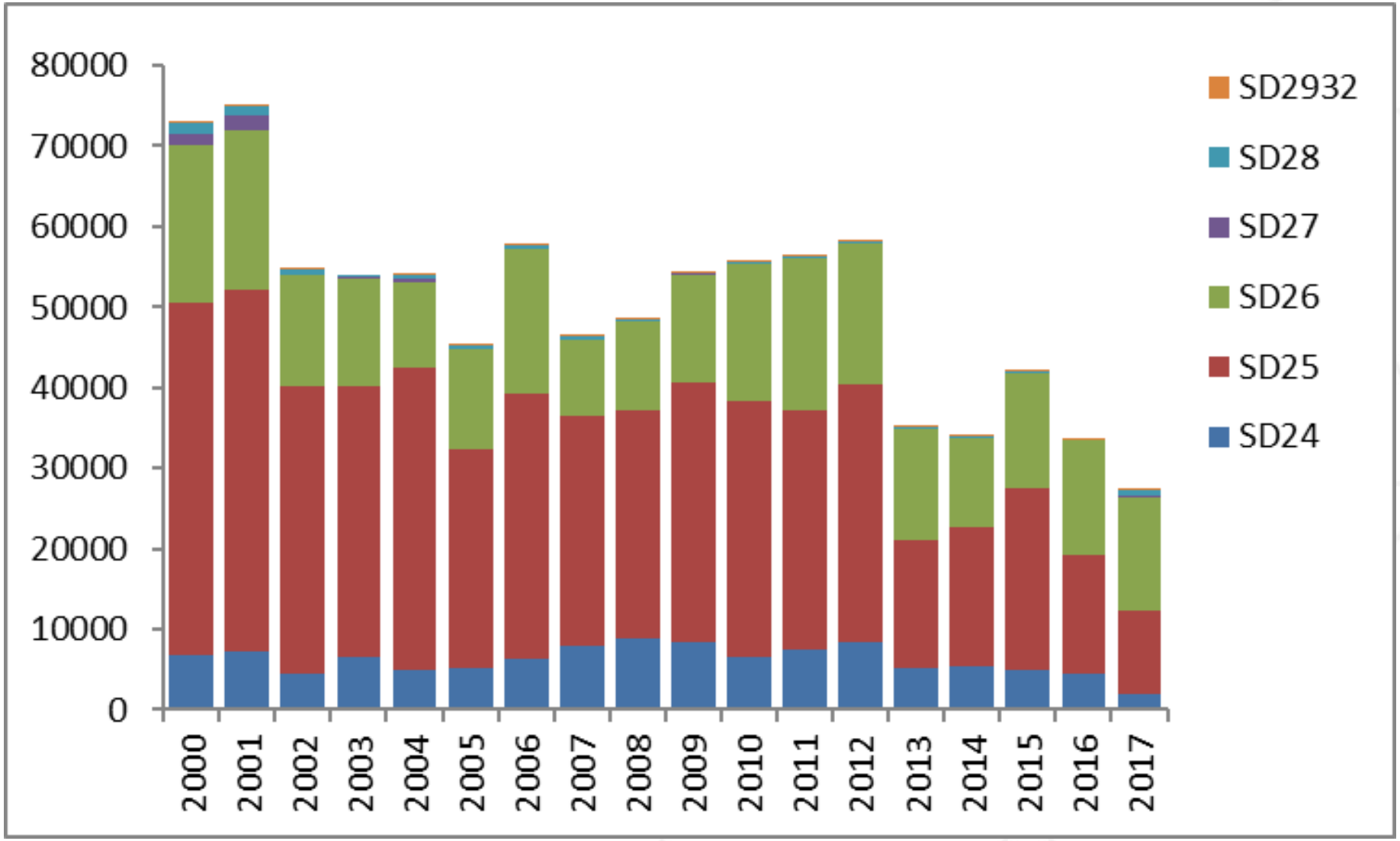




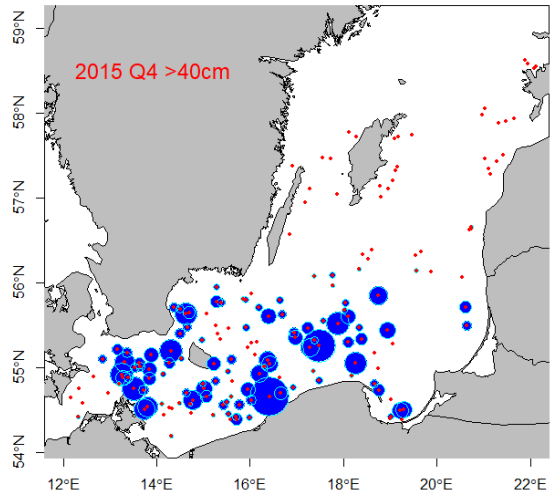
Eastern Baltic cod stocks

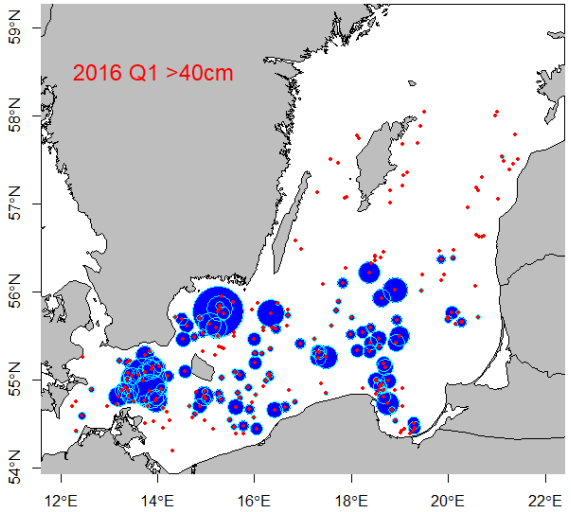


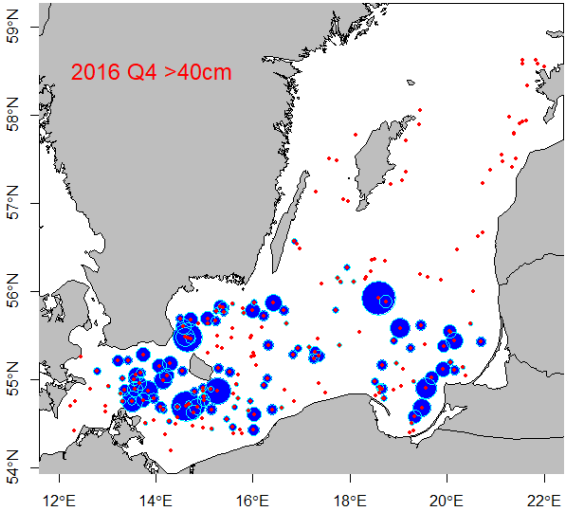
Bagge et al., 1994

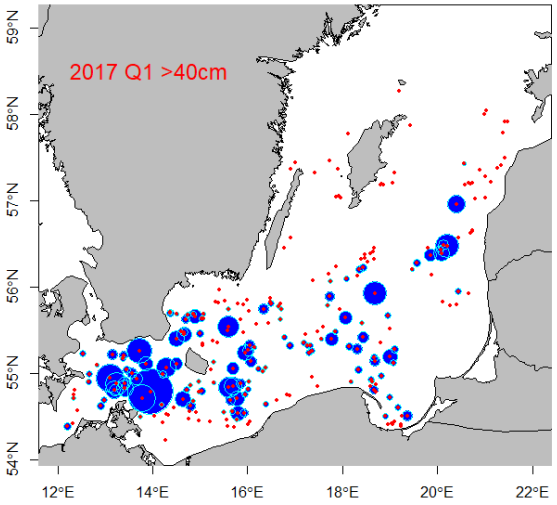


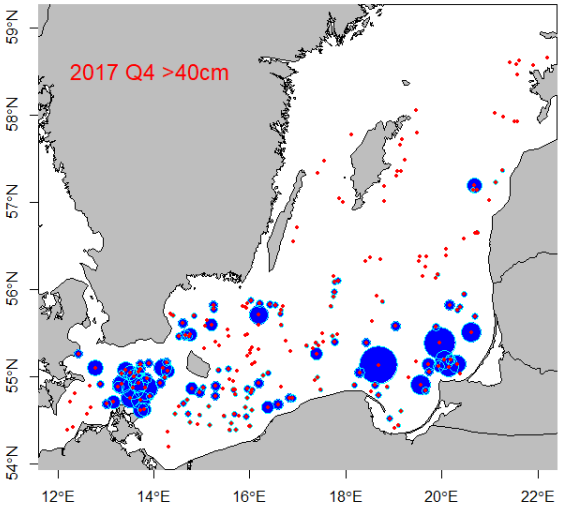
Eastern Baltic cod stock – Landings by subdivision

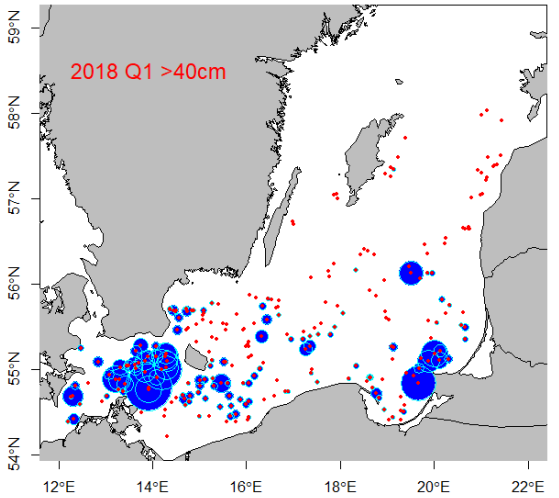




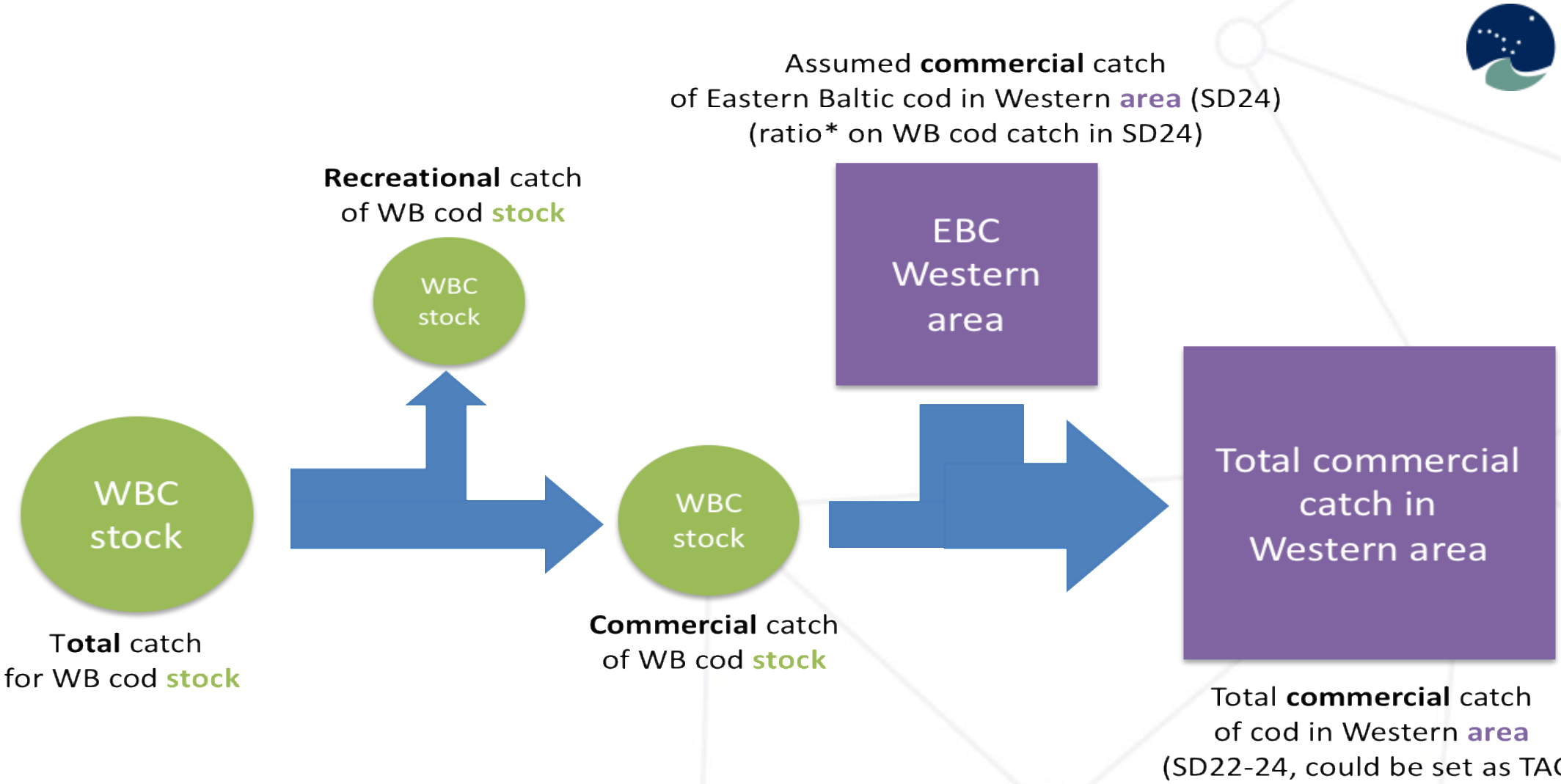








Eastern Baltic cod stock – Distribution cod > 40 cm BITS survey



Cod – Fishing opportunities by management area

Basis	Total catch * (2019)	Recreational catch	Commercial catch	F_{total} (2019)	$F_{commercial}$ (2019)	SSB (2020)	% SSB change ***	% Advice change ^
ICES advice basis								
EU MAP**: F_{MSY}	15021	1754	13267	0.26	0.23	75334	55	184
F = MAP $F_{MSY\ lower}$	9094	1754	7340	0.15	0.12	82691	70	191^^
F = MAP $F_{MSY\ upper}$	23992	1754	22238	0.45	0.42	63804	31	NA ^^^
EU MAP**: F_{MSY}	15021	3227‡	11794	0.26	0.20	75334	55	184
F = MAP $F_{MSY\ lower}$	9094	3227‡	5867	0.15	0.10	82691	70	191^^
Other scenarios								
F_{MSY}	15021	1754	13267	0.26	0.23	75334	55	184
Zero commercial catch	1754	1754	0	0.03	0.00	91905	89	−67
F = F_{pa}	35123	1754	33369	0.74	0.70	49290	1	563
F = F_{lim}	43288	1754	41534	1.01	0.97	39365	−19	718
SSB (2020) = B_{lim}	53332	1754	51578	1.46	1.41	27400	−44	907
SSB (2020) = B_{pa}	44086	1754	42332	1.04	1.00	38401	−21	733
SSB (2020) = MSY $B_{trigger}$	44086	1754	42332	1.04	1.00	38401	−21	733
F = F_{2018}	12067	1754	10313	0.2	0.17	78916	62	128

- Assuming the same relative geographical distribution of the western Baltic cod stock commercial catch in 2019 as observed in recent years, the advised commercial catch of western Baltic cod of 13,267 t in 2019 will be 9,685 t in SDs 22–23 and 3,852 t in SD 24.

- The additional amount of eastern Baltic cod fished in SD 24 is estimated at 8,520 t, assuming the same ratio between the eastern and the western Baltic cod in the commercial catches as observed on average during 2015–2017. This gives a total predicted catch in SD 22 – 24 of 21,787 t.

- This amount has to be deducted from the advised catch of eastern Baltic cod to get the estimated corresponding catch of cod in SDs 25–32. The resulting catch of cod in SDs 25–32 is 8,165 t.

	Commercial catch WB cod stock			Commercial catch EB cod stock			Commercial catch of cod by management area (TAC)			
	A	B	C	D	E	F	G		H	
Area	Total	SDs 22–23	SD 24	Total	SD 24	SDs 25–32	SDs22–24	% TAC change (SDs 22–24)*	SDs 25–32	% TAC change (SDs 25–32)**
A. Status quo distribution – same settings as last year										
Calculation		= A × 0.73^	= A × 0.27^		= C × 2.38^^	= D – E	= B + C + E		= F	
EU MAP: F_{MSY}	13267	9685	3582	16685	8520	8165	21787	289	8165	−76
F=MAP F_{MSY} lower	7340	5358	1982	16685	4714	11971	12054	115	11971	−65
B. EB cod catch in SD 24 limits WB cod catch – ratio in catches is mean of 2015–2017, max. 10.5% of EB cod total catch in SD 24										
Calculation		= A × 0.73^	=E/ 2.38^^		= D x 0.105***	= D – E	= B + C + E		= F	
EU MAP: F_{MSY}	13267	9685	737	16685	1754	14931	12176	118	14931	−56
F=MAP F_{MSY} lower	7340	5358	737	16685	1754	14931	7849	40	14931	−56
C. EB cod to WB cod ratios in SD 24 catch changed according to stock development – other parameters as in option A										
Calculation		= A × 0.73^	= A × 0.27^		= C × 0.79^^^	= D – E	= B + C + E		= F	
EU MAP: F_{MSY}	13267	9685	3582	16685	2827	13858	16094	188	13858	−60
F=MAP F_{MSY} lower	7340	5358	1982	16685	1564	15121	8904	59	15121	−56

Cod – Catch forecast by management area

Central Baltic herring and Gulf of Riga: information on catch opportunities by management area

A possible way to set TACs by management area consistent with the stock advice is by assuming for 2019:

- Central Baltic herring caught in G. Riga: 4363 t (average of 2013-2017)
- G. Riga herring caught in Subdvision 28.2: 251 t (average of 2013-2017)

The corresponding TAC in the central Baltic management area for 2019 would be calculated as 155 333 tonnes + 251 tonnes – 4363 tonnes = 151 221 tonnes .

The corresponding TAC in the Gulf of Riga management area for 2019 would be calculated as 26932 tonnes – 251 tonnes + 4363 tonnes = 31044 tonnes

Thank you

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