

8.3.17 Sea trout (*Salmo trutta*) in subdivisions 22–32 (Baltic Sea)

ICES stock advice

ICES advises that new data (landings and surveys) available for this stock do not change the perception of the stock status. Therefore, the advice for this stock in 2017 is the same as the advice for 2016. The assessment was not updated in 2016 but information on catches and indicators in 2015 is provided.

ICES advises that when the precautionary approach is applied, exploitation rates in the Gulf of Bothnia (subdivisions 30 and 31) should be reduced to safeguard the remaining wild sea trout populations in the region, both locally and on their migration routes. Fishing intensity should also be reduced in the eastern part of Subdivision 26 and in the southern parts of subdivisions 22 and 24. Reductions in exploitation rates should include all types of fishery, also fisheries for other species where sea trout are caught as bycatch. Management measures to help achieve exploitation reductions could include minimum mesh size for gillnets, minimum landing sizes, effort reductions, and temporal and areal fishing closures in the river mouths and in certain coastal areas.

Existing fishing restrictions (such as closed seasons, fishing closures at river mouths, minimum landing size, and minimum mesh sizes) in other Baltic Sea areas should be maintained.

Habitat improvements by restoration are needed and accessibility to spawning and rearing areas should be improved in many Baltic Sea rivers, to allow for recovery of sea trout populations.

Stock development over time

Based on the 2015 assessment, the status of southern Baltic Sea (subdivisions 22–25) sea trout is poor, in particular in some German streams (ICES, 2015). In Denmark, the parr densities are variable (Figure 8.3.17.1), but status of the stock is good. The status of stocks in Poland is intermediate.

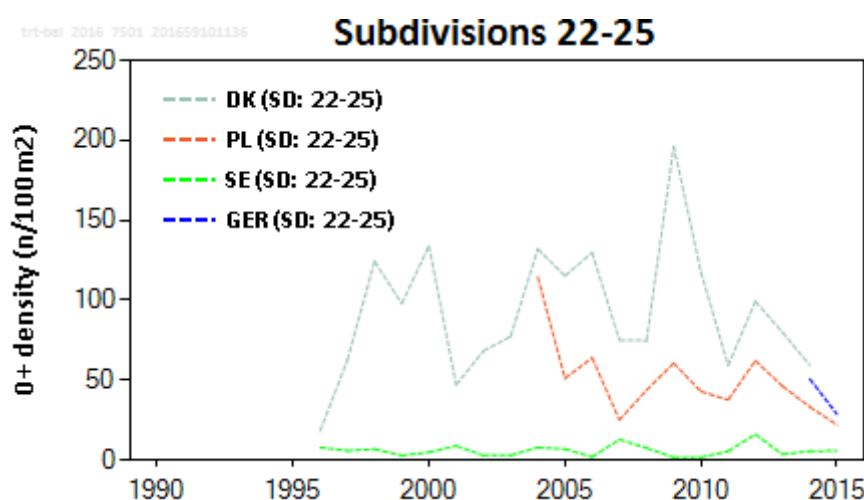


Figure 8.3.17.1 Average densities of 0+ sea trout in Danish (DK), Polish (PL), Swedish (SE), and German (GER) rivers in ICES subdivisions 22–25.

In part of the eastern Baltic Sea status of the trout stocks is poor (Subdivision 26). In particular in Lithuania, parr densities and smolt numbers are low (Figure 8.3.17.2). In the western Baltic Sea (subdivisions 27 and 29) the status is generally good, with the exception of Swedish rivers in Subdivision 29.

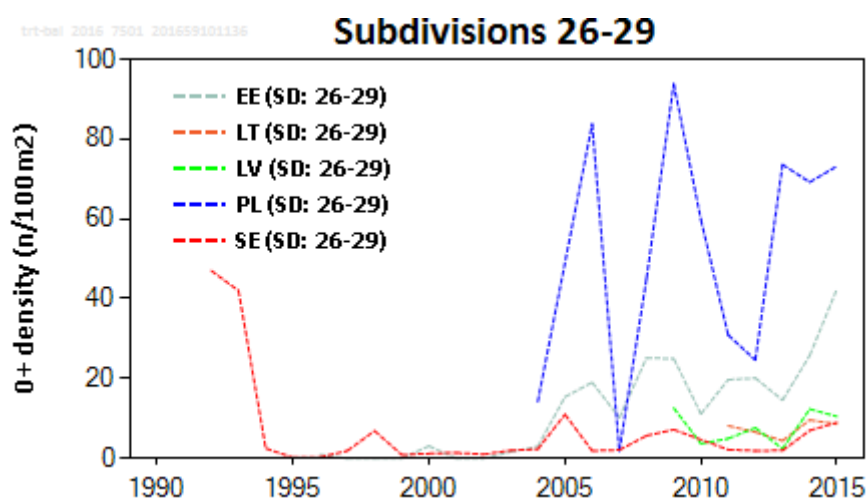


Figure 8.3.17.2 Average densities of 0+ sea trout in Estonian (EE), Lithuanian (LT), Latvian (LV), Polish (PL) and Swedish (SE) rivers in ICES subdivisions 26–29.

In the Gulf of Bothnia (subdivisions 30 and 31), especially in Subdivision 31, sea trout stocks are seriously endangered as a result of low spawning runs. A slowly increasing number of spawners has been observed in some rivers during the last fifteen years and an increase in parr densities was observed in 2015 (Figure 8.3.17.3). Catches of immature sea trout as bycatch continues to be high.

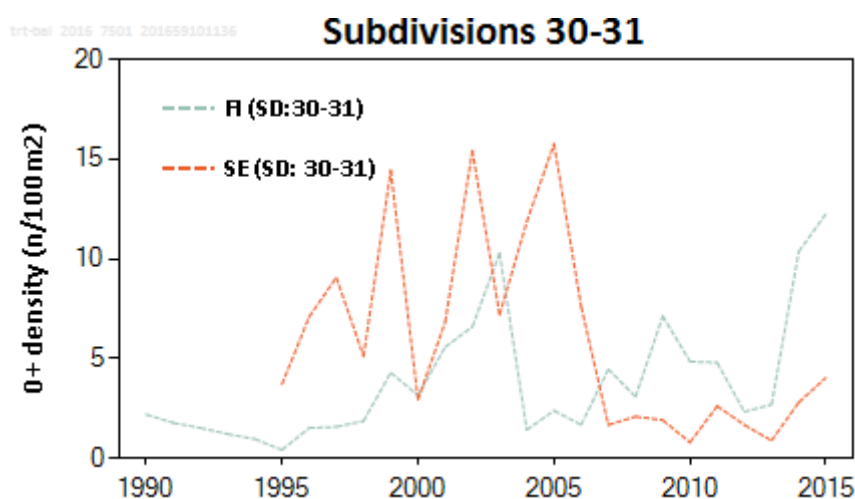


Figure 8.3.17.3 Average densities of 0+ sea trout in Finnish (FI) and Swedish (SE) rivers in ICES subdivisions 30–31.

In the Gulf of Finland (Subdivision 32) the stocks have improved. The status is good in Estonia and parr densities increased in 2015 (Figure 8.3.17.4). Stock status is moderate in Russia and Finland. Fishing regulations recently introduced in Finland are likely to have contributed positively to stock status. Poaching is believed to be a problem for some sea trout populations in Russia.

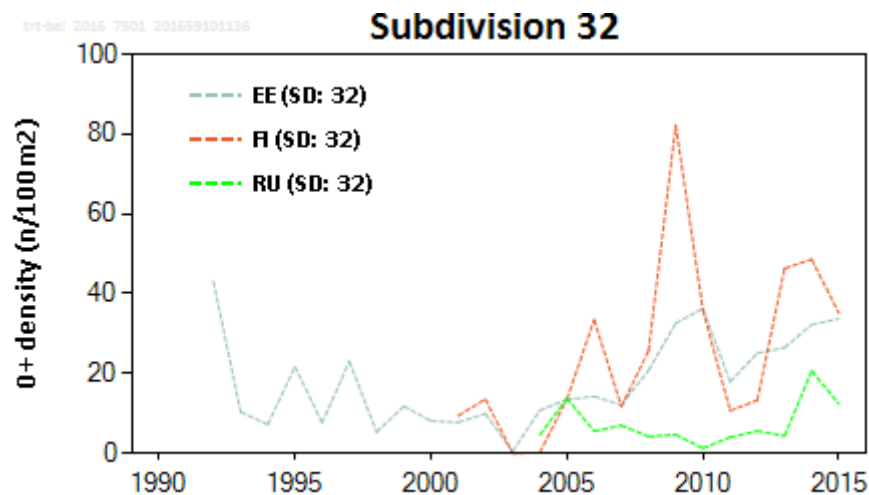


Figure 8.3.17.4 Average densities of 0+ sea trout in Estonian (EE), Finnish (FI), and Russian (RU) rivers in ICES Subdivision 32.

Catch options

No quantitative assessment or forecast could be provided.

In some areas, parr densities are low and exploitation is considered too high to achieve an improved status. Therefore, exploitation rates should be reduced in those areas. Because of the migratory behaviour of sea trout, the same advice applies to nearby areas. In addition, habitat improvements in the freshwater environment are recommended.

Basis of the advice

Table 8.3.17.1 Sea trout in subdivisions 22–32. The basis of the advice.

Advice basis	Precautionary approach
Management plan	There is no management plan for sea trout in the Baltic Sea.

Quality of the assessment

The assessment was not updated in 2016. The model used for the assessment of sea trout is still under development. The model relies on parr densities observed in rivers while other life stages are not included. The assessment of sea trout stocks and advice relies on the combined information from the model as well as other available information (e.g. that related to spawner and smolt counts, sea ages of sea trout caught as bycatch, and expert knowledge). The quality and quantity of data on sea trout populations need to be improved, particularly from lifestages at sea and during migration, if the quality of the advice is to be improved.

There are doubts about the accuracy of the reported commercial landings. Discards of undersized sea trout take place mainly in the coastal fisheries, but there are no estimates available in any fisheries. The available information (e.g. tagging data) suggests that significant amounts of undersized sea trout are caught as bycatch in the gillnet fishery for other species. A recent pilot study conducted in Finnish waters suggested survival of approximately 60% in those waters in spring and late autumn (ICES, 2016a). However, survival of small sea trout released back to the sea in other parts of the Baltic in warmer waters is expected to be much lower. The amount of seal-damaged sea trout is unknown in most countries. A proportion of salmon catches is misreported as sea trout. Recreational catches are significant in many countries, but the catch estimates are uncertain and incomplete or totally missing for several countries. More emphasis should be given to estimating these catches.

In some areas of the Baltic Sea, monitoring of sea trout in rivers is restricted to monitoring sites that have been established specifically for salmon; these sites are therefore not optimal for monitoring sea trout. There is a need for a common standardized monitoring programme for sea trout.

Sea trout is an anadromous form of brown trout (*Salmo trutta* L.). Sea trout parr usually live in the same water system as resident brown trout, and they can be genetically isolated from each other or breed together and genetically belong to the same population. This increases the uncertainty of the parr data for the sea trout assessment.

Issues relevant for the advice

Most of the stocks in the Baltic Sea migrate in the coastal area within about 150 km of the home river and are therefore exploited locally, but in all areas, particularly Poland, southern Sweden, and Denmark, longer migrations also occur. The fish that migrate only short distances are mainly exploited in coastal and river fisheries, but long-migrants are also taken in offshore fisheries. This migratory behaviour necessitates international cooperation when managing these stocks.

There is a large variability in the habitat quality of sea trout rivers. Although the habitat in many rivers is suitable for sea trout, many populations are reported to be limited by both poor habitat conditions and migration obstacles. Habitat improvements by restoration should be promoted where needed and accessibility to spawning and rearing areas should be secured.

Reference points

No reference points are available for sea trout.

To evaluate the state of sea trout stocks in different areas, ICES uses densities of sea trout parr expressed as a percentage of model-predicted maximal densities, derived based on highest observed values from the last fifteen years (ICES, 2011, 2015). The assessment was not updated in 2016.

Basis of the assessment

Table 8.3.17.2 Sea trout in subdivisions 22–32. The basis of the assessment.

ICES stock data category	4 (ICES, 2016b)
Assessment type	Evaluation of the relative status of stocks by comparing the observed parr densities to model-predicted maximal parr densities. Not updated in 2016.
Input data	Parr densities from most of the rivers, smolt and spawner counts in some rivers. Catches (international landings, tag returns, age composition).
Discards and bycatch	Not included in the assessment, but bycatch is known to be considerable in some areas. There is no available information on discards.
Indicators	None
Other information	None
Working group	Assessment Working Group on Baltic Salmon and Trout (WGBAST).

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 8.3.17.3 Sea trout in the Baltic Sea. ICES advice, management, and landings.

Year	ICES Advice	Predicted catch corresp. to advice	Agreed TAC	Nominal commercial landings (t)*
2003	No advice	-	-	934
2004	No advice	-	-	926
2005	Implement spatial restrictions, min. mesh size, and effort limitation	-	-	732
2006	Implement spatial restrictions, min. mesh size, and effort limitation. Urgent need to reduce exploitation in SDs 30–32.	-	-	708
2007	Implement spatial restrictions, min. mesh size, and effort limitation. Urgent need to reduce exploitation in SDs 30–32.	-	-	678
2008	Framework for advice under revision. No new advice.	-	-	331
2009	Reduce exploitation in SDs 30–32 and implement fishing restrictions. In SDs 22–29, improve river habitats.	-	-	531
2010	Reduce exploitation in SDs 30–32 and enforce fishing restrictions. In SDs 22–29, improve river habitats and maintain current restrictions.	-	-	568
2011	In SDs 30–32 enforce fishing restrictions, implement min. mesh size and effort limitations, and increase protective areas. In SDs 22–29, improve river habitats and maintain current restrictions.	-	-	350
2012	No new advice, same as for 2011	-	-	281
2013	Reduce exploitation in SDs 30–32 and maintain current fishing restrictions in SDs 22–29. Improve river habitats.	-	-	212
2014	No new advice, same as for 2013	-	-	219
2015	No new advice, same as for 2014	-	-	**189
2016	Reduce exploitation in SDs 30–31, eastern parts of SD 26, and southern parts of SDs 22 and 24. Maintain current fishing restrictions in other Baltic Sea areas. Improve river habitats.	-	-	
2017	Same as for 2016	-	-	

* Total sea trout catches are expected to be much larger, as there are also recreational catches, discards, and potential unreporting.

** Preliminary.

History of catch and landings

Historically, commercial catches were much higher than present catches. There has been a significant decrease in the commercial catch from 2004 to 2013. The Main Basin is the most important area for the commercial fisheries.

Data on recreational catches are incomplete. It is considered that recreational catches could at present be up to three times the commercial catch.

In the Gulf of Bothnia and Gulf of Finland there is no specific sea trout fishery, but sea trout are caught as bycatch in fisheries targeting whitefish, pikeperch, and perch. A significant part of this fishery is recreational.

Table 8.3.17.4 Sea trout in subdivisions 22–32. Catch distribution.

Catch distribution	Total commercial removal (dead catch in 2015) was 189 t (nominal sea and river). No estimate of dead discards or unreported landings. Estimates of non-commercial catch are incomplete.
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Table 8.3.17.5 Sea trout in the Baltic Sea. Nominal catches (commercial + recreational, and in tonnes round fresh weight) of sea trout in the Baltic Sea in the years 1979–2000. Commercial catches after 2000 are presented in Table 8.3.17.6 and recreational catches after 2000 in Table 8.3.17.7. S = Sea, C = Coast, and R = River.

Year	Main Basin															Total Main Basin	Gulf of Bothnia						Total Gulf of Bothnia	Gulf of Finland				Total Gulf of Finland	Grand Total
	Denmark ^{1,3}		Estonia	Finland ²		Germany ³		Latvia	Lithuania		Poland		Sweden ³				Finland ²			Sweden				Estonia		Finland ²			
	S + C	C	S	S + C	R	C	S + C	R	C	R	S ⁵	S + C	R	S ⁴	C ⁴		R	S	C	R	S ⁴	C ⁴		R	C	S	C	R	
1979	3	na		10		na	na		na		na	81*	24	na	na	3	121	6	na	na	na	na	6	na		73	0	73	200
1980	3	na		11		na	na		na		na	48*	26	na	na	3	91	87	na	na	na	na	87	na		75	0	75	253
1981	6	na		51		na	na		na		na	45*	21	na	na	3	131	131	na	na	na	na	131	2		128	0	130	392
1982	17	na		52		1	13		na		na	80	31	na	na	3	197	134	na	na	na	na	134	4		140	0	144	475
1983	19	na		50		na	14		na		na	108	25	na	na	3	219	134	na	na	na	na	134	3		148	0	151	504
1984	29	na		66		na	9		na		na	155	30	na	na	5	294	110	na	na	na	na	110	2		211	0	213	617
1985	40	na		62		na	9		na		na	140	26	na	na	13	290	103	na	na	na	na	103	3		203	0	206	599
1986	18	na		53		na	8		na		na	91	49	7	9	8	243	118	na	1	24	na	143	2		178	0	180	566
1987	31	na		66		na	2		na		na	163	37	6	9	5	319	123	na	1	26	na	150	na		184	0	184	653
1988	28	na		99		na	8		na		na	137	33	7	12	7	331	196	na	na	44	42	282	3		287	0	290	903
1989	39	na		156		18	10		na		na	149	35	30	17	6	460	215	na	1	78	37	331	3		295	0	298	1089
1990	48*	na		189		21	7		na		na	388	100	15	15	10	793	318	na	na	71	43	432	4		334	0	338	1563
1991	48*	1		185		7	6		na		na	272	37	26	24	7	613	349	na	na	60	54	463	2		295	0	297	1373
1992	27*	1		173		na	6		na		na	221	60	103	26	1	618	350	na	na	71	48	469	8		314	0	322	1409
1993	59*	1		386		14	17		na		na	202	70	125	21	2	897	160	na	na	47	43	250	14		704**	0	718	1865
1994	33**	2		384		15^	18		+		na	152	70	76	16	3	769	124	na	na	24	42	190	6		642	0	648	1607
1995	69**	1		226		13	13		3		na	187	75	44	5	11	647	162	na	na	33	32	227	5		114	0	119	993
1996	71**	2		76		6	10		2		na	150	90	93	2	9	511	151	25	na	20	42	238	14		78	3	95	844
1997	53**	2		44		+	7		2		na	200	80	72	7	7	474	156	12	na	16	54	238	8		82	3	93	805
1998	60	8		103		4	7		na		208	184	76	88	3	6	747	192	12	0	9	39	252	6		150	3	159	1158
1999	110**	2		84		9	10		1		384	126	116	51	2	3	898	248	12	0	18	41	319	8		93	3	104	1321
2000	58	4		64		9	14		1		443	299	70	42	4	3	1011	197	12	0	14	36	259	10		56	3	69	1339

¹Additional sea trout catches are included in the salmon statistics for Denmark until 1982.²Finnish catches include about 70% non-commercial catches in 1979–1995, 50% in 1996–1997, and 75% in 2000–2001.³Sea trout are also caught in the western Baltic in subdivisions 22 and 23 by Denmark, Germany, and Sweden.⁴Catches reported by licensed fishers, and from 1985 also catches in trapnets used by non-licensed fishers.⁵Catches in 1979–1997 include sea and coastal catches. Since 1998 coastal (C) and sea (S) catches are registered separately.

*Rainbow trout included.

**Finnish catches include about 85% non-commercial catches in 1993.

^ICES subdivisions 22 and 24.

na = Data not available.

+ Catch less than 1 tonne.

Table 8.3.17.6 Sea trout in the Baltic Sea. Nominal commercial catches (in tonnes round fresh weight) of sea trout in the Baltic Sea (2001–2015). S = Sea, C = Coast, and R = River.

Year	Main Basin															Total Main Basin	Gulf of Bothnia				Total Gulf of Bothnia	Gulf of Finland				Total Gulf of Finland	Grand Total			
	Denmark	Estonia	Finland		Germany	Latvia			Lithuania			Poland			Sweden			Finland		Sweden		Gulf of	Estonia	Finland				Russia		
	S	C	S	C	S	S	C	R	S	C	R	S	C	R	S		C	R	S	C		C	R	Bothnia	C			S	C	R
	S	C	S	C	S	S	C	R	S	C	R	S	C	R	S		C	R	S	C		C	R	Bothnia	C			S	C	R
2001	54.4	2.0	5.0	14.1	10.0	0.5	11.3		2.2			485.8	219.3	10.8	23.4	2.2	2.7	843.8	1.7	54.0	15.8	44.0	115.5	8.0	0.2	16.9		25.1	984.4	
2002	34.8	4.7	2.3	7.8	12.3	0.3	13.1		2.4			539.1	271.6	52.7	10.8	1.9		953.8	0.3	49.0	24.9		74.2	11.3	0.3	11.4		23.0	1050.9	
2003	40.3	2.3	1.3	4.3	8.7	0.9	5.5					582.7	168.9	31.8	7.8	3.1		857.7	0.2	41.2	20.7	0.2	62.3	6.7	0.0	7.3		14.0	933.9	
2004	46.0	3.1	0.8	5.3	11.7		7.0		0.5			606.3	121.9	36.0	9.1	2.8		850.5	0.8	38.9	20.6	0.3	60.6	7.1	0.0	7.3		14.4	925.5	
2005	13.6	3.7	0.8	7.2	14.1		7.4	1.4		1.1	0.4	480.0	85.7	20.1	4.8	3.5		643.8	0.3	46.4	23.6	0.1	70.4	6.3	0.0	11.4		17.7	731.9	
2006	44.1	10.0	1.0	9.6	11.8		7.1		0.6	0.3		414.4	98.2	17.3	6.1	2.4		622.8	0.8	40.5	20.2	0.0	61.4	9.3	0.1	13.3		22.7	706.9	
2007	25.5	3.9	2.0	8.3	9.0		7.5		0.9	0.3		353.8	132.8	38.5	5.8	3.3		591.7	0.4	44.8	15.2	0.2	60.7	13.2		12.3		25.5	677.8	
2008	18.3	3.6	1.0	10.5	13.1		7.5	0.4	0.0	1.9	0.2	33.9	90.1	48.1	3.9	3.1		235.8	0.3	47.3	18.5	0.5	66.6	8.2	0.0	17.8		26.0	328.4	
2009	12.4	6.6	0.6	7.7	3.8		10.4	0.2	0.0	1.9		259.3	103.4	26.4	3.3	2.6		438.5	0.1	45.6	16.6	1.4	63.7	11.0		17.2		28.2	530.4	
2010	8.0	4.8	0.1	6.4	2.8		5.4	0.4	0.0	1.7	0.3	343.2	80.5	30.0	2.4	2.6		488.5	0.0	36.9	20.4	1.0	58.3	11.2	0.0	10.3		21.5	568.3	
2011	6.0	5.2	0.1	5.1	3.1			6.2	0.0	2.3	0.3	139.5	65.3	39.4	1.4	1.6		275.5	0.0	33.3	18.1	1.2	52.6	12.4		10.0		22.4	350.4	
2012	10.6	8.2	0.0	5.5	17.7		4.4	0.5	0.0	3.3	0.3	37.4	73.5	26.1	0.3	3.2		191.1	0.0	40.8	18.4	1.6	60.8	13.6	0.0	15.6	0.2	29.4	281.3	
2013	4.5	7.2	0.0	6.4	14.4		4.9	0.6	0.0	11.1	0.3	43.2	44.4	7.6	0.0	3.0		147.5	0.1	28.9	13.5	1.5	44.0	11.7		8.8	0.1	20.6	212.1	
2014	10.2	4.8		5.8	14.3		5.1	0.8	0.0	5.5	0.3	44.5	48.2	27.9	0.2	2.7		170.3	0.0	21.5	10.8	0.3	32.6	9.8	0.0	6.5	0.1	16.4	219.2	
2015	7.7	4.7		2.8	13.6		3.6	0.2	0.0	5.6	0.1	13.3	83.1	7.4	0.4	1.5		144.0	0.0	15.0	12.5	0.8	28.3	11.4		5.0	0.2	16.5	188.8	

Table 8.3.17.7 Sea trout in the Baltic Sea. Nominal recreational catches (in tonnes round fresh weight) of sea trout in the Baltic Sea (2001–2015). S = Sea, C = Coast, and R = River.

YEAR	Main Basin						Total Main Basin	Gulf of Bothnia			Total Gulf of Bothnia	Gulf of Finland		Total Gulf of Finland	Whole of the Baltic Finland	Grand Total	
	Denmark	Estonia	Finland	Latvia		Poland		Sweden	Finland	Sweden		Estonia	Finland				
	C	C	R	C	R	R		R	R	C		R	C		R		C
2001	n.a.						0.0	7.0			7.0		3.0	3.0	324.0	334.0	
2002	n.a.		0.2				2.8	3.0		38.4	44.9		2.6	2.6	116.0	166.5	
2003	n.a.		0.2				3.6	3.8		31.5	42.6		1.6	1.6	116.0	164.0	
2004	n.a.		0.5				2.6	3.1		28.2	38.8		2.1	2.1	80.0	123.9	
2005	n.a.		0.5				1.5	2.0		30.9	41.5		2.7	2.7	80.0	126.2	
2006	n.a.		0.1				1.3	1.4		5.3	37.8		3.3	3.3	187.0	229.4	
2007	n.a.		0.3				1.3	1.6		31.5	39.6		3.1	3.1	187.0	231.3	
2008	n.a.		0.2				2.6	2.7		8.9	39.7		2.3	2.3	163.0	216.6	
2009	n.a.		0.4				2.3	2.7		10.6	45.8		5.5	5.5	163.0	227.6	
2010	346		0.4		0.1	1.6	3.3	351.3		7.3	39.1		1.2	1.2	56.0	454.9	
2011	224		0.4			1.7	2.2	228.3		7.5	1.7	39.3		2.2	2.2	56.0	335.0
2012	260		0.3			2.4	2.2	264.9		10.6	2.5	38.9		3.8	3.8	109.0	429.6
2013	301	1.4	0.2	3.0		n.a.	1.3	306.9		10.6	1.5	46.2	3.3	3.8	7.1	109.0	481.3
2014	521	1.5	0.3	3.8		n.a.	0.7	527.3		5.2	1.4	43.0	3.1	2.2	5.3	71.0	653.3
2015	n.a.	1.7	0.3	2.9		n.a.	0.6	5.5		1.7		27.6	4.6	1.0	5.6	71.0	111.4

Summary of the assessment

No new assessment was conducted in 2016.

Sources

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