

5.3.2 White anglerfish (*Lophius piscatorius*) in divisions 7.b–k, 8.a–b, and 8.d (southern Celtic Seas, Bay of Biscay)

ICES stock advice

ICES advises that when the precautionary approach is applied, landings should be no more than 26 691 tonnes in each of the years 2017 and 2018. ICES cannot quantify the corresponding total catches.

Stock development over time

The EVHOE-WIBTS-Q4 biomass index shows high interannual variability with no strong trends, and a decrease in the last two years. The other indices, IGFS-WIBTS-Q4 and the SPPGFS-WIBTS-Q4, show an overall increasing trend during the last five years. The recruitment index varies without clear trends over time.

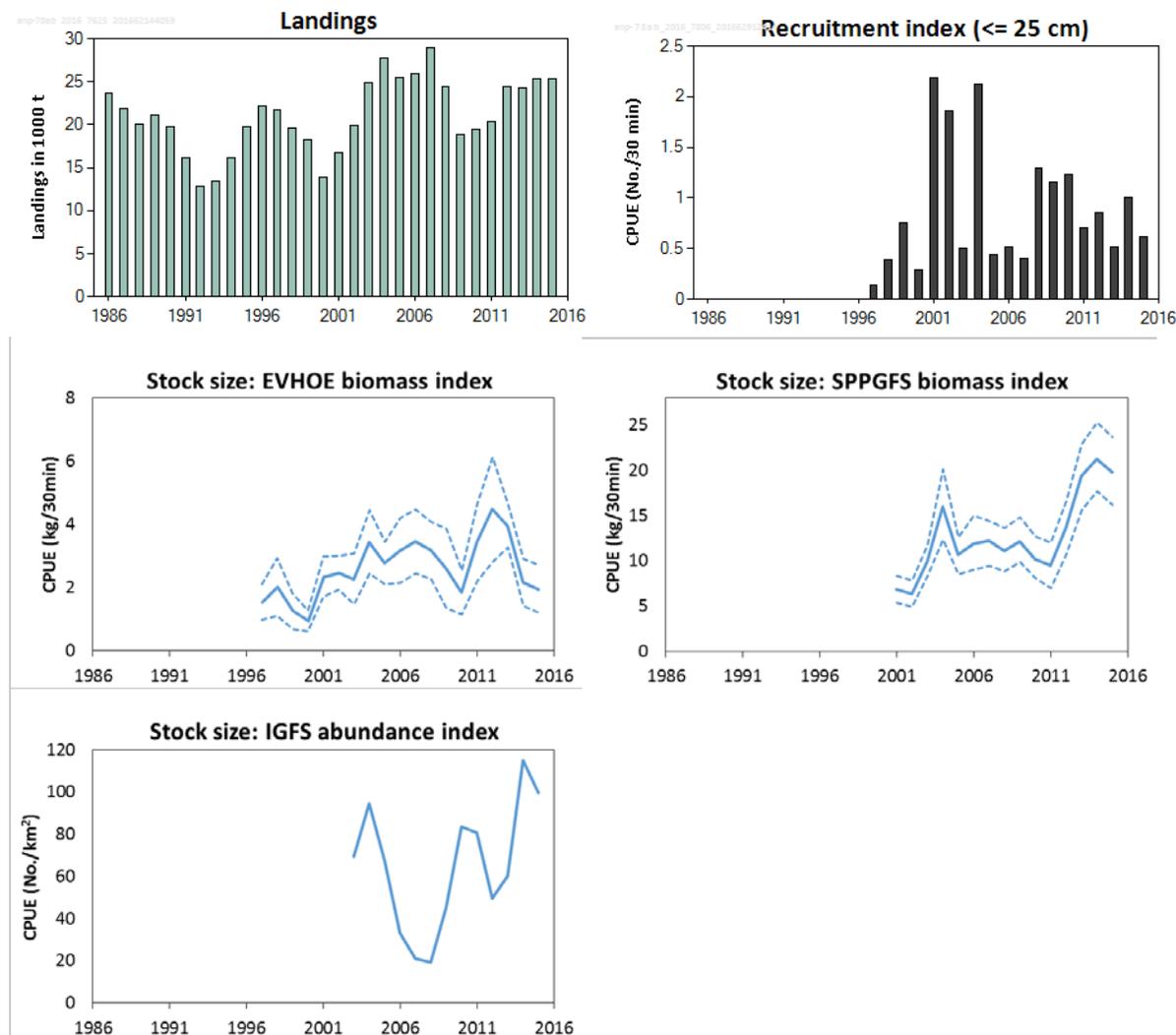


Figure 5.3.2.1 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. Top left: ICES estimated landings (tonnes). Top right and middle left: two stock size indices from the EVHOE-WIBTS-Q4 survey: recruitment (fish ≤ 25 cm; number $[30 \text{ min}]^{-1}$) and biomass ($\text{kg} [30 \text{ min}]^{-1}$; dashed lines indicate ± 2 s.d.). Middle right: estimated biomass index from the survey SPPGFS-WIBTS-Q4 ($\text{kg} [30 \text{ min}]^{-1}$; dashed lines indicate 80% confidence intervals). Bottom: estimated abundance index from the survey IGFS-WIBTS-Q4 (number km^{-2}). Discarding is thought to occur, but no reliable estimates exist.

Stock and exploitation status

Table 5.3.2.1 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. State of the stock and fishery relative to reference points. The state of the stock evaluation is based on reference point proxies (ICES, 2016ab) until 2014 (fishing pressure) or 2015 (stock size); no update analysis is available for the most recent year.

	Fishing pressure			Stock size		
	2013	2014	2015	2013	2014	2015
Maximum sustainable yield	F _{MSY proxy} ✓	✓	? Unknown	MSY B _{trigger} proxy ✓	✓	✓ Above proxy [†]
Precautionary approach	F _{pa} , F _{lim} ✓	✓	? Unknown	B _{pa} , B _{lim} ✓	✓	✓ Above possible ref. points [†]
Management plan	F _{MGT} -	-	- Not applicable	SSB _{MGT} -	-	- Not applicable

Catch options

The ICES framework for category 3 stocks is applied (ICES, 2012a). Considering all the available indices for the stock, which provide different signals in recent years while none of them is considered to be fully representative of the trend in the stock, the overall perception has not changed. Therefore, the advice given in the three most recent years is still applicable for 2017 and 2018.

From the latest evaluation conducted (ICES, 2016a, 2016b), using data until 2014, it is concluded that fishing mortality (up to 2014) is below the F_{MSY} proxy and stock biomass (up to 2015) is above the MSY B_{trigger} proxy. In addition, the precautionary buffer has never been applied to this stock because of a steady decrease in fishing effort since the early 1990s (Figure 5.3.2.2). Therefore, no additional precautionary buffer was applied.

Discarding is known to take place, but ICES cannot quantify the corresponding catch.

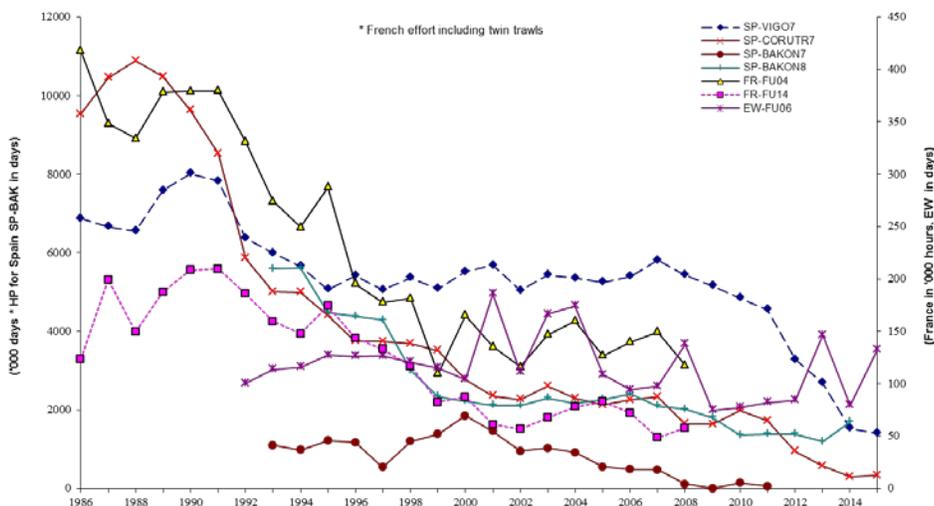


Figure 5.3.2.2 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. Effort of some Spanish (SP), French (FR) and English (EW) commercial fleets fishing on anglerfish in the stock distribution area.

Table 5.3.2.2 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. For stocks in ICES data categories 3–6, one catch option is possible.

Recent advised landings (for 2016)	26 691 tonnes	
Discard rate	Unknown, but not negligible	
Precautionary buffer	Not applied	-

[†] Version 2: Text corrected to match evaluation of stock size status.

Landings advice*	26 691 tonnes
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* = recent advised landings.

Basis of the advice

Table 5.3.2.3 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	There is no management plan for anglerfish (<i>L. piscatorius</i>) in this area.

Quality of the assessment

The three surveys (Spanish Porcupine Groundfish, Irish Groundfish, and French EVHOE) cover different areas of the stock distribution. In recent years the signals from the different surveys have not been consistent.

Discard data were available this year. However, because of data submission problems, an analysis of these data could not be conducted. Available data from previous assessments show that discarding is not negligible (> 5%).

Issues relevant for the advice

Management of the two anglerfish species under a combined TAC prevents effective control of the single-species exploitation rates and could lead to overexploitation of either species.

Reference points

Table 5.3.2.4 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger\ proxy}$	19400 t	$0.5 \times B_{MSY}$ (estimated by SPiCT from model parameters).	ICES(2016b)
	$F_{MSY\ proxy}$	0.61	$r/2$ (estimated by the SPiCT from model parameters).	ICES(2016b)
Precautionary approach	B_{lim}	Not defined		
	B_{pa}	Not defined		
	F_{lim}	Not defined		
	F_{pa}	Not defined		
Management plan	SSB_{MGT}	Not applicable		
	F_{MGT}	Not applicable		

Basis of the assessment

Table 5.3.2.5 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. The basis of the assessment.

ICES stock data category	3 (ICES, 2016c)
Assessment type	Survey trends-based assessment (ICES, 2016d)
Input data	Commercial landings; three survey indices (EVHOE-WIBTS-Q4, IGFS-WIBTS-Q4 and SPPGFS -WIBTS-Q4)
Discards and bycatch	Discarding is known to take place and is considered to be non-negligible (> 5%), but cannot be quantified.
Indicators	Effort and LPUE data for commercial fleets in divisions 7.b–k, 8.a–b, and 8.d
Other information	This stock was benchmarked in 2012 (WKFLAT; ICES, 2012b).
Working group report	Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE)

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 5.3.2.6 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. History of ICES advice, the agreed TAC, and ICES estimates of landings. All weights are in thousand tonnes.

Year	ICES advice	Predicted landings corresponding to advice	Predicted catch/landings corresp. to advice (both <i>Lophius</i> species) *	Agreed TAC * **	ICES landings (both <i>Lophius</i> species) * **	Landings <i>L. piscatorius</i>
1987	Not assessed	-	-	39.08	29.5	21.9
1988	Not assessed	-	-	42.99	28.5	20.1
1989	Not assessed	-	-	42.99	30	21.1
1990	Not assessed	-	-	42.99	29.4	19.8
1991	No advice	-	-	42.99	24.9	16.2
1992	No advice	-	-	42.99	20.9	12.8
1993	Concern about <i>L. pisc.</i> SSB decrease	-	-	25.1	20.0	13.5
1994	SSB decreasing, still inside safe biological limits	-	-	23.9	21.9	16.1
1995	No increase in F	-	20.0	23.2	26.7	19.7
1996	No increase in F	-	30.3	30.4	20.3	22.2
1997	No increase in F	-	34.3	34.3	29.8	21.7
1998	No increase in F	-	33.0	34.3	28.2	19.6
1999	No increase in F	-	32.9	34.3	25.0	18.2
2000	At least 20% decrease in F	-	< 22.3	29.6	20.6	13.9
2001	Reduce F below F_{pa}	-	< 27.6	27.6	22.4	16.7
2002	Reduce F below F_{pa}	-	< 19.9	23.7	26.2	19.8
2003	At least 30% decrease in F	-	< 16.4	21.0##	33.2	24.9
2004	At least 10% decrease in F	-	< 26.7	26.7	35.2	27.7
2005	Maintain F below F_{pa}	-	< 37.8	31.2	33.1	25.5
2006	Maintain F below F_{pa}	-	< 33.9	34.0	31.6	25.9
2007	Maintain F below F_{pa}	-	< 36.0	36.0	35.3	29.0
2008	Less than average landings	-	< 33.0	36.0	31.8	24.4
2009	Same advice as last year	-	< 33.0	36.0	27.9	18.8
2010	No increase in effort	-	-	41.4	28.9	19.5
2011	No increase in effort	-	-	40.9	28.4***	20.4***
2012	Reduce catch	-	-	38.9	36.4	26.8
2013	Reduce catch by the rate of biomass decrease (14% for <i>L. piscatorius</i> and 20% for <i>L. budegassa</i>)	17.9#	< 24.8#	37.0	36.9	24.2
2014	Increase landings by the rate of biomass increase (20% for <i>L. piscatorius</i> and 20% for <i>L. budegassa</i>)	< 26.691#	< 37.5#	42.5	36.2	25.3
2015	Same landings advice for <i>L. piscatorius</i> as in 2014	< 26.691#	< 37.5#	42.5	35.6	25.3
2016	Precautionary approach (same landings value as advised for 2014)	≤ 26.691#	< 37.5#	42.5		
2017	Precautionary approach (same landings value as advised for 2016)	≤ 26.691#				
2018	Precautionary approach (same landings value as advised for 2016)	≤ 26.691#				

* Applies to the combined *Lophius* species.

** Includes divisions 7.a and 8.e.

*** Revised.

Advice refers to landings, not catch.

TAC was changed during 2003, from 19 400 t to 21 000 t, following fast-track advice from ICES.

History of catch and landings

Table 5.3.2.7 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. Catch distribution by fleet in 2015 as estimated by ICES.

Total catch (2015)	Landings			Discards
Unknown	80% otter and <i>Nephrops</i> trawl	11% beam trawl	10% gillnet	Discarding is known to take place but cannot be quantified.
	25.3 kt			

Table 5.3.2.8 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. History of commercial catch and landings; both the official and ICES estimated values are presented for divisions 7.b–k for each country participating in the fishery. All weights are in tonnes. Fishery units included are: *Unit 3* = Gillnets, *Unit 4* = Non-*Nephrops* trawling in medium to deep water, *Unit 5* = Non-*Nephrops* trawling in shallow water, *Unit 6* = Beam trawling in shallow water, *Unit 8* = *Nephrops* trawling in medium to deep water, *Unit 13* = Gillnets in shallow to medium water.

Year	Divisions 7.b–k													Unallocated	Total
	Ireland		Belgium	UK					France			Spain			
	Trawl		Beam trawl	Gillnet	Trawl		Beam trawl	Other	Gillnet	Trawl		<i>Neph.</i> trawl	Trawl		
	Unit 4	Unit 5	Unit 6	Unit 3	Unit 4	Unit 5	Unit 6		Units 3 & 13	Unit 4	Unit 5	Unit 8	Unit 4		
1986	582	368	438	429	1349	369	998	0	0	6019	2140	1021	5831	0	19544
1987	511	357	90	560	904	271	1429	0	0	4940	2272	787	5059	0	17180
1988	349	259	156	643	769	345	1658	0	0	4403	2500	774	4291	0	16147
1989	112	1370	526	481	210	583	2472	0	300	3873	3306	754	4253	0	18240
1990	536	835	211	421	321	380	1525	0	600	3946	2735	880	3985	0	16375
1991	203	809	52	452	700	211	1090	0	1300	3106	1772	752	3554	0	14001
1992	999	50	95	573	913	181	903	0	1200	1859	1261	887	2484	0	11405
1993	948	199	223	442	635	234	1035	0	1300	1650	1692	969	2543	0	11870
1994	1364	527	582	377	553	246	941	0	1000	2776	1821	1236	2652	0	14075
1995	1104	436	831	415	592	394	974	0	1500	3760	2365	1242	3004	0	16617
1996	952	337	800	342	794	337	1388	138	1902	4201	1985	1149	3849	0	18174
1997	1346	510	548	389	935	297	1483	39	2150	3642	2138	964	3302	0	17743
1998	1109	787	385	580	950	181	1336	3	2818	3252	1170	812	3403	0	16786
1999	3076	0	311	378	1192	125	1098	19	2784	1815	2244	780	2954	0	16776
2000	1660	0	321	317	1019	120	1112	6	1717	2201	1522	726	2187	0	12908
2001	1535	0	444	478	684	190	1534	17	1524	3266	2103	886	2395	0	15056
2002	1627	0	470	586	890	228	1366	22	2133	3863	2381	924	3084	0	17574
2003	1170	0	648	419	749	213	1335	81	3079	5752	2573	974	4662	0	21655
2004	1614	0	846	513	687	217	1614	14	4491	5961	2425	852	4507	0	23741
2005	1968	0	825	630	669	222	1563	7	4524	4235	2178	594	4683	0	22098
2006	2572	0	773	511	757	279	1648	3	3230	5491	1937	700	4589	0	22490
2007	2355	0	862	707	1026	334	1973	11	3888	6931	2048	660	4637	0	25432
2008	1845	0	533	347	787	356	1457	10	4760	5027	1528	491	4107	0	21248
2009	1975	0	401	444	770	358	1478	16	3513	4440	0	48	2754	0	16197
2010	2478	0	574	465	898	539	1929	31	2933	3966	0	21	2510	0	16344
2011	2213	0	840	429	1211	548	2180	42	1723	4361	0	12	1183	1616	16358
2012	2563	0	1253	578	915	513	1978	9	2327	5544	0	14	1371	1251	18316

Divisions 7.b–k															
Year	Ireland		Belgium	UK					France			Spain	Unallocated	Total	
	Trawl		Beam trawl	Gillnet	Trawl		Beam trawl	Other	Gillnet	Trawl		Neph. trawl			Trawl
	Unit 4	Unit 5	Unit 6	Unit 3	Unit 4	Unit 5	Unit 6		Units 3 & 13	Unit 4	Unit 5	Unit 8			Unit 4
2013	2435	0	1090	734	1556	392	1991	43	1311	5414	0	71	1832	1455	18324
2014	2512	0	473	446	1931	494	2095	6	2234	8646	0	102	1929	337	21205
2015*	2454	0	742	697	1532	579	1928	2	1707	9502* *	0	0**	1693	414	21250

*Provisional.

** Estimates of France landings for unit 8 were not available (likely included in unit 4).

Table 5.3.2.9 White anglerfish in divisions 7.b–k, 8.a–b, and 8.d. History of commercial catch and landings. For divisions 8.a, 8.b, and 8.d both the official and ICES estimated values are presented by country participating in the fishery. The final column shows the total for divisions 7.b–k, 8.a–b, and 8.d. All weights are in tonnes. Fishery units included are: *Unit 9* = *Nephrops* trawling in shallow to medium water, *Unit 10* = Trawling in shallow to medium water, *Unit 14* = Trawling in medium to deep water.

Year	Divisions 8.a, 8.b, and 8.d					Unallocated	Total	Divisions 7.b–k, 8.a–b, and 8.d TOTAL
	France			Spain	Trawl			
	<i>Neph. trawl</i> Unit 9	Trawl Unit 10 Unit 14		Trawl Unit 14				
1986	746	720	1799	858	0	4123	23666	
1987	1035	542	2378	774	0	4729	21909	
1988	927	534	1668	819	0	3948	20095	
1989	673	444	1147	625	0	2889	21130	
1990	410	391	1779	800	0	3380	19753	
1991	284	218	1155	502	0	2159	16160	
1992	254	166	646	296	0	1362	12766	
1993	360	278	676	274	0	1588	13458	
1994	261	198	1105	481	0	2045	16120	
1995	501	429	1472	482	228	3112	19730	
1996	441	379	1396	834	938	3988	22162	
1997	429	376	1338	707	1068	3918	21660	
1998	397	149	988	711	542	2787	19572	
1999	98	116	710	549	0	1473	18250	
2000	91	77	522	341	0	1031	13941	
2001	146	76	1018	384	0	1624	16681	
2002	247	96	1394	514	0	2251	19826	
2003	470	168	2067	508	0	3213	24865	
2004	457	218	2578	718	0	3971	27714	
2005	342	165	2365	571	2	3445	25543	
2006	429	218	2338	420	2	3407	25898	
2007	286	244	2615	401	0	3546	28977	
2008	227	325	2047	527	1	3127	24376	
2009	221	0	1779	374	275	2649	18844	
2010	301	0	2000	372	504	3177	19521	
2011	231	0	1908	377	1497	4013	20370	
2012	195	0	3355	376	2168	6094	24409	
2013	216	0	3944	288	1429	5877	24200	
2014	286	0	3345	408	84	4123	25328	
2015*	0**	0	3713**	293	10	4016	25266	

*Provisional.

** Estimates of France landings for unit 9 were not available (likely included in unit 14).

Summary of the assessment

Table 5.3.2.10 White anglerfish in Divisions 7.b–k, 8.a–b, and 8.d. Assessment summary: two stock size indices from the EVHOE-WIBTS-Q4 survey: recruitment (fish ≤ 25 cm; number $[30 \text{ min}]^{-1}$) and biomass (kg $[30 \text{ min}]^{-1}$; low and high indicate ± 2 s.d.), estimated biomass index from the survey SPPGFS-WIBTS-Q4 (kg $[30 \text{ min}]^{-1}$; low and high indicate 80% confidence intervals), and estimated abundance index from the survey IGFS-WIBTS-Q4 (number km^{-2}).

Year	EVHOE recruits (< 25 cm)	EVHOE	EVHOE low	EVHOE high	SPPGFS	SPPGFS low	SPPGFS high	IGFS
	No. $[30 \text{ min}]^{-1}$	kg $[30 \text{ min}]^{-1}$			kg $[30 \text{ min}]^{-1}$			No. km^{-2}
1997	0.14	1.53	0.97	2.09				
1998	0.39	2.01	1.09	2.93				
1999	0.76	1.25	0.69	1.81				
2000	0.29	0.94	0.62	1.26				
2001	2.19	2.34	1.70	2.98	6.81	5.36	8.37	
2002	1.86	2.46	1.92	3.00	6.29	4.90	7.78	
2003	0.50	2.27	1.47	3.07	9.91	8.29	11.74	69.3
2004	2.12	3.44	2.44	4.44	15.96	12.31	20.09	94.4
2005	0.44	2.77	2.11	3.43	10.69	8.52	12.63	67.5
2006	0.51	3.17	2.15	4.19	11.88	9.02	14.97	33.1
2007	0.39	3.45	2.43	4.47	12.21	9.48	14.39	21.1
2008	1.29	3.18	2.28	4.08	11.11	8.85	13.63	19.4
2009	1.15	2.60	1.34	3.86	12.12	9.87	14.83	45.2
2010	1.23	1.85	1.15	2.55	10.18	8.09	12.68	83.6
2011	0.71*	3.42*	2.20*	4.64*	9.44	6.98	11.98	80.8
2012	0.86	4.47	2.81	6.13	13.64	10.73	16.61	49.6
2013	0.51	3.95	3.28	4.62	19.41	15.61	22.89	60.1
2014	1.01	2.16	1.42	2.90	21.28	17.75	25.35	114.9
2015	0.62	1.95	1.19	2.71	19.80	16.21	23.70	99.5

*Revised.

Sources and references

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