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Demersal and Pelagic Fisheries in Norway – some issues

Presentation at conference held by Búskaparráðið 17th March 2023

by

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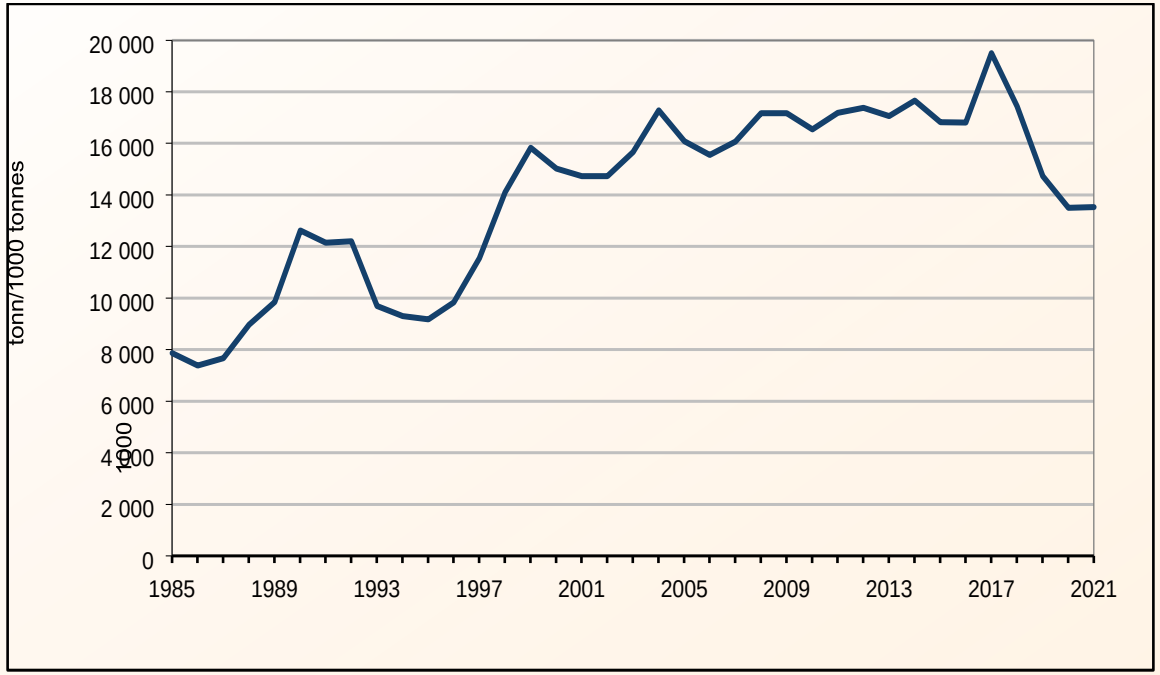
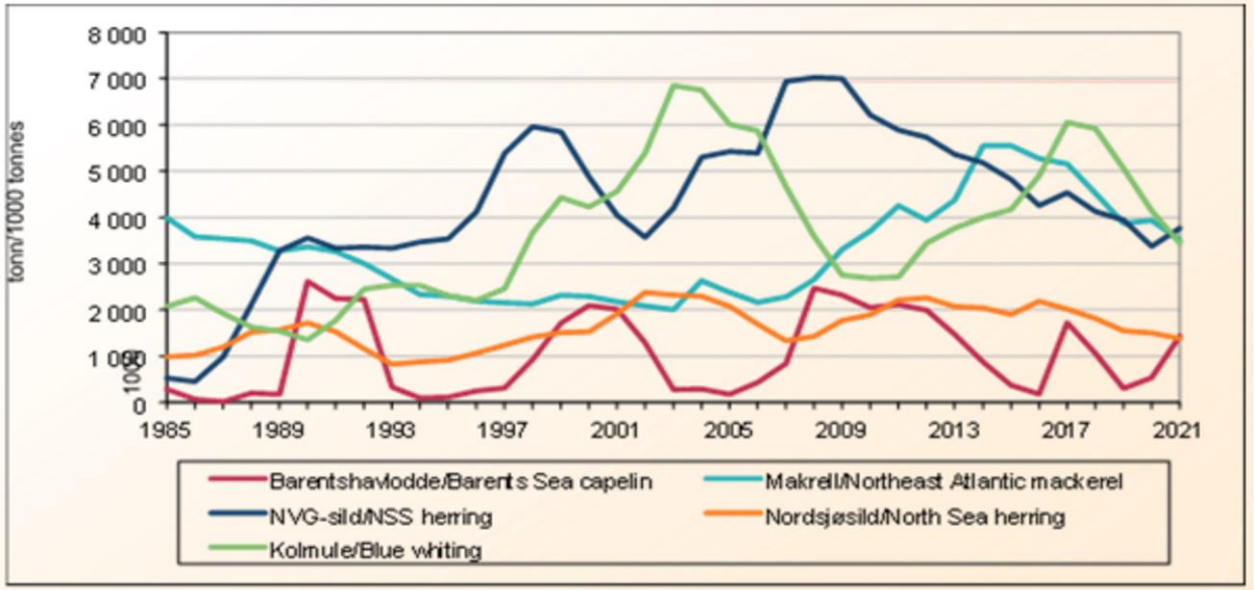
CONTENTS

Spawning stock biomass of all main pelagic species. 1985-2021.



Kilde: ICES's rådgivningskomité (ACOM) www.ices.dk

Spawning stock biomass of Barents Sea capelin, Northeast Atlantic mackerel, Norwegian spring spawning herring, North Sea herring and blue whiting. 1985-2021.



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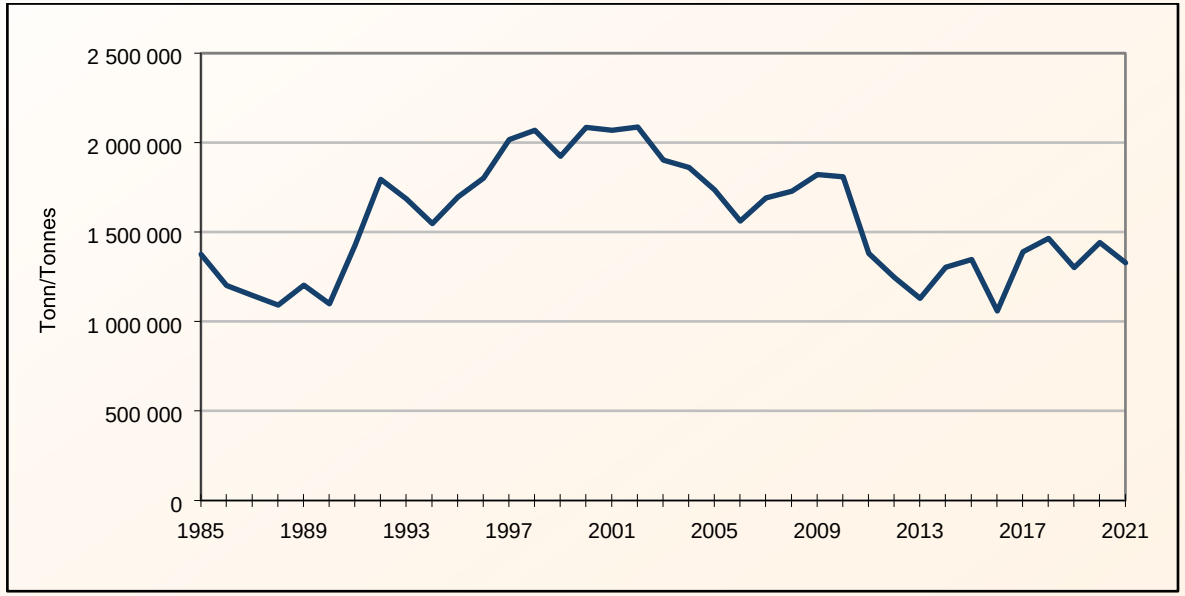
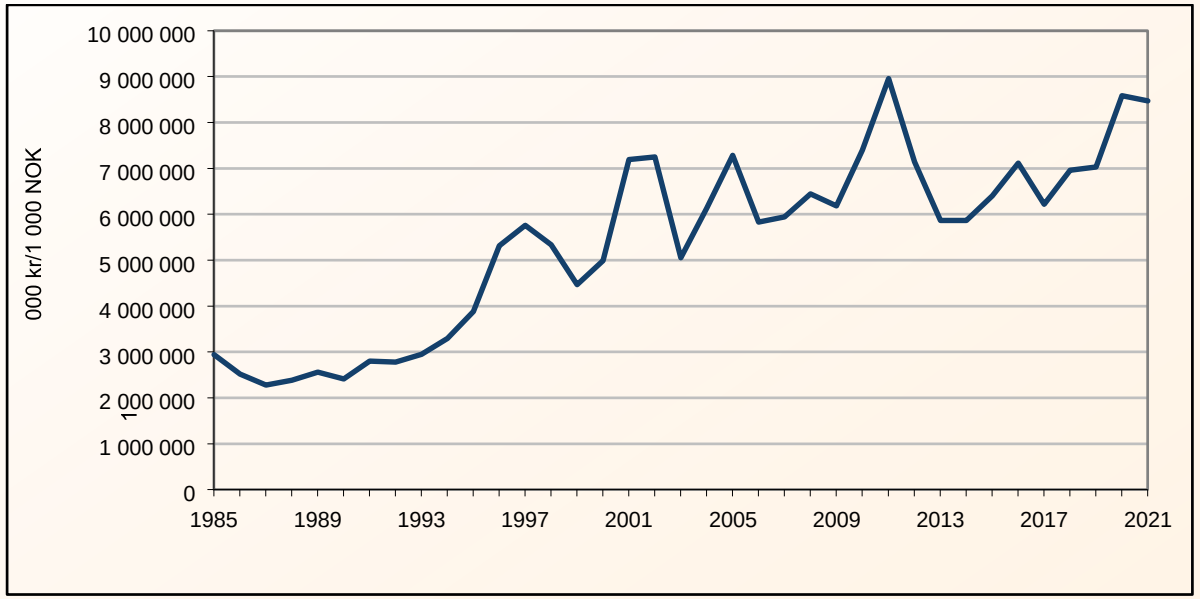
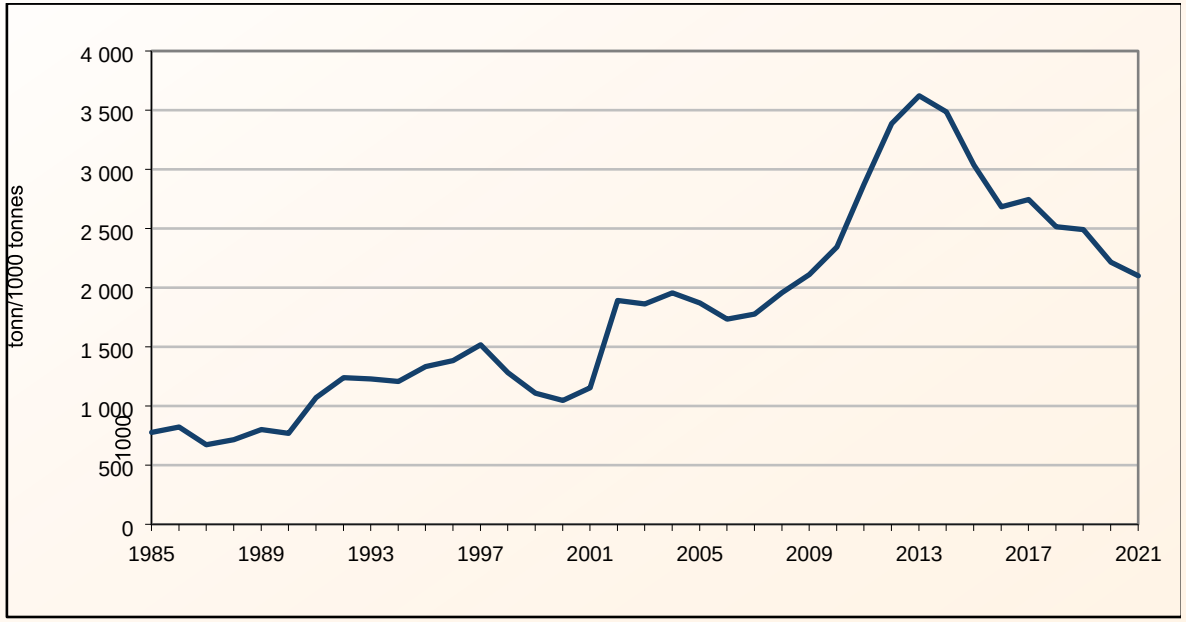
Catch (tonnes) of all pelagic species. 1985-2021.



Value of catch (in 2021-values) of all pelagic species. 1985-2021. 1000 NOK.



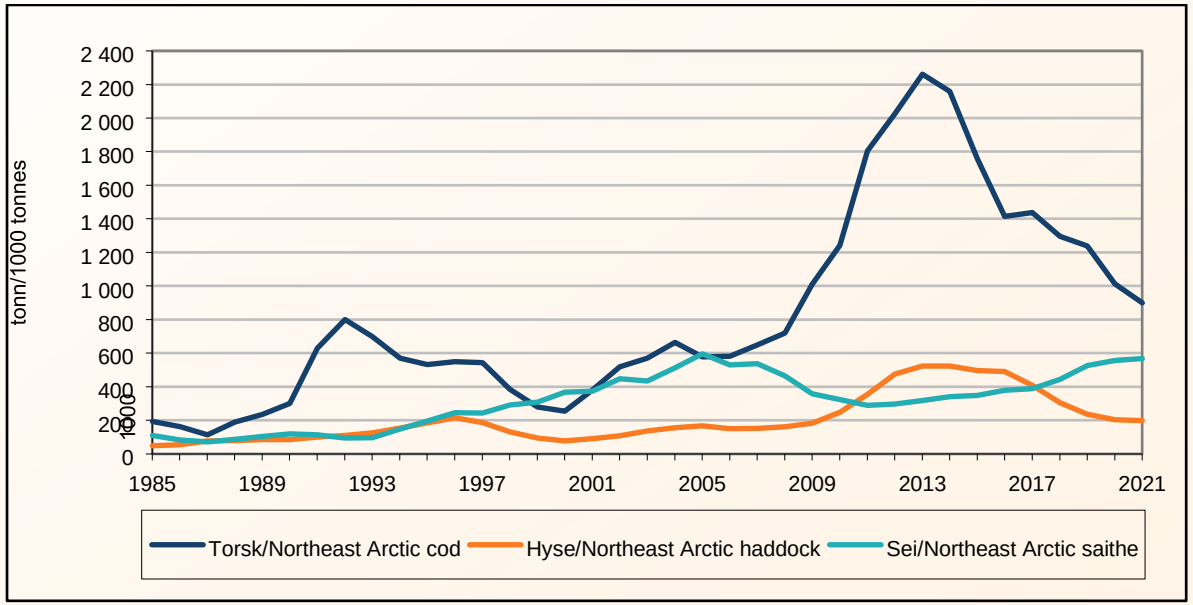
Spawning stock biomass of all main groundfish species1). 1985-2021.



[1)] Torsk/Atlantic cod, hyse/haddock og/and sei/saithe.

Kilde: ICES's rådgivningskomité (ACOM) www.ices.dk

Spawning stock biomass of Northeast Arctic cod, Northeast Arctic haddock and Northeast Arctic saithe north of 62o N. 1985-2021.



Kilde: ICES's rådgivningskomité (ACOM) www.ices.dk

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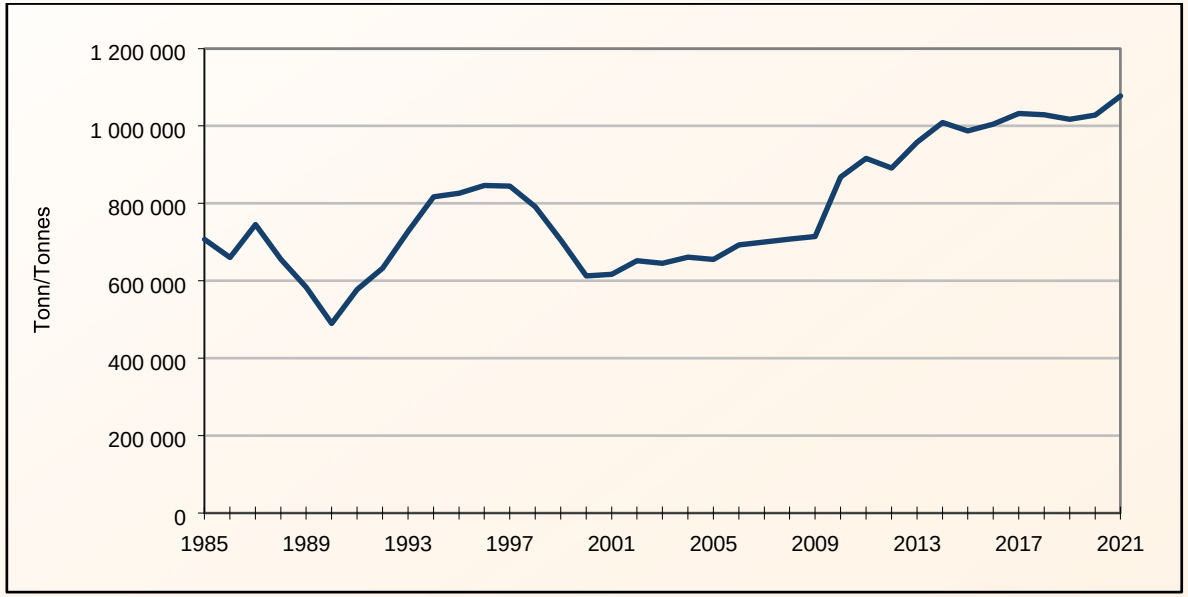
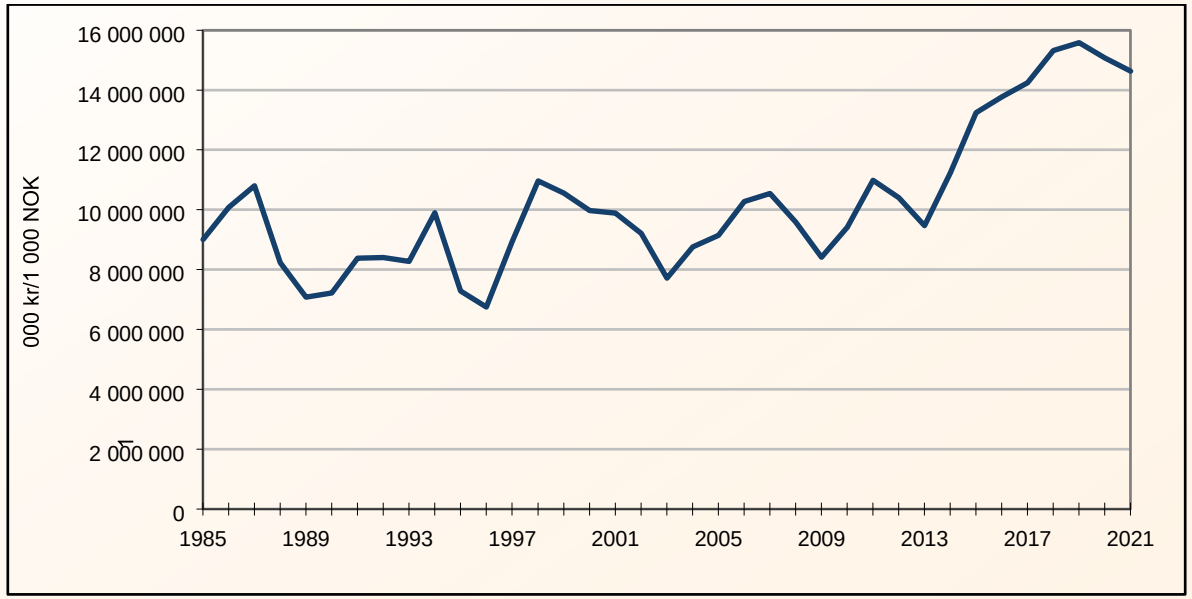
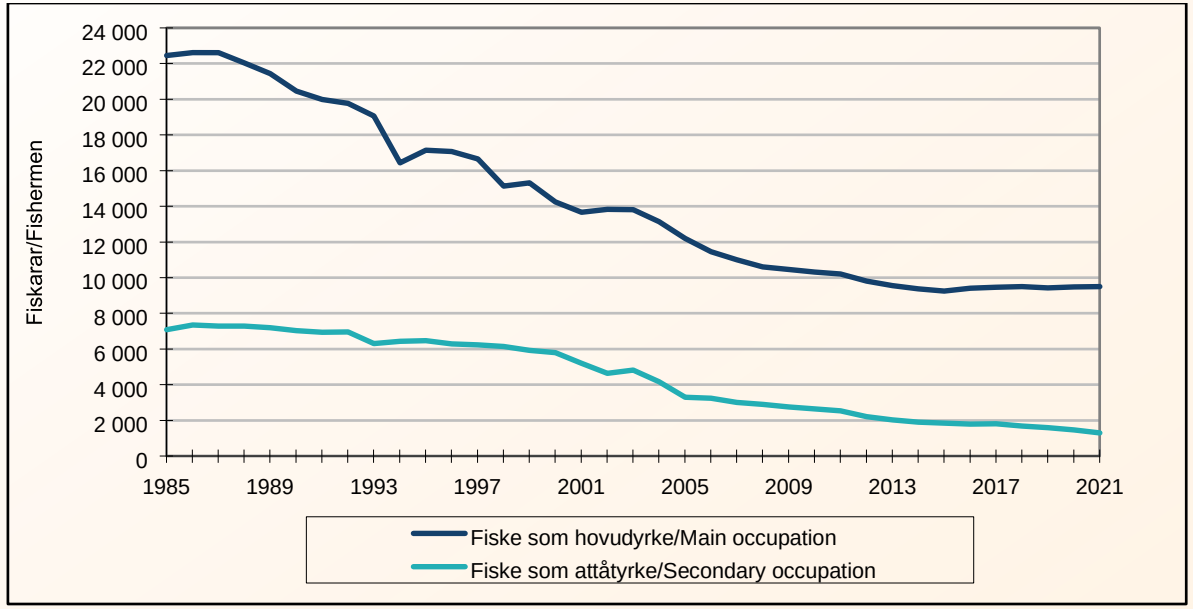
Catch (tonnes) of all groundfish species1) (incl. crustaceans and molluscs). 1985-2021.



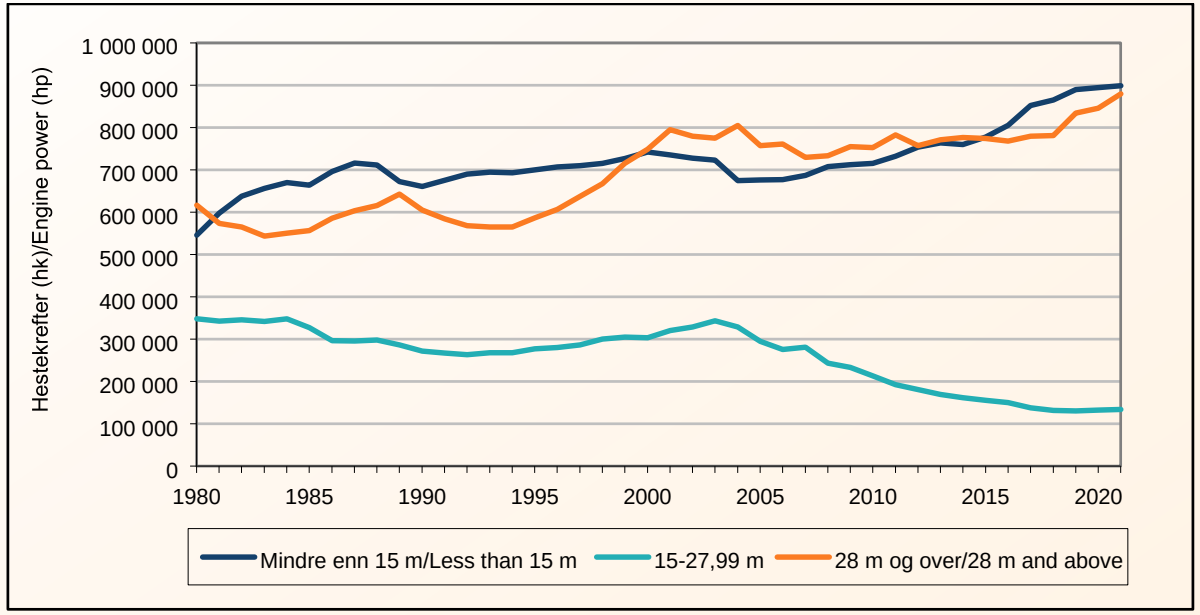
Value of catch (in 2021-values) of all groundfish species (incl. crustaceans and molluscs).
1985-2021. 1000 NOK.



Registered main and secondary occupation fishermen. 1985-2021.



Total engine power (hp) by length groups. 1980-2021.



Fisheries policy instruments used to rationalise fisheries in Norway

- Liscensing of vessels (purse seining since about 1970, demersal trawl before 1940, coastal restrict 1990)
- Buy-back of capacity
- Total allowable catch (TAC).
- Group quota
- Vessel quota
- (Limited) transferable quotas
- Subsidies (ended well before year 2000). Or?

Some (special) taxation rules

- Fishing vessel firms are taxed as other firms (22% profit tax)
- Fiskerfradraget (2023): Sats 30 prosent, Øvre grense 154 000 kroner
- Produktavgift til folketrygden for fiskeri-, hval- og selfangstnæringene for 2022, Produktavgiften skal være 2,1 pst. for 2022.
- The Export duty for fish and fish products consists of a marketing fee with variable rates and a research fee making out 0.3 % of the fob-value. In total 0.30 – 1.05 %.
- No resource rent taxation. No cost recovery fees.

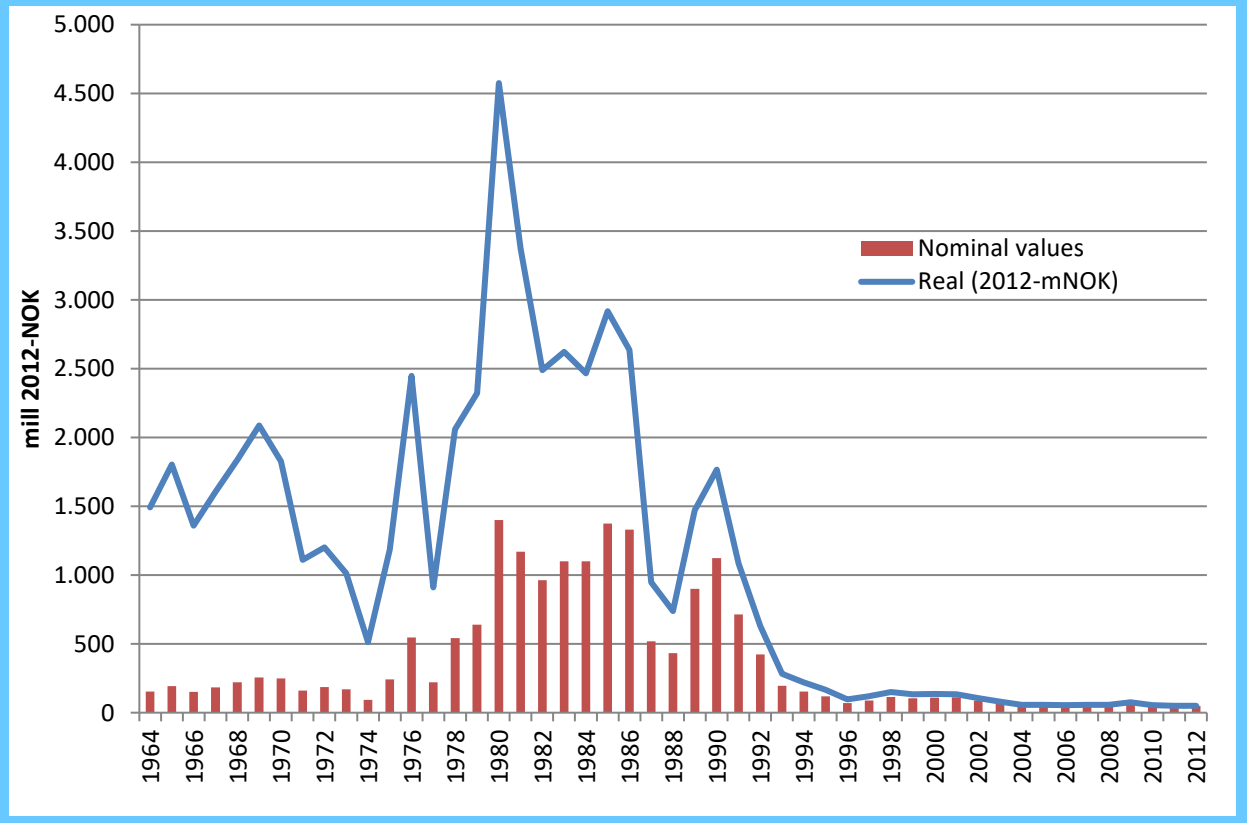


Figure 1 Government financial transfers to the Norwegian fishing industry 1964–2012. (Includes monetary transfers over the General agreement (1964–2004) and the Government Budget (2005–2012). Deflated by the national Consumer price index - CPI).

Any subsidies left?

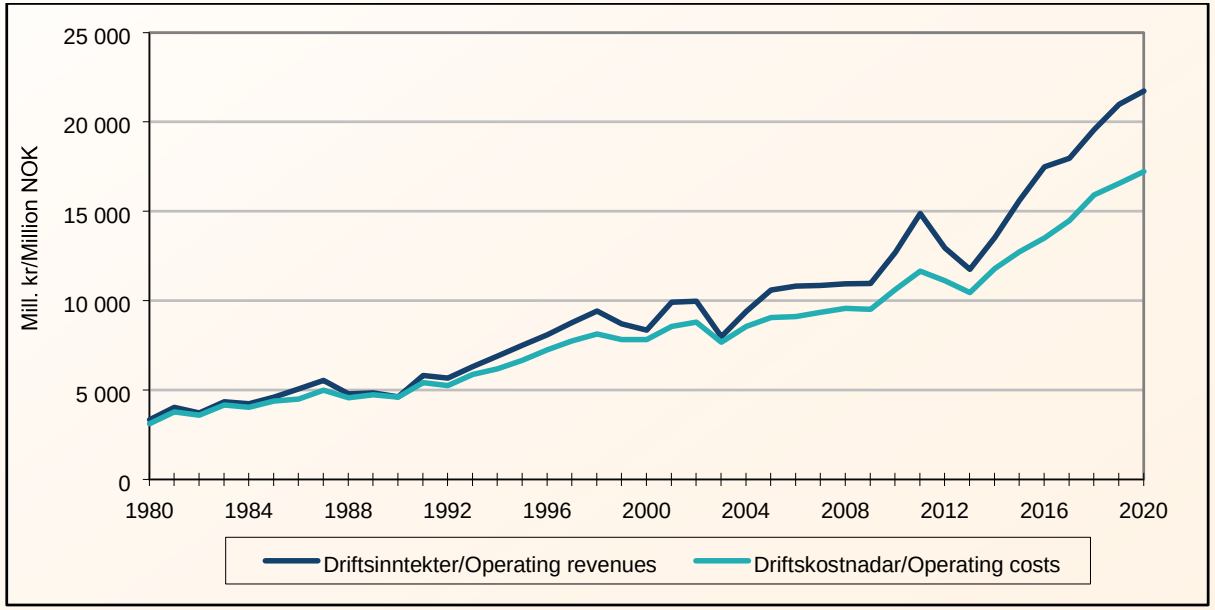
- Tax exemptions – fuel taxes (environmental taxes, CO2 tax)
- Management and research costs – no cost recovery

- The OECD estimate for Norwegian fisheries support 2020 (USD):

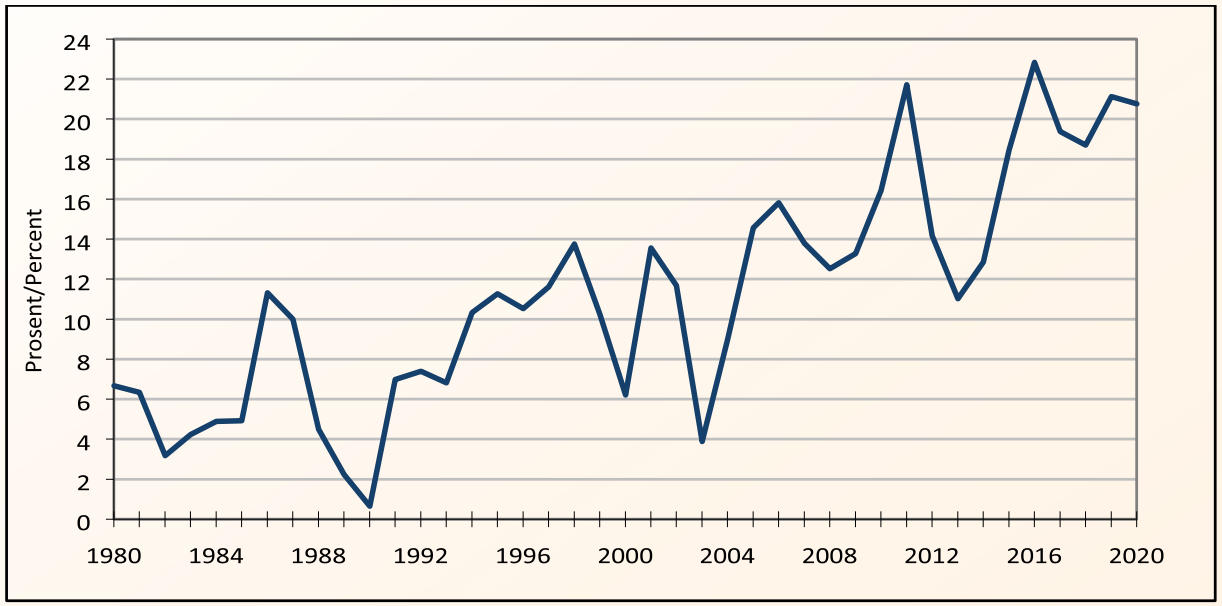
Tax exemtions	57.4 million
Management	107.4 mill.
Research	43.5 mill.
Other	24.2 mill.
Gross support	232.5 mill.
-- Industry payment	USD 35.4 mill.
(mangm, research, enforcem)	
Net Support	USD 197.1 mill.

Corresponding to about 8 % of landed value.

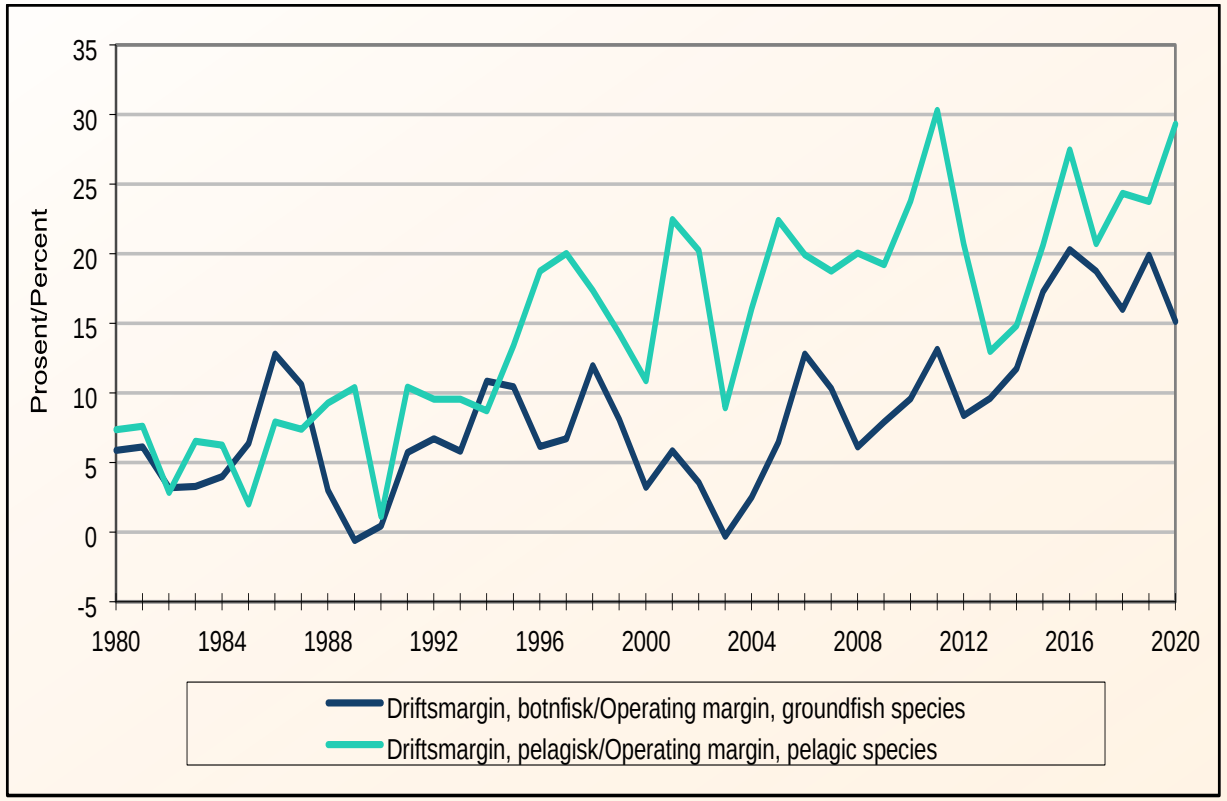
Total operating revenues and costs (nominal value). Vessels. 1980-2020.



Operating margin (percent) = (operating result EBIT/operating revenues) * 100. Vessels. 1980-2020.



Operating margin (percent)
Vessels fishing for groundfish species (incl. crustaceans and molluscs) and pelagic species. 1980-2020.



Questions on profit (EBT) and resource rent (RR)

- RR may differ from profit – how to correct business accounts data to derive RR?
- How to estimate resource rent (RR) in fisheries from profitability surveys of fishing vessels?
- Used the cases of Icelandic and Norwegian data to illustrate the ideas (Source: Flaaten, O., K. Heen and T. Matthíasson 2017).
- Why does it matter?

Hva er resursrente i fiske?

Tilpasset etter D. Ricardo (grunrenteteorien)

Ressursrente i fiske er naturens bidrag til næringen's aktiviteter på sjøen, utover alle de reelle kostnadene som er nødvendig for å etablere og drive fisket.

Profit (EBT) and resource rent (RR) - Theory and methodology (Source: Flaaten, O., K. Heen and T. Matthíasson 2017).

Concept	Explanation
Operating Revenues	Mainly from catch of fish and other marine organisms
- Total operating costs	Including fuel, labour costs, insurance, maintenance and depreciation of vessel and fishing rights.
= Operating results (EBIT)	Earnings before interest and tax
+ Total financial revenues	Financial income and currency rate gains
- Total financial expenses	Financial costs and currency rate losses
= Profit on ordinary activities before tax (EBT)	The residual for the private firm
+ Depreciation on fishing rights	Fishing rights include licenses, permits, access rights, user rights and vessel quotas
+ Financial costs of fishing rights	Financial costs of fishing rights purchases
- Calculated interests on equity	The interest rate should be equal to what the vessels pay on long term loans, or equal to the interest yield of government bonds
= Resource rent unadjusted (RR1)	The residual for the resource owner, without deducting management costs

1. Background

- "**Transferable** licenses and quotas given for free to the fishermen may be efficient in reducing the capacity of the fishing fleet, but they are not able to secure future above-normal remuneration for the industry." (Flaaten, Heen and Salvanes 1995)
- Rationalisation of fisheries to achieve e.g. MEY should be based on operating costs and costs of the physical capital. Financial costs of fishing rights should not be included.
- If financial costs of fishing rights are included in profitability studies and bioeconomic analysis too many **"Sunken Billions"** will be reported.

Two hypotheses

1. **Hypothesis:** Earnings before tax (**EBT**) underestimates the natural-resource rent in managed fish harvesting industries.

2. **Hypothesis:** The commonly used business economic indicator return on capital (**ROC**) underestimates the welfare economic performance of managed fish harvesting industries.

Based on Norwegian and Icelandic data

the two hypotheses were accepted (not refuted)

5. Discussion and conclusion

- **Return on capital (ROC)** will be lower with fishing rights included in the companies balance sheets than without.
- **Empirical evidence** for the fishing fleet in Norway 2009-2013 demonstrates that ROC on average equals 6.6 and 12.0 percent, with and without, respectively, fishing rights.
  Compare this to ROC=9.2 for Norwegian non-financial companies.

5. Discussion and conclusion, contn.

- Theory and empirical findings demonstrate that in the long run the profitability of the fish harvesting industry does not exceed what is found in other comparable industries, despite rationalization and management with licence and quota trade.

Possible resource-rent distribution

- Former quota/licence holders (former vessel owners)
- Present and future quota and licence holders
- Crew members
- Processing firms – vertical ownership - transfer prices
- Financial institutions
- Auction revenues (government/resource owner)
- Resource rental fees and taxes
- Company taxes
- Local communities/municipalities
- Poor «Codland»
  – rich resource owners emigrate

Future taxation?
NOU 2022:20 Et helhetlig skattesystem

- Utredning fra et utvalg oppnevnt ved kongelig resolusjon 18. juni 2021. Avgitt til Finansdepartementet 19. desember 2022.
- Utvalget - uavhengig av reguleringsregimet bør det vurderes å innføre en grunnrenteskatt på fiskeriene.
- Fisk er i utgangspunktet en knapp ressurs eid av felleskapet, høstet av fiskerne. De siste årenes utvikling med økende grunnrente i næringen, spesielt i visse fartøygrupper, gjør det mer aktuelt enn tidligere å innføre en slik skatt.
- Utvalget mener derfor grunnrenteskatt på fiskeri bør utredes nærmere med sikte på å innføre en slik skatt i nær fremtid.
- Utvalget er videre av den oppfatning at all fremtidig tildeling eller omfordeling av grunn- eller strukturkvoter bør utløse vederlag til staten, enten gjennom fastpris eller auksjon.

Summary

- Invisible Resource rent
- RR > Profit (In Iceland and Norway)
- Expect this to be the same in many other countries
- Don't include financial costs of fishing rights in bioeconomic optimisation analysis (to avoid too many «Sunken Billions»)

- The Norwegian fishing industry is in general healthy –
  Sustainable: biologically, economically
  (and socially?)
  Ability to pay fuel and environmental taxes;
  Cost recovery: research- and management
  cost?
  Additional resource rent taxes?

Thank you for your attention

Annex (if questions)

The basic theory of fisheries economics

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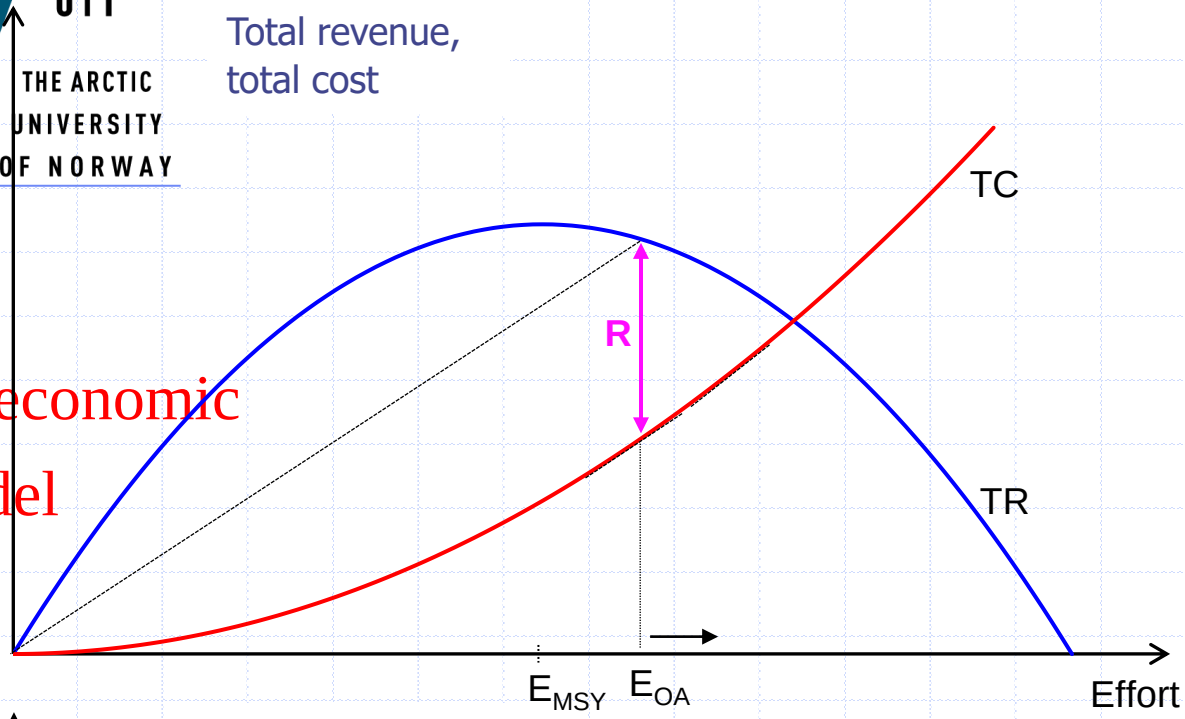
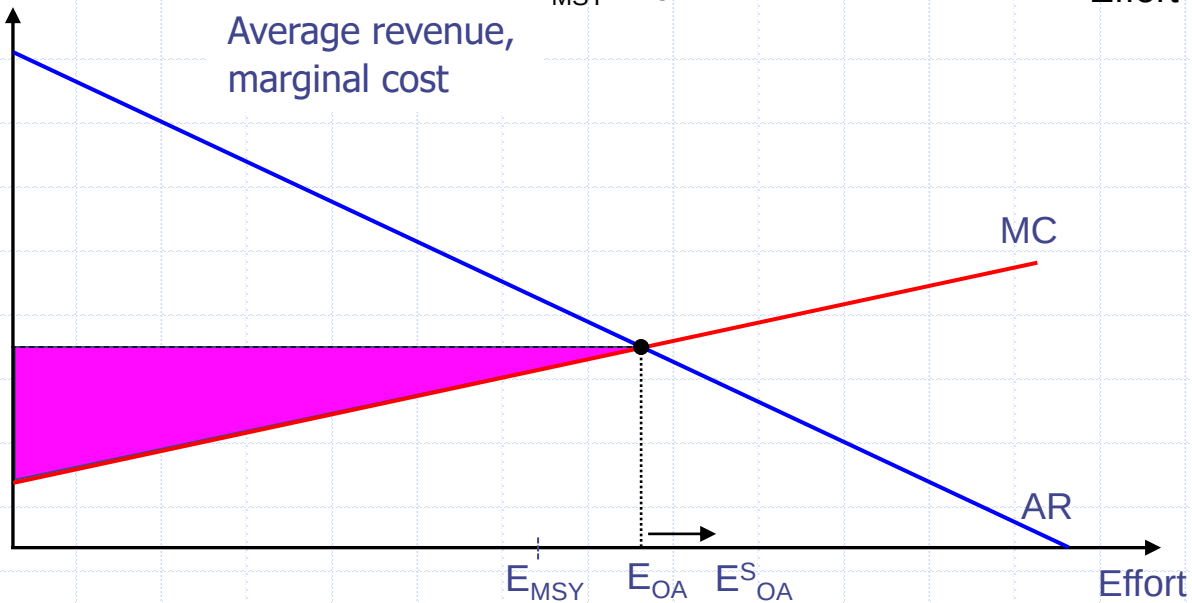
Bioeconomic model





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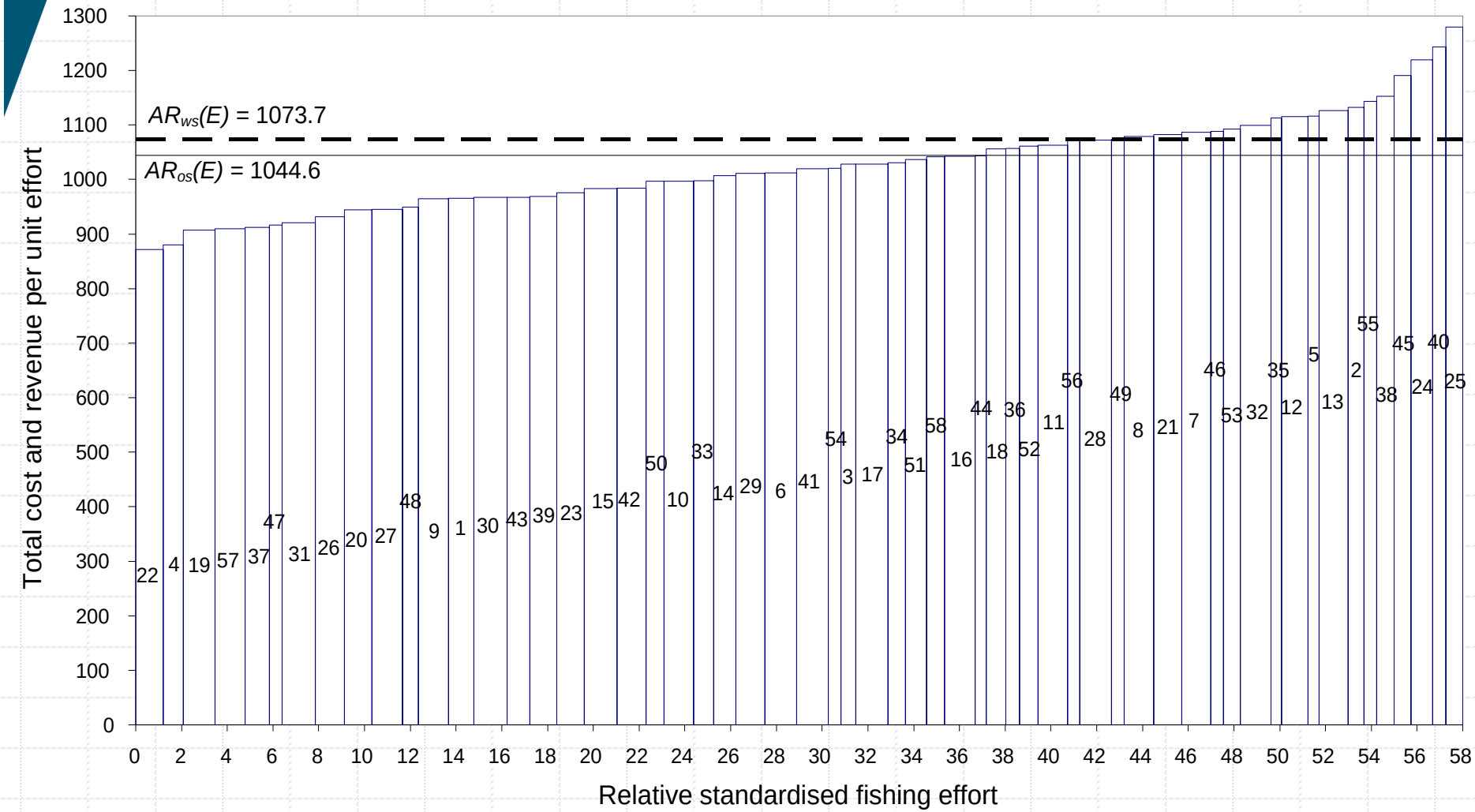
Source: Duy et al, 2012

The cost efficiency among the vessels



Theory and methodology, contn.

- Return on total assets (**ROC=ROA**) = (Profit on ordinary activities before tax + financial costs)/(Total assets), in %

- Return on capital including fishing rights

  ROC$_I$ = (EBT + Financial costs)/(Total capital), in %

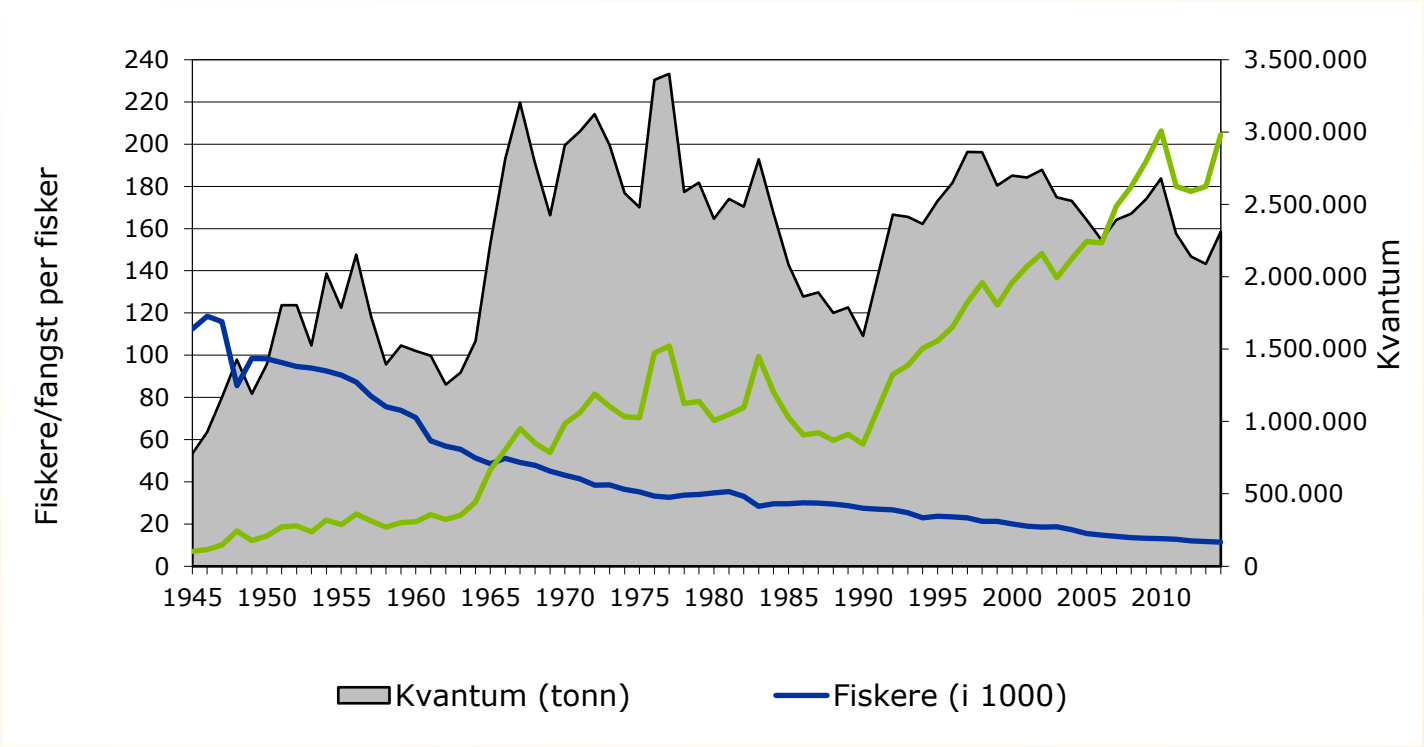
- Return on capital excluding fishing rights

  ROC$_E$ = (EBT + Financial costs +Depreciation on fishing rights)/
  (Total capital – Value of fishing rights), in %

Tabell 2 Value of catch (nominal value) by species. 2012-2021. 1000 NOK.

Fiskeslag/Fish species	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Lodde/Capelin	460 753	356 566	141 949	294 372	238 618	313 645	521 247	4	0	607 908
Sild, norsk vårgytende/Norwegian spring-spawning herring	2 999 513	1 840 854	1 434 639	1 164 277	1 494 112	1 771 682	1 492 926	1 883 143	2 398 657	3 144 379
Sild, annen/Other Atlantic herring	561 181	591 086	486 561	695 413	958 399	525 752	660 742	691 280	746 858	601 546
Makrell/Atlantic mackerel	1 290 111	1 430 461	1 936 808	2 029 550	2 433 423	2 109 571	2 476 819	2 508 591	2 771 589	2 797 080
Kolmule/Blue whiting[3)]	276 742	384 953	579 249	922 868	837 829	579 985	943 985	882 561	1 133 716	593 793
Øyepål/Norway pout[3)]	10 292	84 010	31 954	85 296	94 602	33 541	65 342	177 274	192 500	90 808
Tobis og annen sil/Sandeels[3)]	87 863	65 086	140 224	198 349	117 753	192 955	156 996	373 219	874 511	514 219
Vassild og strømsild/Argentines	38 426	39 517	41 452	45 968	67 460	51 527	72 863	66 452	59 630	62 648
Havbrisling/European sprat (North Sea)	22 473	5 008	17 436	24 109	53 356	22 179	29 294	35 519	37 093	19
Kystbrisling/European sprat (Norwegian coastal)	6 464	7 118	10 253	3 700	9 996	3 288	9 902	12 698	8 820	9 067
Mesopelagisk fisk/Mesopelagic fish							78	4 563	306	412
Tunfisk og tunfisklignende arter/Tuna and tuna-like species		2	3	678	2 164	3 854	1 223	4 251	6 510	6 893
Annen pelagisk fisk/Other pelagic fish[2)]	24 076	45 357	128 607	51 484	43 633	43 468	68 679	72 267	64 644	44 885
Sum pelagisk fisk/Total of pelagic fish	5 777 894	4 850 016	4 949 136	5 516 064	6 351 347	5 651 448	6 500 097	6 711 822	8 294 834	8 473 657
Torsk/Atlantic cod	3 842 813	4 052 111	4 701 926	5 722 064	6 449 618	6 998 967	7 269 719	7 485 960	7 718 606	6 927 379
Hyse/Haddock	1 316 583	1 069 832	1 238 913	1 141 741	1 176 053	1 499 617	1 525 136	1 575 075	1 347 099	1 468 808
Sei/Saithe	1 356 351	949 279	1 268 711	1 489 594	1 428 299	1 340 977	1 459 242	1 667 925	1 737 789	1 781 441
Annen torskefisk/Other codfishes	330 792	277 836	345 025	420 894	458 944	470 068	566 605	617 877	439 981	416 045
Sum torsk og torskeartet fisk/Total of cod and other codfishes	6 846 539	6 349 058	7 554 574	8 774 292	9 512 914	10 309 629	10 820 701	11 346 838	11 243 475	10 593 672
Blåkveite/Greenland halibut	295 489	268 524	349 969	498 982	612 728	558 656	653 218	668 885	484 033	438 324
Uer/Atlantic redfishes	103 843	78 253	189 364	247 955	215 335	222 831	283 562	326 189	353 020	345 254
Leppefisk/Wrasses	114 828	132 735	193 247	209 852	243 183	335 523	303 578	327 259	318 045	302 609
Steinbiter/Wolffishes	56 959	62 115	44 362	37 720	35 875	45 489	65 240	68 715	69 431	53 314
Annen flatfisk, bunnfisk og dypvannsfisk/Other flatfish, demersal and deepwater fish	229 291	213 551	218 767	210 088	256 994	257 567	313 409	362 352	290 058	341 436
Sum Flatfisk, annen bunnfisk og dypvannsfisk/Total of Flatfish, other demersal fish and deepwater fish	800 410	755 178	995 709	1 204 599	1 364 114	1 420 066	1 619 007	1 753 401	1 514 586	1 480 936
Haifisk/Sharks	1 980	1 972	2 385	1 598	2 007	1 569	1 956	3 122	2 871	2 389
Skater og annen bruskfisk/Skates and other cartilaginous fish	2 275	2 122	2 652	4 138	4 716	2 978	4 240	5 017	6 200	1 986
Sum Bruskfisk (haifisk, skater, rokker og havmus)/Total of Cartilaginous fish (sharks, skates, rays and rabbit fish)	4 255	4 094	5 037	5 736	6 724	4 547	6 196	8 139	9 071	4 375
Snøkrabbe/Queen crab	2	3 241	56 354	121 745	191 178	155 790	166 234	265 444	329 093	640 589
Taskekrabbe/Edible crab	46 712	51 156	47 810	52 070	55 221	57 797	70 141	68 778	62 064	70 894
Kongekrabbe/Red king crab	116 961	80 444	132 168	184 169	325 582	286 592	391 107	302 715	391 767	537 955
Dypvannsreke/Northern prawn	509 497	459 103	559 488	932 548	709 750	577 119	1 061 541	946 265	824 942	1 088 310
Antarktisk krill/Antarctic krill	47 468	71 098	75 902	83 367	66 516	72 939	90 137	103 635	112 475	103 560
Raudåte/Calanus finmarchicus	1 453	1 275	1 409	2 573	3 220	3 772	6 810	1 760	0	20 313
Andre skalldyr, bløtdyr og pigghuder/Other shellfish, molluscs and echinoderms[2)]	50 469	48 373	49 620	50 893	63 991	65 160	83 945	83 511	87 325	96 707
Sum Skalldyr, bløtdyr og pigghuder/Total of Shellfish, molluscs and echinoderms	772 563	714 689	922 751	1 427 364	1 415 458	1 219 170	1 869 915	1 772 107	1 807 665	2 558 328
Total	14 201 661	12 673 034	14 427 206	16 928 054	18 650 556	18 604 860	20 815 916	21 592 307	22 869 631	23 110 969
Makroalger (tang og tare)/Macroalgae[4)]	26 006	30 171	34 412	33 557	42 292	42 433	45 793	45 049	43 292	45 978
Total inkl. tang og tare/Total incl. Seaweed	14 227 667	12 703 205	14 461 618	16 961 611	18 692 848	18 647 293	20 861 709	21 637 356	22 912 923	23 156 947

Trends in Norwegian fisheries 1945-2014



Results - Norway

	Profit and ROC including fishing rights		Rent and ROC exclusive fishing rights		ROC Norwegian non-financial companies
	Profit	**ROC I**	Rent	**ROCE**	
	(In million USD)	(In %)	(In million USD)	(In %)	(In %)
2009	160	6.6	238	11.7	9
2010	198	7.1	272	12.1	9.7
2011	405	9.5	506	16.9	9.2
2012	184	5.8	263	11.5	10.2
2013	43	3.8	154	8.7	8.1
Average (2009-2013)	198	6.6	287	12.0	9.2

Theory meets Icelandic data

Concept	Explanation
= Resource rent unadjusted (RR1)	The residual for the resource owner, without deducting management costs
+ Adjustment for transfer pricing	Vertical integration of fishing and processing and share payments distort raw fish prices
+ Adjustment for labor opportunity costs	Mincer regressions strongly indicate that fishermen earn more than their „oportunity cost“
= Resource rent (RR)	

4. Results - Iceland

	Profit and ROC including fishing rights		Rent and ROC exclusive of fishing rights		Non-financial companies
	Profit (EBT)	ROC^{I}	Rent (RR)	ROC^{E}	ROC*
	(Million USD)	(%)	(Million USD)	(%)	(%)
2009	−11	6.0	331	21.0	6.3
2010	31	6.6	374	22.4	8.2
2011	98	7.4	468	24.5	8.1
2012	82	7.2	431	27.0	n.a.
2013	30	5.1	353	22.0	n.a.
Average	46	6.5	391	23.4	n.a.

Theory and methodology - additional

Concepts: Business accounts	
+ Income from leasing/sale of fishing rights	
- Cost of purchasing/leasing fishing rights	
- Cost of auction-purchased fishing rights	
Concepts: National accounts	
+ Industry specific subsidies	
- Industry specific taxes	

22

4. Results, contn. (not in the paper)
Average, 2008-2013

	Rent	%	ROC without fishing rights
All vessels	1,683	100%	11.8%
Pelagic fisheries	1,165	69%	9.8%
- Purse seine	945	56%	13.3%
Bottom fisheries	518	31%	8.5%
- < 11m	123	7%	7.8%
- Trawler	370	22%	12.2%