Report on the Use of the Framework of Indicators in 2023

1. At the Thirty-Eighth Annual Meeting of the North-East Atlantic Commission (NEA), held virtually in 2021, NEA(21)17rev, the 'Decision Regarding the Salmon Fishery in Faroese Waters in 2021 / 2022, 2022 / 2023 and 2023 / 2024', NEA(21)16, was adopted. The Decision states that no quota will be set 'for the salmon fishery in the Faroese Fisheries Zone for 2021 / 2022. This decision will also apply in 2022 / 2023 and 2023 / 2024 unless the application of the Framework of Indicators shows that a re-assessment is warranted.'
2. The Commission agreed that the same procedure for applying the Framework of Indicators (FWI) as used during the previous multi-annual Decision would apply during the new measure. Under this arrangement, a small group comprising one representative from each member of the Commission would work by correspondence to co-ordinate the data collection and application of the FWI. The Secretariat would contact the members of the Commission to seek their nominations for the group after the meeting. The Secretariat would then liaise with the group's Chair and report the findings to the members of the Commission and to ICES in January in each year when the FWI is applied.
3. The representatives appointed to the Working Group were Svein Magnason (Denmark (in respect of the Faroe Islands and Greenland)), Michael Millane (co-ordinator) (European Union), Peder Fiske (Norway), Igor Samokhvalov (Russian Federation) and Jonathan Gillson (United Kingdom).
4. The Working Group concluded that the results of the NEA FWI assessment in 2023 (based on indicator values for 2022) do not suggest that the PFA (Pre-Fisheries Abundance) forecast for 2022 has been underestimated. Therefore, the FWI Working Group concluded that no re-assessment of the existing management advice for the Faroes fishery is required from ICES in 2023.
5. The multi-annual Decision, 'Decision Regarding the Salmon Fishery in Faroese Waters in 2021 / 2022, 2022 / 2023 and 2023 / 2024', NEA(21)16, will, therefore, continue to apply in 2023 / 2024.
6. We are grateful to the FWI Working Group for its work.
7. In light of the Group's conclusions, ICES has been informed that items 2.5 (provision of catch options or alternative management advice) and 2.6 (updating of the Framework of Indicators) of the Request for Scientific Advice from ICES, CNL(22)13, that relate to the North-East Atlantic Commission do not need to be addressed in 2023.

Secretariat
Edinburgh
3 April 2023

NASCO – NORTH-EAST ATLANTIC COMMISSION

REPORT OF THE FRAMEWORK OF INDICATORS WORKING GROUP 2023

1. Introduction

At the Thirty-Eighth Annual Meeting of the North-East Atlantic Commission, held virtually in 2021, a multi-annual decision was adopted regarding the salmon fishery in Faroese waters in 2021 / 2022, 2022 / 2023 and 2023 / 2024 (NEA(21)16), together with an updated Framework of Indicators (FWI). The multi-annual decision will apply to the fishery in 2023 unless application of the FWI indicates that a reassessment is warranted. This Decision indicated that no quota would be set for the salmon fishery in the Faroese Fisheries Zone for 2021 / 2022, and that it would also apply in 2022 / 2023 and 2023 / 2024 unless the application of the FWI shows that a reassessment is warranted.

The FWI is used in the intermediate years of a multi-year catch agreement to provide an interim assessment of the robustness of the pre-fishery abundance (PFA) forecasts provided by ICES, and to determine whether a full reassessment of stock status and new catch advice might be required. NASCO has previously agreed (NEA(13)11) that when the Faroes fishery is closed the FWI should only be used to signal the need for a reassessment where there is an under-estimate of forecast abundance (i.e. when a potential harvest might otherwise be available). The rationale for this is that if the FWI signaled that PFA had been over-estimated, any new assessment would be even less likely to signal a fishery option.

Regarding the FWI, ICES advised in 2021 (CNL(21)11) that it will only be necessary to apply the indicators from those stock complexes that could result in a change in the multi-year advice. For 2022 (to be applied in January 2023), this means that indicators for all four stock complexes in the North-East Atlantic Commission (NEAC) area (namely, Southern NEAC 1SW and MSW salmon, Northern NEAC 1SW and MSW salmon) should be considered to determine whether new catch advice might be required. If an increase in the PFA abundance above the 75th percentile of the forecast PFA is indicated for any of the four stock complexes, then a full reassessment should be advised.

The Commission agreed (NEA(21)17rev) that the FWI, as updated by ICES in 2021, would be used, and that the same procedure for applying the FWI as used for the previous multi-annual Decision would apply during the new measure. Under this arrangement, a small group comprising one representative from each member of the Commission would work by correspondence to co-ordinate the data collection and application of the FWI. The Secretary will contact the Parties to seek their nominations for the Group and liaise with the Chair and report the findings to the Parties and to ICES in January in each year when the FWI is applied.

The Working Group responsible for applying the FWI in 2023 comprised:

Denmark (in respect of the Faroe Islands and Greenland)	Svein Magnason
European Union	Michael Millane (coordinator)
Norway	Peder Fiske
Russian Federation	Igor Samokhvalov
United Kingdom	Jonathan Gillson

The Group was asked to complete their tasks before the end of January 2023 and to liaise with NASCO who would present their findings to the Parties and to ICES (Annex 1).

2. Work of the Working Group

Michael Millane agreed to act as coordinator of the FWI Working Group for 2023. Requests for data to populate the FWI were sent to representatives from each of the NEAC jurisdictions which had indicator data sets included in the FWI. Returns were collated (Annex 2), and the coordinator then circulated the completed FWI worksheet for 2022 (Annex 3) and the draft report to the Working Group for their review and agreement.

3. Framework of Indicators Analysis – 2022

The FWI worksheet was revised and updated by ICES in 2021. The FWI includes data for Northern NEAC both maturing (1SW) and non-maturing (MSW) salmon and for Southern NEAC both maturing (1SW) and non-maturing (MSW) salmon. There are thus four distinct 'management units' / stock complexes within the framework, and within these there are variable numbers of indicator data sets. Thus:

Northern NEAC 1SW salmon – 6 indicator data sets
Northern NEAC MSW salmon – 5 indicator data sets
Southern NEAC 1SW salmon – 9 indicator data sets
Southern NEAC MSW salmon – 9 indicator data sets

The Northern NEAC data sets derive from Norway and Finland. The Southern NEAC data sets derive from UK (Scotland), UK (N. Ireland), UK (England & Wales) and Iceland (South and East). The FWI Working Group noted that the majority of the data sets used in applying the FWI in 2022 were preliminary values.

Each Working Group member has reviewed the raw data (Annex 2) and the FWI assessment spreadsheet (Annex 3) and confirmed their agreement with the following summary of the findings.

3.1 Northern NEAC 1SW salmon

Data were available for five of the six indicators for the Northern NEAC 1SW stock complex. None of the five indicators suggested that the PFA forecast may have been an under-estimate. No catch data were available for the Teno / Tano as the catchment was closed to fishing in 2022. As such, the reported 1SW count for the Akujoki of 100 was reduced to 50 to account for the lack of exploitation in the system which would otherwise have intercepted at least 50% of fish on their migration upstream to this area. The aggregate indicator 'scores' for the 1SW stock complex are therefore consistent with the PFA forecast and do not signal the need for a re-assessment in 2023.

3.2 Northern NEAC MSW salmon

Data were available for four of the five indicators the Northern NEAC MSW stock complex. No catch data were available for the Teno / Tano as the catchment was closed to fishing in 2022. None of these indicators suggested that the PFA forecast was an under-estimate. The aggregate indicator 'scores' for the MSW stock complex are therefore consistent with the PFA forecast and do not signal the need for a re-assessment in 2023.

3.3 Southern NEAC 1SW salmon

Data were available for eight of the nine indicators for the Southern NEAC 1SW stock complex. No marine return rates were available for the River Dee because zero tagged fish were recaptured in 2021, following low numbers of captured and tagged fish in 2020 due to COVID-19 restrictions preventing any notable juvenile salmonid monitoring. None of the available indicators suggested that the PFA forecast may have been an under-estimate. The aggregate indicator 'scores' for the 1SW stock complex are therefore consistent with the PFA forecast and do not signal the need for a re-assessment in 2023.

3.4 Southern NEAC MSW salmon

Data were available for all nine of the indicators for the Southern NEAC MSW stock complex. None of these indicators suggested that the PFA forecast was an under-estimate. The aggregate indicator 'scores' for the MSW stock complex are therefore consistent with the PFA forecast and do not signal the need for a re-assessment in 2023.

4. Conclusion

The results of the NEAC FWI assessment in 2023 (based on indicator values for 2022) do not suggest that the PFA forecast for 2022 has been under-estimated. Therefore, the FWI Working Group concludes that no re-assessment of the existing management advice for the Faroes fishery is required from ICES in 2023.

NEAC FWI Working Group
31st January 2023

Annex 1. Notification from NASCO of representation on the FWI Working Group

From: NASCO <hq@nasco.int>
Sent: Tuesday 29 November 2022 15:38
To: Svein Magnason <sveinm@ummr.fo>; Michael Millane <Michael.Millane@fisheriesireland.ie>; Peder Fiske (peder.fiske@nina.no) <Peder.Fiske@nina.no>; igor_s@pinro.ru; Jonathan Gillson (Cefas) <jonathan.gillson@cefas.co.uk>
Subject: Framework of Indicators Working Group

*****CYBER SECURITY WARNING***:** This email originated from outside of Inland Fisheries Ireland email system and contains an attachment(s). Do not open attachments from unknown sources.

Dear All,

We are most grateful to you all for serving on the North-East Atlantic Commission's Framework of Indicators Working Group.

There is one addition to the membership of the Group. Now that the United Kingdom is a Contracting Party to NASCO and member of the North-East Atlantic Commission it is entitled to have membership of the Group. Jonathan Gillson, who works at Cefas, has been nominated to serve. I would like to thank Jonathan for agreeing to participate in the work of the Group.

The members of the Working Group are now as follows:

Denmark (in respect of the Faroe Islands and Greenland)	Svein Magnason
European Union	Michael Millane
Norway	Peder Fiske
Russian Federation	Igor Samokhvalov
United Kingdom	Jonathan Gillson

Michael Millane has confirmed that he is happy to serve as the Group's Co-ordinator again this year. The Co-ordinator will liaise with the NASCO Secretariat, and I ask that the Group's findings be reported to us no later than **31 January 2023** so that I can inform the members of the North-East Atlantic Commission and ICES of your findings. I attach a copy of the Group's report from 2020, NEA(20)04.

Kind regards,

Dr Emma Hatfield
Secretary

NEA14.706

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Annex 2. Data inputs for the NEAC Indicator Framework - 2022.

Indicators		Country	2022
Northern NEAC 1SW PFA			
1	Estimated returns of 1SW salmon to Norway (PFA)	Norway	190000
2	Return rate of 1SW salmon - River Imsa (% survival)	Norway	8.7
3	Return rate of 1SW hatchery-origin salmon River Imsa (% survival)	Norway	7
4	Count of returning 1SW salmon - River Akujoki	Finland	50*
5	Count of returning salmon - River Nausta	Norway	1478
6	Catch of 1SW salmon - Rivers Teno and Näätämöjoki	Finland	NA
Northern NEAC MSW PFA			
1	Estimated returns of MSW salmon to coast (PFA)	Norway	228000
2	Count of returning salmon - River Orkla	Norway	3863
3	Count of returning salmon - River Nausta	Norway	1478
4	Estimated returns of all 2SW (PFA)	Norway	162000
5	Catch of 2SW salmon in the Rivers Teno and Näätämöjoki	Finland	NA
Southern NEAC 1SW PFA			
1	Estimated returns of 1SW salmon - River Tamar	UK (England & Wales)	829
2	Estimated returns of 1SW salmon - River Frome	UK (England & Wales)	340
3	Estimated returns of 1SW salmon - River North Esk	UK (Scotland)	6457
4	Return rate of 1SW salmon - River Bush (% survival)	UK (N. Ireland)	2.86
5	Estimated returns of 1SW salmon to freshwater - River Bush	UK (N. Ireland)	465
6	Returning stock estimate - 1SW salmon River Dee	UK (England & Wales)	866
7	Count of returning salmon – River Fowey	UK (England & Wales)	422
8	Return rate of 1SW salmon - River Frome (% survival)	UK (England & Wales)	1.6
9	Return rate of 1SW salmon - River Dee (% survival)	UK (England & Wales)	NA
Southern NEAC MSW PFA			
1	Estimated returns of 2SW salmon - River Baddoch	UK (Scotland)	13
2	Estimated returns of 2SW salmon - River Girnoch	UK (Scotland)	6
3	Estimated returns of MSW salmon - River Itchen	UK (England & Wales)	59
4	Estimated returns of 1SW salmon - River Itchen	UK (England & Wales)	213**
5	Estimated returns of MSW salmon - River Frome	UK (England & Wales)	281
6	Estimated returns of 1SW salmon - River Frome	UK (England & Wales)	378**
7	Catch of MSW salmon - River Ellidaar	Iceland (South & East)	98
8	Estimated returns of 1SW salmon - River North Esk	UK (Scotland)	6980**
9	Estimated returns of 2SW salmon - River North Esk	UK (Scotland)	5629

Notes:
2022 indicator values are preliminary data.
Data relate to wild fish unless otherwise indicated.
NA = not available.
* count of 100 reduced to 50 to account for the lack of exploitation in the Teno / Tano system which would otherwise have intercepted at least 50% of fish on their migration upstream to this area.
**2021 data input as 1SW stock used as MSW indicator.

Annex 3. Indicator Framework sheet for 2023 (indicator data sets for 2022).

FWI NEAC	2023	Indicators suggest:	PFA forecast OK or overestimated

Indicators for Northern NEAC 1SW PFA

	Insert data from 2022 here	N reg	Slope	Intercept	r^2	Median PFA in 2022	12.5%ile	87.5%ile	Reassess in year 2023? Outside 75% conf.lim. below	Outside 75% conf.lim. above	Outside 75% confidence limits below	Outside 75% confidence limits above
1 Returns all 1SW NO PFA est	190000	37	0.514780	-27673.84	0.92	363598	107118.66	211879.79	-1	-1	NO	NO
2 Survivals W 1SW NO Imsa	8.7	37	0.000011	-2.55	0.47	363598	-2.57	5.37	0	1	Uninformative	YES
3 Survivals H 1SW NO Imsa	7	38	0.000005	-0.43	0.31	363598	-1.21	4.27	0	1	Uninformative	YES
4 Counts all Akujoki (1SW)	50	18	0.000151	-16.38	0.38	363598	1.46	75.48	-1	-1	NO	NO
5 Counts all NO Nausta (1SW)	1478	23	0.001608	302.93	0.22	363598	35.37	1739.59	-1	-1	NO	NO
6 Catch rT&N 1SW FI		22	0.0168897	-672.362128	0.51	363598	-2713.10	13650.48	0	0	Uninformative	Uninformative
								Sum of scores	-3	-1		
											Indicators do not suggest that the PFA forecast is an overestimation.	**Indicators do not suggest that the PFA forecast is an underestimation.**

Indicators for Northern NEAC MSW PFA

	Insert data from 2022 here	N reg	Slope	Intercept	r^2	Median PFA in 2022	12.5%ile	87.5%ile	Reassess in year 2023? Outside 75% conf.lim. below	Outside 75% conf.lim. above	Outside 75% conf.lim. below	Outside 75% conf.lim. above
1 PFA-MSW-CoastNorway	228000	37	0.328645	17743.77	0.79	509596	144321.36	226118.40	-1	1	NO	YES
2 Orkla counts	3863	17	0.013480	-3420.75	0.55	509596	1426.50	5471.03	-1	-1	NO	NO
3 Counts all NO Nausta	1478	23	0.003829	-1199.20	0.33	509596	-41.62	1545.36	0	-1	Uninformative	NO
4 Returns all 2SW NO PFA est	162000	27	0.2051312	37948.14783	0.31	509596	67259.35	217705.00	-1	-1	NO	NO
5 Catch W rT&N 2SW FI		22	0.0080952	-2358.39836	0.36	509596	-665.87	4199.68	0	0	Uninformative	Uninformative
								Sum of scores	-3	-2		
											Indicators do not suggest that the PFA forecast is an overestimation.	**Indicators do not suggest that the PFA forecast is an underestimation.**

Indicators for Southern NEAC 1SW PFA

		Insert data from 2022 here	N reg	Slope	Intercept	r^2	Median PFA in 2022	12.5%ile	87.5%ile	Reassess in year 2023? Outside 75% conf.lim. below	Outside 75% conf.lim. above	Outside 75% conf.lim. below	Outside 75% conf.lim. above
1	Ret. 1SW UK(E&W) Tamar M	829	27	0.001914	1101.95	0.31	518875	793.21	3396.78	-1	-1	NO	NO
2	Ret. W 1SW UK(E&W) Frome M	340	48	0.000534	-78.84	0.43	518875	-305.91	702.63	0	-1	Uninformative	NO
3	Ret. W 1SW UK(Sc.) North Esk M	6457	40	0.006883	2807.30	0.68	518875	3185.99	9571.65	-1	-1	NO	NO
4	Surv. W 1SW UK(NI) Bush M	2.86	32	1.945E-05	-9.69952568	0.64	518875	-8.19	8.98	0	-1	Uninformative	NO
5	Ret. Freshw 1SW UK(NI) Bush	465	46	0.000649	433.07	0.29	518875	6.90	1532.72	-1	-1	NO	NO
6	Ret. W 1SW UK(E&W) Dee M	866	29	0.0036297	-1008.336	0.58	518875	-567.10	2317.15	0	-1	Uninformative	NO
7	Count 1SW UK(E&W) Fowey M	422	26	0.0004136	171.2844372	0.30	518875	110	662	-1	-1	NO	NO
8	Surv. 1SW UK(E&W) Frome	1.6	17	4.424E-06	0.204422603	0.32	518875	0	5	-1	-1	NO	NO
9	Surv coast 1SW UK(E&W) Dee M		24	2.984E-06	-0.31915315	0.35	518875	-0.66	3.11	0	0	Uninformative	Uninformative
								Sum of scores		-5	-8		
												Indicators do not suggest that the PFA forecast is an overestimation.	**Indicators do not suggest that the PFA forecast is an underestimation.**

Indicators for Southern NEAC MSW PFA

		Insert data from 2022 here	N reg	Slope	Intercept	r^2	Median PFA in 2022	12.5%ile	87.5%ile	Reassess in year 2023? Outside 75% conf.lim. below	Outside 75% conf.lim. above	Outside 75% conf.lim. below	Outside 75% conf.lim. above
1	Ret. W 2SW UK(Sc.) Baddoch NM	13	33	0.000060	-12.15	0.37	476140	2.19	30.82	-1	-1	NO	NO
2	Ret. W 2SW UK(Sc.) Girnoch NM	6	49	0.000049	2.19	0.40	476140	-4.07	54.92	0	-1	Uninformative	NO
3	Ret. W MSW UK(E&W) Itchen NM	59	33	0.000307	-63.78	0.26	476140	-12.20	176.56	0	-1	Uninformative	NO
4	Ret. W 1SW UK(E&W) Itchen NM	213	32	0.001016	-289.72	0.41	476140	-10.43	398.24	0	-1	Uninformative	NO
5	Ret. W MSW UK(E&W) Frome NM	281	48	0.000847	74.39	0.31	476140	-90.75	1046.28	0	-1	Uninformative	NO
6	Ret. W 1SW UK(E&W) Frome NM	378	47	0.000741	154.34	0.22	476140	-75.76	1090.52	0	-1	Uninformative	NO
7	Catch W MSW Ice Ellidaar NM	98	49	0.000120	-33.32	0.53	476140	-32.07	80.08	0	1	Uninformative	YES
8	Ret W 1SW UK(Sc.) North Esk NM	6980	39	0.011622	4214	0.25	476140	4864	14631	-1	-1	NO	NO
9	Ret. W 2SW UK(Sc.) North Esk NM	5629	40	0.0089909	948.4023339	0.53	476140	2777.33	7681.34	-1	-1	NO	NO
								Sum of scores		-3	-7		
												Indicators do not suggest that the PFA forecast is an overestimation.	**Indicators do not suggest that the PFA forecast is an underestimation.**