American plaice in Divisions 3LNO Advice June 2021 for 2022 – 2024

Recommendation for 2022-2024

Scientific Council recommends that, in accordance with the rebuilding plan, there should be no directed fishing on American plaice in Div. 3LNO in 2022, 2023 and 2024. Bycatch of American plaice should be kept to the lowest possible level and restricted to unavoidable bycatch in fisheries directing for other species.

Management objectives

In 2011 FC adopted an "Interim 3LNO American Plaice Conservation Plan and Rebuilding Strategy" (FC Doc. 11/21). There is a Harvest Control Rule (HCR) in place for this stock.

Convention objectives	*Status*	*Comment/consideration*
Restore to or maintain at B_{msy}	🔴	B<B_{lim}
Eliminate overfishing	🟡	No directed fishery, current bycatch are delaying recovery
Apply Precautionary Approach	🟢	Reference points defined
Minimise harmful impacts on living marine resources and ecosystems	🟡	VME closures in effect, no specific measures.
Preserve marine biodiversity	○	Cannot be evaluated

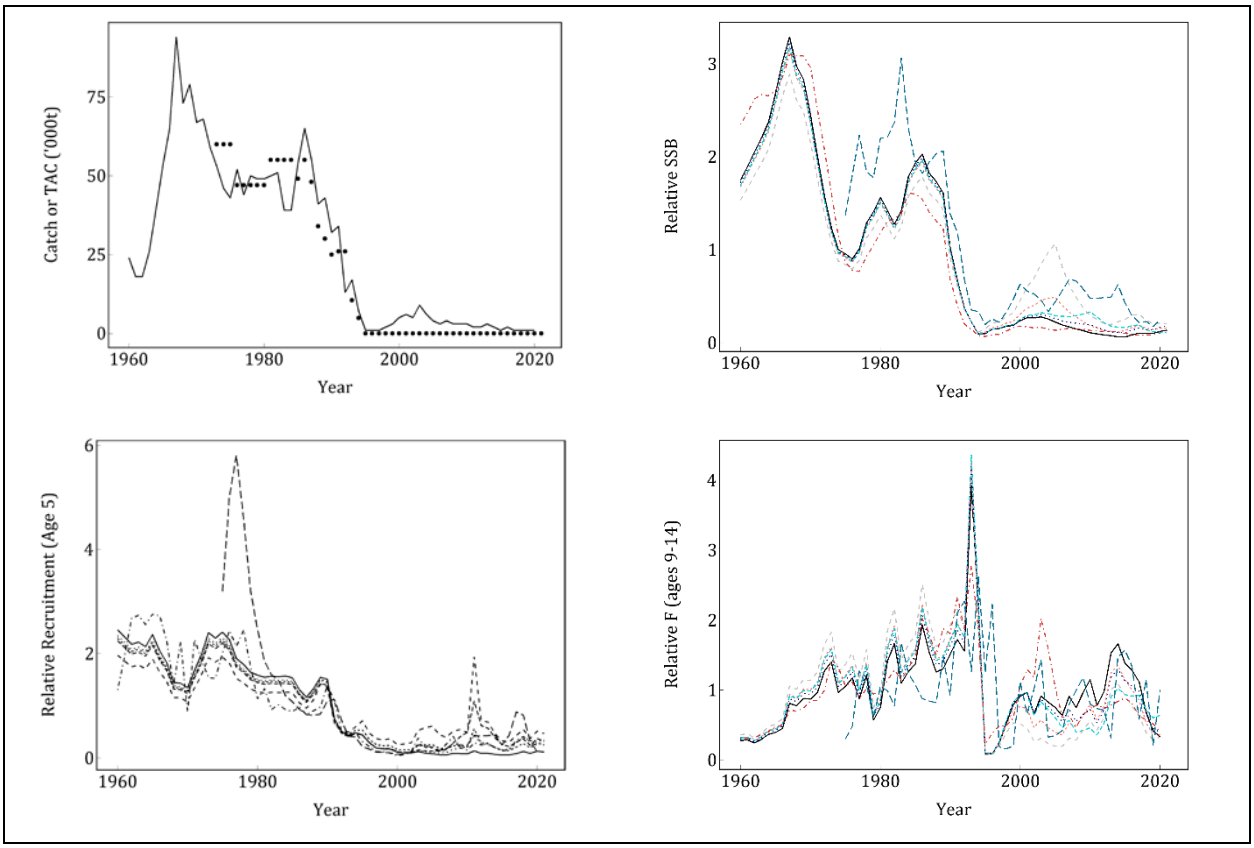
🟢 OK
🟡 Intermediate
🔴 Not accomplished
○ Unknown

Management unit

The management unit is NAFO Divisions 3LNO. The stock is distributed throughout Div. 3LNO but historically most of the biomass was found in Div. 3L.

Stock status

Fishing mortality increased from the late 1990s to 2015 and has subsequently declined. Recruitment has been very low in the last two decades. The stock remains low compared to historic levels and is presently considered to be below B_{lim}.



The multiple lines shown in the graphs correspond to alternate models and model formulations considered by SC. The black line indicates the base run of the ADAPT VPA.

Reference points

B_{lim}:	50 000 t of spawning biomass (Scientific Council Report, 2003).
B_{msy}:	242 000 t of spawning biomass (Scientific Council Report 2011).
F_{lim}:	0.31 (Scientific Council Report, 2011).

Projections

Due to model instability, projections were not completed for this stock. There is considered to be low potential for stock growth.

Assessment

An analytical assessment using the ADAPTive framework tuned to the Canadian 3LNO spring, Canadian 3LNO autumn and the EU-Spain Div. 3NO survey is used for this stock. While results are considered by SC to indicative of stock trends, the absolute magnitude of population estimates from this model was not accepted by SC given a large retrospective pattern that consistently and significantly overestimates SSB and underestimates F. Several formulations of the ADAPT VPA with increases in the natural mortality assumption since at least 2005 were also considered. In addition, results of two independent populations models – a State-Space Model and a Spatial SURBA – were presented. Overall stock trends were consistent across models and support the conclusions of stock status from the base ADAPT.

The next full assessment is scheduled for 2024.

Human impact
Mainly fishery related mortality. Other sources (e.g., pollution, shipping, oil-industry) are undocumented.

Biological and environmental interactions
Capelin and sandlance as well as other fish and invertebrates are important prey items for American plaice. There has been a decrease in age at 50% maturity over time, possibly brought about by some interaction between fishing pressure and environmental/ecosystem changes. The Grand Bank (3LNO) Ecosystem Production Unit is currently experiencing low productivity conditions and biomass has declined across multiple trophic levels and stocks since 2014.

Fishery

The stock has been under moratorium since 1995. American plaice in recent years is caught as bycatch mainly in otter trawl fisheries of yellowtail flounder, skate and redfish.

Recent catch estimates and TACs are:

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
TAC	ndf	ndf	ndf	ndf	ndf	ndf	ndf	ndf	ndf	ndf
STATLANT 21	1.3	2.2	1.4	1.1	1.7	1.2	0.8	1.2	1.1	
STACFIS	2.1[1]	3.0[1]	2.3[1]	1.1[2]	1.7[2]	1.2[3]	1.0[3]	1.2[3]	1.2[3]	

ndf No directed fishing.

[1] Catch was estimated using fishing effort ratio applied to 2010 STACFIS catch.

[2] Catch was estimated using STATLANT 21 data for Canadian fisheries and Daily Catch Records for fisheries in the NRA.

[3] STACFIS Catches since 2017 are obtained from CESAG

Effects of the fishery on the ecosystem

No specific information is available. There is no directed fishery for this stock. General impacts of fishing gears on the ecosystem should be considered. Areas within Divs. 3LNO have been closed to protect sponges and coral.

Special Comments

SC has identified a need to undertake a benchmark process to develop a new modelling framework for this stock.

From the early 2000s to around 2015, there was an increase in fishing mortality, and there is evidence of a concurrent increase in natural mortality. The combined impact of these factors is impeding recovery of this stock.

Sources of information

SCS Doc. 21/05, 06, 08; SCR Doc. 20/08, 13, 21/04, 10, 25; FC Doc. 11/21