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Canadian Science Advisory Secretariat
Science Response 2022/030

UPDATE OF STOCK STATUS INDICATORS FOR LOBSTER (*HOMARUS AMERICANUS*) ON THE NORTH SHORE (LFA 15, 16 AND 18) AND ANTICOSTI ISLAND (LFA 17), QUEBEC, IN 2021

Context

The stock assessment of lobster in Quebec's coastal waters is conducted every three years, with some exceptions, and the last assessment took place in March 2019. A complete assessment was planned for winter 2022, but due to unforeseen circumstances, it was replaced by an update of the main indicators of lobster stock status in the different regions across Quebec.

This Science Response Report results from the Regional Science Response Process of March 11, 2022 on the Update of Stock Status Indicators for Lobsters in Quebec's Coastal Waters.

Background

Description of the fishery

The lobster fishery is managed by controlling fishing effort by restricting the number of licences, the number and size of traps, the duration of the fishing season. In addition to having a minimum landing size (MLS), berried females must be released back into the water. The traps are lifted only once a day or less and the immersion time is at most 72 hours.

Source of data

This stock status update is based on abundance indicators of commercial lobsters. Given that there is no more at-sea sampling (since 2004) or fishery-independent surveys for these stocks, fishing pressure and productivity are not evaluated (spawning and recruitment).

Abundance indicators include the landings recorded on processing plant purchase slips and catch rates of commercial-size lobsters obtained from at-sea sampling (before 2005) and from logbooks filled out daily by fishermen on an initially voluntary basis, which became mandatory in 2004 in LFA 17B, 2007 in LFAs 15, 16 and 18i and since 2010 in all other sub-areas in LFA 18. For LFAs 15 and 16, at-sea sampling was conducted from 1993 to 2004 and was replaced by dockside sampling starting in 2005 in the La Tabatière and Tête-à-la-Baleine (LFA 15) and La Romaine (LFA 16) areas. For LFA 17B, only dockside sampling takes place. This sampling has been conducted since 1997 on the North Shore and since 1998 on the Gaspé Peninsula ports of landing. In the Magdalen Islands, dockside sampling of catches made in Sub-area 17B has been ongoing since 2015.

For each indicator, data from the last three years are reviewed and 2021 data are compared with the averages of the pre-2021 data series. Where data are highly variable, the average for the current evaluation period (2019-2021) is compared to the average for the previous period (2016-2018).

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Analysis and Response

Abundance Indicators

Landings

Landings from the North Shore (LFA 15, 16 and 18) reached 608 t in 2021 and account for 6% of Quebec landings (10,952 t). The fishing effort deployed in these areas was fairly low in the past, but has been increasing in recent years. Most fishing activities were conducted with soak times of 2 days or more. Since 2017, daily hauls have been much more frequent, resulting in an increase in fishing effort. In addition, the number of active licences increased from 69 in 2018 to 75 in 2021.

Lobster landings in LFA 15 were 176 t in 2021, which represents an increase of 154.3% compared to 2018 (69 t) and 424.6% over the 1996-2020 average of 34 t (Figure 1A). In the LFA 16, landings in 2021 reached 209 t, an increase of 137.5% compared to 2018 (88 t) and 694.3% from the 1996-2020 average (26 t) (Figure 1B).

In LFA 18, annual landings were about 1 t from 2001 to 2011. Since 2011, these have had a strong growth reaching 223 t in 2021, which represents a 73.9% increase over 2018 (128 t) and a 764.3% increase over the 1996-2020 historical average (26 t) (Figure 1D).

At Anticosti Island, in LFA 17B, landings have been increasing since 2004, reaching a maximum of 1,060 t in 2021 (Figure 1C), which is a 33.9% increase from 2018 (791 t) and 240.9% of the 1996-2020 historical average (311 t). Landings from LFA 17B account for 9% of Quebec landings.
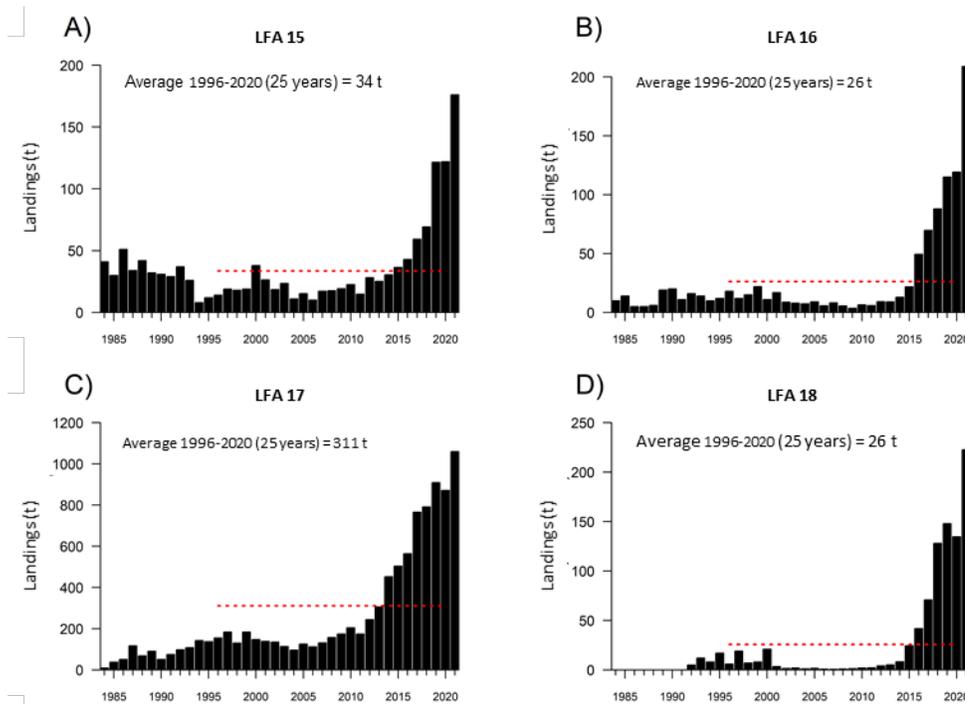

Figure 1. Lobster landings on the North Shore (LFAs 15, 16 and 18) and at Anticosti Island (LFA 17, subarea B) from 1984 to 2021. The dotted lines represent the average value for the past 25 years (1996-2020 period).

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Catch rates for commercial lobster

Catch rates correspond to the catch per unit effort (CPUE) expressed in number or weight of commercial lobster (≥ 83 mm) per trap. In 2021, CPUEs from logbooks in LFAs 15 and 16 combined were 1.13 kg of lobster per trap (kg/trap) (Figure 2A). This is an increase of 82.3% from 2018 (0.62 kg/trap) and 233.3% compared to the 1993-2020 average (0.34 kg/trap). Since 2011, numerical estimates are no longer available due to insufficient data.

In sub-area 18D, the CPUE reached 6.37 kg/trap in 2021, the highest value of the time series. The 2018 CPUE was 51.6% higher than the 2018 CPUE (4.20 kg/trap) and 126.4% higher than the 2012-2020 average (2.81 kg/trap; Figure 2C).

In LFA 17B, CPUE reached 4.1 kg/trap in 2021, the highest value since 2006. The 2021 CPUE represented a 19.3% increase over the 2018 CPUE (3.44 kg/trap) and 102.2% over the 2006-2020 average (2.03 kg/trap; Figure 2B).
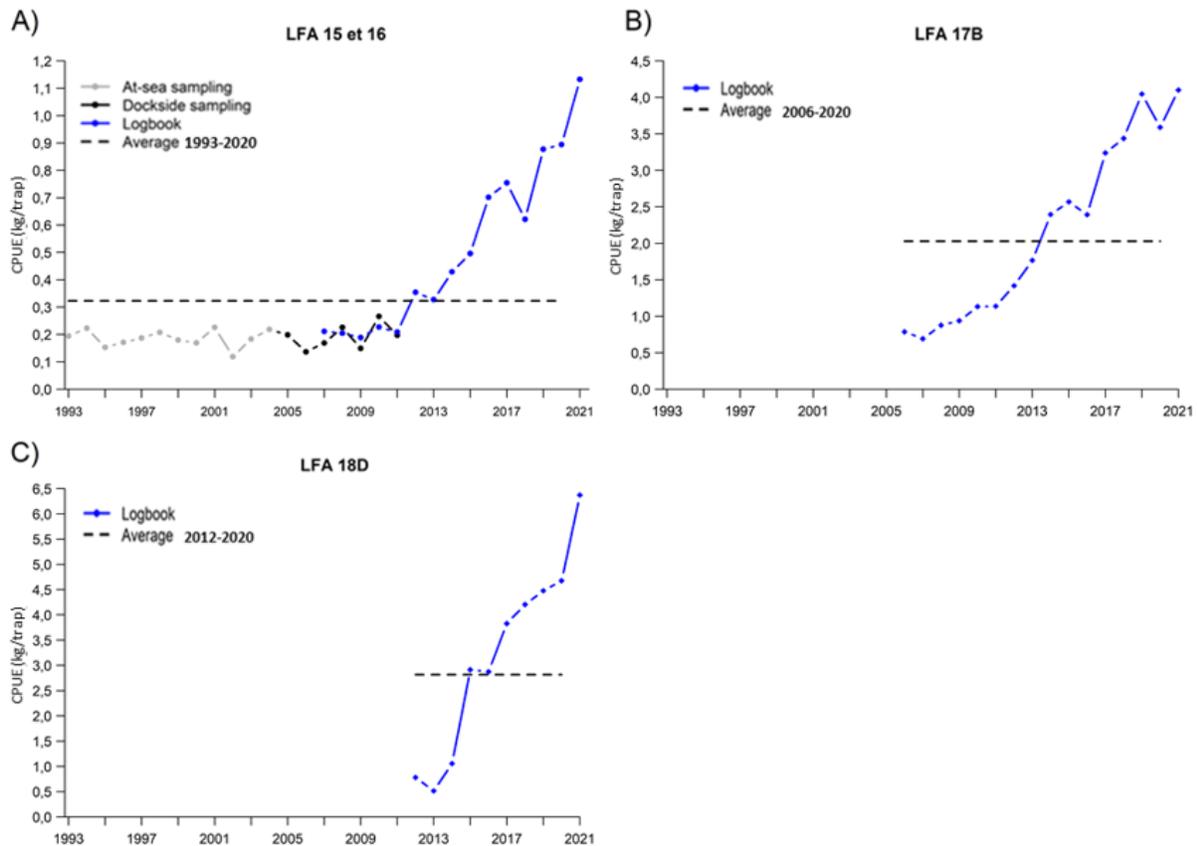

Figure 2. Catch rates (CPUE) of commercial-size lobster in LFAs 15 and 16 (A) on the North Shore from 1993 to 2021 in weight (kg) per trap and for LFA 17, subarea B (B) and LFA 18, subarea D (C). The dotted horizontal line represents the historical average (variable periods).

Conclusions

Abundance indicators (landings and CPUE) are up sharply on the North Shore and at Anticosti Island. Lobster populations in these areas appear to be in good condition and current exploitation levels remain adequate.

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Sources of Information

DFO. 2019. Assessment of lobster (*Homarus americanus*) on the North Shore (LFAs 15, 16 and 18) and at Anticosti Island (LFA 17), Quebec, in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/059.

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