



UPDATE OF STOCK STATUS INDICATORS OF LOBSTER (*HOMARUS AMERICANUS*) IN THE MAGDALEN ISLANDS (LFA 22), QUEBEC, IN 2021

Context

The assessment of lobster stocks in Quebec's coastal waters is conducted every three years, with some exceptions, and the last assessment took place in March 2019. A full assessment was planned for the winter of 2022, but due to unforeseen circumstances, this was replaced by an update of the main indicators of status of lobster stocks in the different areas of 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 that restricts the number of licences, the number and size of traps, the duration of the fishing season, the release back into the water of berried females, a minimum landing size (MLS), and since 2021, maximum landing size. Traps are normally hauled once a day from Monday to Saturday (traps cannot be hauled on Sundays) and the immersion time is at most 72 hours. Escape vents for juvenile lobsters have been mandatory since 1994.

Source of data

This stock status update is based on abundance indicators of commercial lobsters (≥ 83 mm). Abundance indicators include the landings recorded on processing plant purchase slips and catch rates of commercial-size lobsters obtained from at-sea or dockside sampling. Commercial lobster catch rates, or catch per unit effort (CPUE) during the commercial fishery, are expressed as the number or weight of commercial lobsters per trap. At-sea sampling has been conducted aboard fishing vessels since 1985 and covers the south and north sides of the Islands. It should be noted that no at-sea sampling was conducted in 2020 due to COVID-19.

For each indicator, data from the three previous years are examined and the 2021 data are compared to the averages from the existing data series (from before 2021). When the data are more variable, the average for the current assessment period (2019-2021) is compared to the average for the previous period (2016-2018).

Analysis and Response

Abundance Indicators

Landings

After an historic record of 6,095 t in 2020, landings for the Magdalen Islands reached 5,437 t in 2021 (preliminary data; Figure 1), but were still 89.7% higher than the 1996-2020 period average (2,866 t). Landings increased by 14.3% compared to 2018 (4,757 t) and the increase was noticeable on both the south and north sides. The south side accounted for 64.1% (3,484 t) of the total landings on the Islands and the north side accounted for the other 35.9% (1,954 t). In 2021, lobster landings from the Magdalen Islands accounted for 50% of the total landings in Quebec (10,952 t).

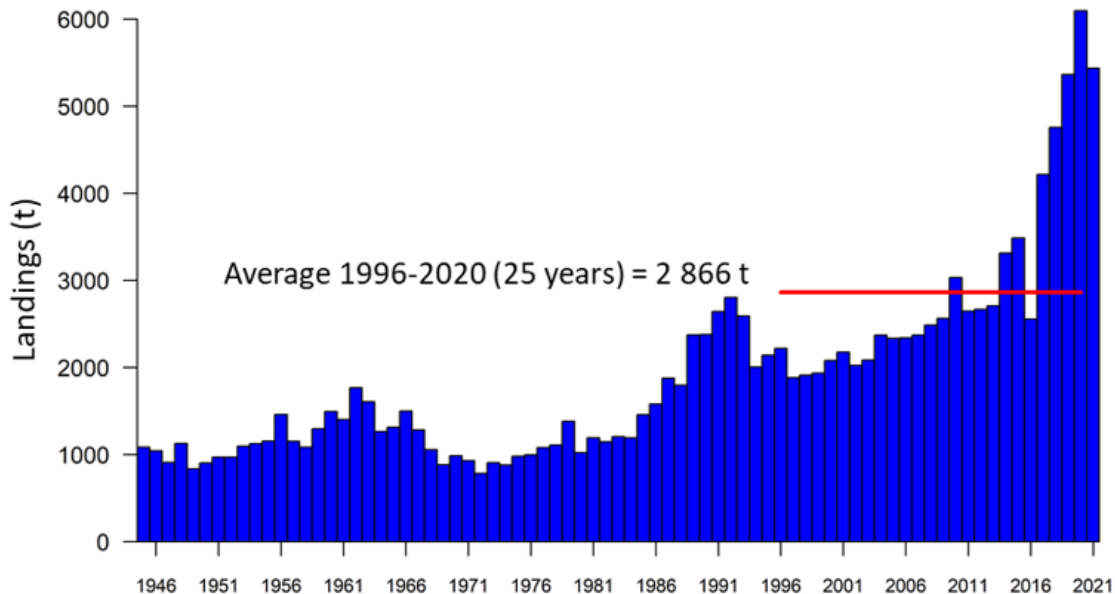


Figure 1. Lobster landings in the Magdalen Islands from 1945 to 2021. The dotted lines represent the historic average values for the past 25 years (1996-2020 period).

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, for the Islands as a whole, the CPUE was 1.84 lobster per trap, which corresponds to 1.16 kg of lobster per trap (kg/trap) (Figures 2A and B). The CPUE in number was 24.3% higher than in 2018 and 108.4% higher than the series average (1985-2020), which stood at (0.88 lobster/trap). The CPUE in weight was 19% higher than in 2018 and 128% above the historic average (0.51 kg/trap). The CPUE values reached an all-time high in 2021, which is different from landings that peaked in 2020.

Quebec Region

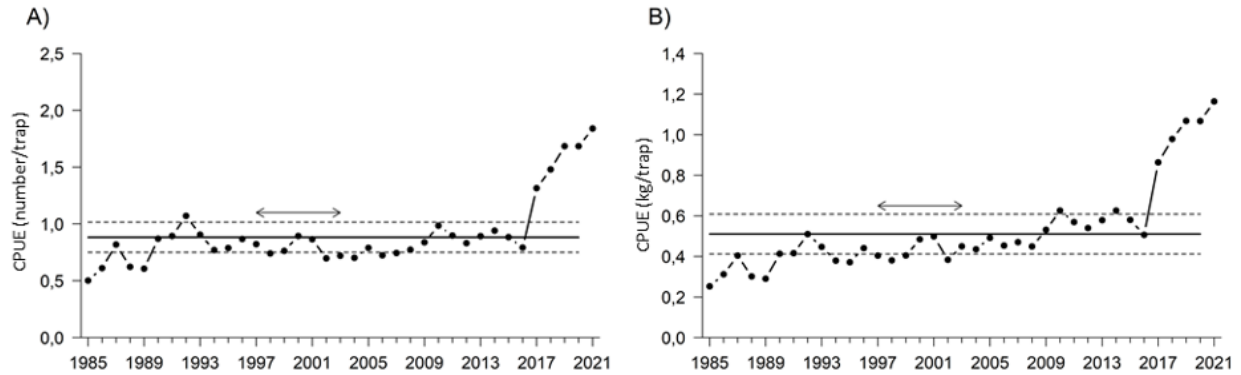


Figure 2. Catch rates (CPUEs) of commercial-size lobsters for the Magdalen Islands from 1985 to 2021 in A) number and B) in kg per trap. 1985–2020 mean (solid line) \pm 0.5 standard deviation (dotted lines). The horizontal arrow indicates the period (1997 to 2003) when the MLS was increased from 76 to 83 mm.

Precautionary approach

A precautionary approach (PA) based on an empirical method was used for the lobster fishery in the Magdalen Islands (Gendron and Savard 2012). The limit and upper reference points (LRP and URP) and the stock status zones (healthy, cautious and critical) were defined from a stock biomass indicator and in compliance with the DFO operational policy framework. According to the definition in framework, reference points are defined in relation to the maximum sustainable yield (B_{MSY}). The mean value of landings from 1985 to 2009 was used as an approximation of B_{MSY} . These 25 years correspond to a productive period for lobsters and during which at least two large cohorts of lobster were produced. Average landings from 1985 to 2009 were 2,188 t. The LRP (40% x average) was 875 t and the URP (80% x average) was 1,750 t (Figure 3). In 2021, with landings of 5,437 t, the stock was considered in the healthy zone (Figure 3).

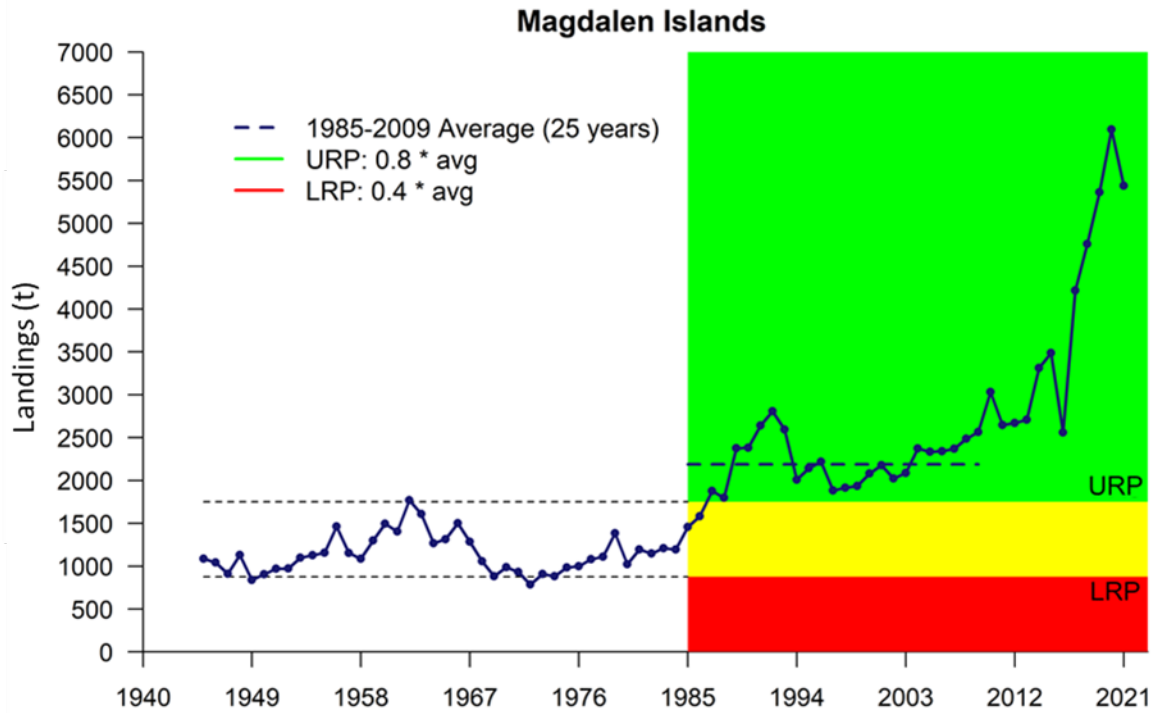


Figure 3. Lobster landings in the Magdalen Islands from 1945 to 2021. Healthy zone is green. Cautious zone is yellow, and the Critical zone is red. The dotted line from 1985 to 2009 corresponds to the average value that approximates the B_{MSY} .

Conclusions

According to the precautionary approach, the Magdalen Islands lobster stock is in the healthy zone. The high abundance of commercial lobsters indicates that the stock is in good condition and that current exploitation levels remain adequate.

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Sources of Information

DFO. 2019. [Assessment of lobster \(*Homarus americanus*\) in the Magdalen Islands \(LFA 22\), Quebec, in 2018](#). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/061.

Gendron, L. and Savard, G. 2012. [Lobster stock status in the coastal waters of Quebec \(LFAs 15 to 22\) in 2011 and determination of reference points for the implementation of a precautionary approach in the Magdalen Islands \(LFA 22\)](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2012/010. xvii+ 143 p.

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