Fisheries and Oceans Canada | Pêches et Océans Canada
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Canadian Science Advisory Secretariat
Quebec Region | Science Response 2022/029

UPDATE OF STOCK STATUS INDICATORS OF LOBSTER (*HOMARUS AMERICANUS*) IN THE GASPÉ (LFAS 19, 20 AND 21), 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, and the duration of the fishing season. In addition to having a minimum and maximum landing size, berried females must be released back into the water and fishers can cut a v-notch into the telson of berried females, on a voluntary basis. 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. Abundance indicators include the landings recorded on processing plant purchase slips and catch rates of commercial-size lobsters obtained from at-sea and 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 (≥ 83 mm) per trap. At-sea sampling has been conducted aboard fishing vessels since 1986 in La Malbaie (20A2), Ste-Thérèse/Grande-Rivière (20A8–A9) and Shigawake/St-Godefroi (20B5–B6). At-sea sampling was also conducted between Miguasha and Maria (subarea 21B) from 1997 to 2004 during the spring fishery and from 2002 to 2004 and 2017-2021 during the spring and fall fisheries (scientific data collected by the Listuguj Aboriginal community, not presented). In subarea 19C, at-sea sampling was conducted from 2001 to 2004, 2011 and 2016 to 2019 and 2021 in Shiphead to Rivière-au-Renard area. Since 2005, dockside sampling has replaced at-sea sampling in Areas 21B and 19C during years when at-sea sampling has not been carried out. From 2008 to 2019, Parks Canada conducted additional sampling at sea in the Forillon National Park area (subareas 19C and 20A1). It should be noted that no at-sea sampling was conducted in 2020 due to COVID-19.

For each indicator, data from the last three years are reviewed and 2021 data are compared to 2018 data, as well as the historical averages 1996-2020.

Analysis and Response

Abundance Indicators

Landings

In 2021, landings for the entire Gaspé area reached an all-time high of 3,881 t (Figure 1), and accounted for 35% of Quebec total landings (10,952 t). They increased by 67.8% compared to 2018 (2,313 t) and were 199.7% higher than the 1996-2020 average of 1,295 t. In 2021, 80.3% of total landings in the Gaspé came from LFA 20, 12.2% from LFA 19 and 7.5% from LFA 21.

In LFA 20, 2021 landings reached 3,104 t, a 70.4% increase over 2018 (1,812 t) and 174.2% over the 1996-2020 average (1,132 t) (Figure 1). Landings in LFA 19 totalled 475 t in 2021. They increased by 76.7% compared to 2018 (269 t) and were 525.4% above the 1996-2020 average (76 t). Landings in LFA 21 increased by 30.5% between 2018 (223 t) and 2021 (291 t) and the 2021 value is 238.1% higher than the 1996-2020 average (86 t).

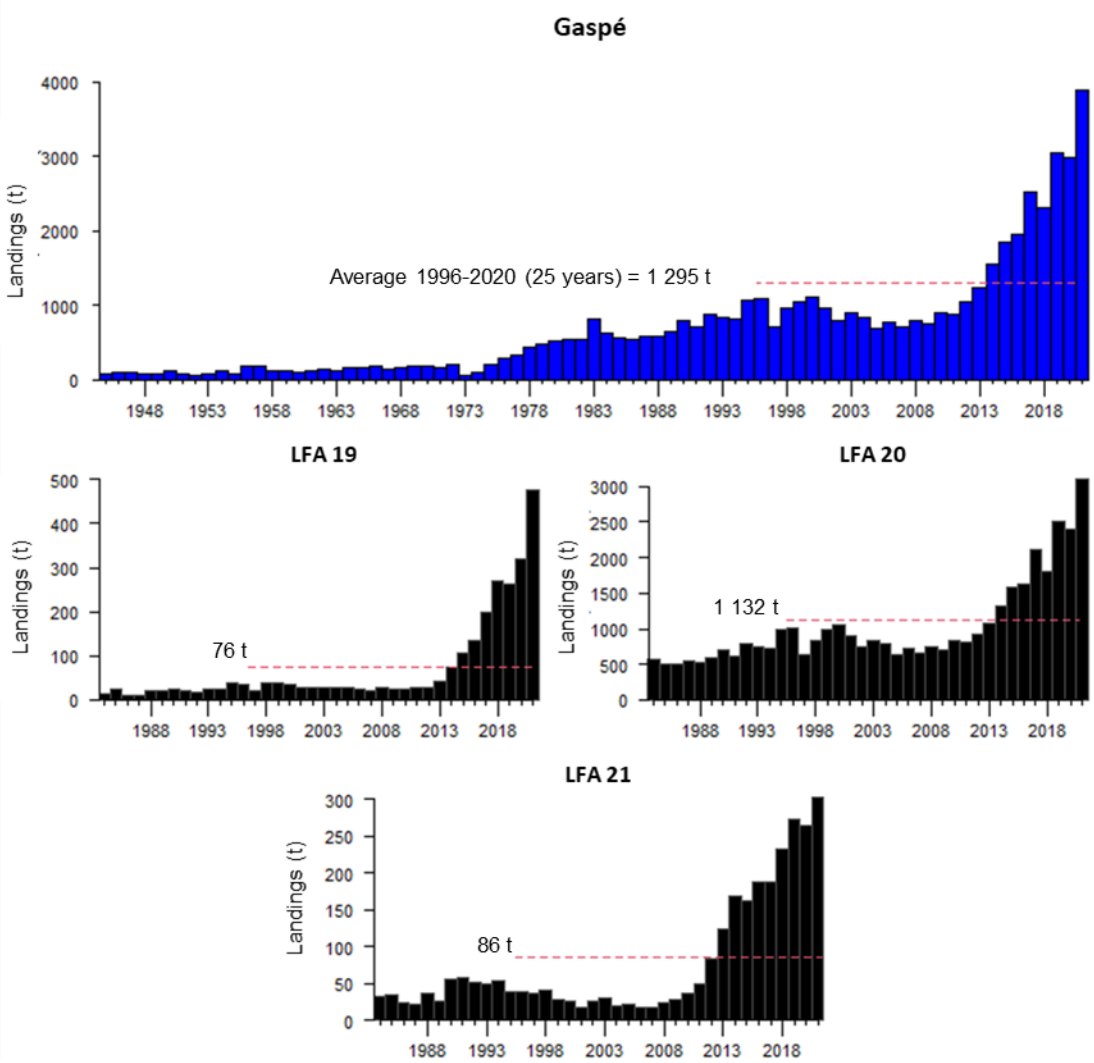

Figure 1. Total lobster landings in the Gaspé from 1945 to 2021 and from 1984 to 2021 for LFAs 19, 20 and 21) The dotted lines represent the historic average values for the past 25 years (1996-2020 period).

Catch rates for commercial lobster

Catch rates correspond to the catch per unit effort (CPUE) expressed in number or weight of lobster per trap. In 2021, the CPUE for commercial-size lobsters (≥ 83 mm) in LFA 20 was 2.27 lobster per trap, which works out to 1.36 kg of lobster per trap (kg/trap) (Figures 2A and B). The CPUE in number was 49.2% higher than in 2018 (1.52 lobster/trap) and 174.2% above the 1996-2020 historic average (0.83 lobster/trap). The CPUE in weight was 57.2% higher than in 2018 (0.87 kg/trap) and 201.0% above the 1996-2020 historic average (0.45 kg/trap). The increase in CPUEs was observed in the three groups of subareas sampled (20A1-A2, 20A8-A9 and 20B5-B6).

CPUEs in LFA 19C were 3.98 lobster/trap and 3.16 kg/trap in 2021, a 13.4% and 23% respective increase over 2018 (3.51 lobster/trap and 2.57 kg/trap) (Figures 2C and D).

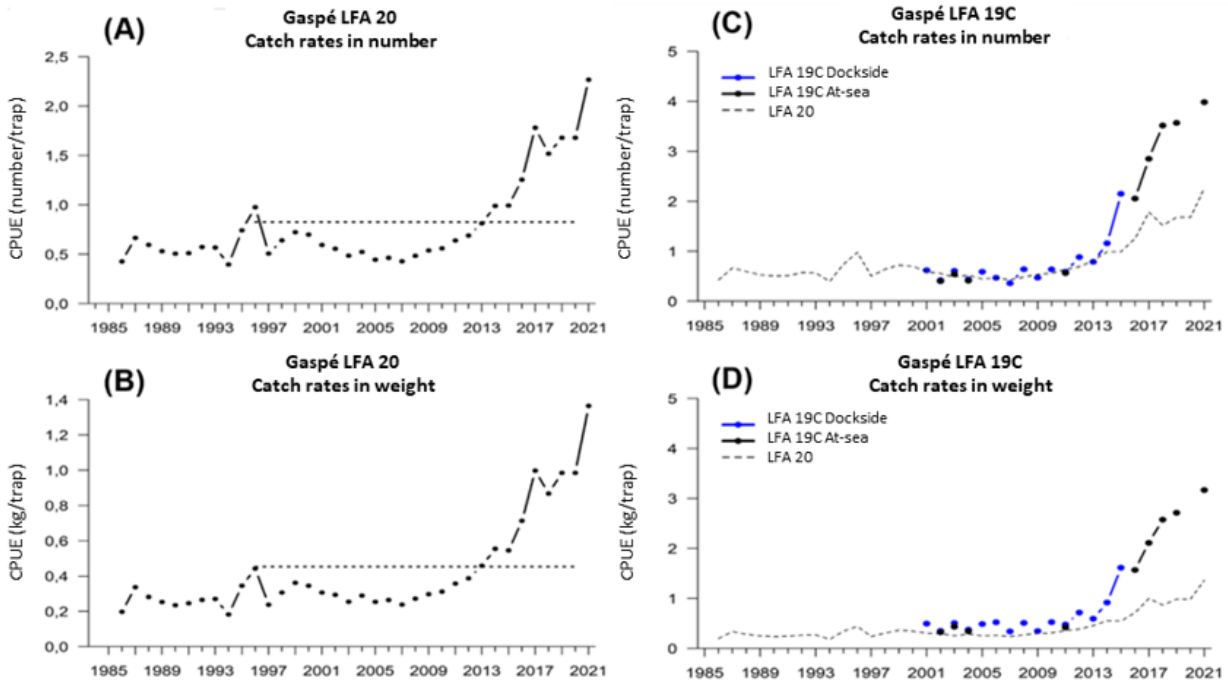

Figure 2. Catch rates (CPUEs) of commercial-size lobsters for LFA 20 in the Gaspé from 1986 to 2021 in number (A) and weight (kg) (B) per trap and for LFA 19C from 2001 to 2021 in number (C) and weight (kg) (D). For (A) and (B), the dotted line indicates the average CPUE for the last 25 years (1996-2020 period)

Precautionary approach

A precautionary approach (PA) based on an empirical method was used for the lobster fishery in the Gaspé (DFO 2014). 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}). As in the case of the Magdalen Islands and the Maritimes, average landings from 1985 to 2009 were used as an approximate B_{MSY}. At least two large cohorts of lobster were produced during these 25 years. Average landings from 1985 to 2009 were 810 t. The LRP (40% x average) was 325 t and the

URP (80% x average) was 650 t. (Figure 9). In 2021, with landings of 3,881 t, the stock was considered in the healthy zone (Figure 3).

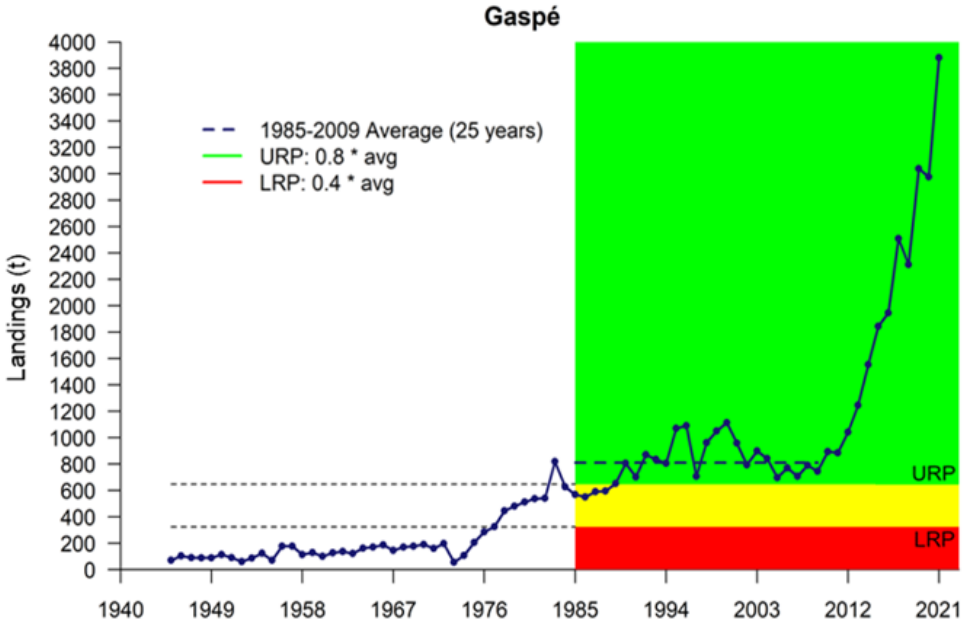

Figure 3. Commercial lobster landings in the Gaspé from 1945 to 2021. Healthy zone is green. Cautious zone is yellow, and the Critical zone is red. The dotted line from 1985 to 2009 corresponds to the average value that approximates the B_{MSY}.

Conclusions

According to the precautionary approach, the Gaspé 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

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