PUBLIC OPINION RESEARCH
on Improving Leach's Storm-Petrel Conservation in Newfoundland Through an Understanding of Human Perceptions

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Executive Summary

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Executive Summary

This research was conducted to understand how locals in Conception Bay, Newfoundland and Labrador, perceive Leach's storm-petrels (*Oceanodroma leucorhoa*) (referred to as storm-petrels) and Atlantic puffins (*Fratercula arctica*) (referred to as puffins). Between 1984-2013, the Leach's storm-petrel population on Baccalieu Island declined by approximately 1.6 million breeding pairs, illustrating the urgency of storm-petrels conservation initiatives (Wilhelm et al., 2019). An unpublished report written by Canadian Parks and Wilderness Society – Newfoundland and Labrador Chapter (CPAWS-NL), documents negative perceptions of storm-petrels. To understand how widespread these negative perceptions are, and to understand the factors contributing to potential negative perceptions, a *human dimensions of wildlife* approach was adopted, using questionnaires to obtain quantitative (i.e., numeric) and qualitative (i.e., words) data on seabird perceptions.

The total estimated value of this contract amounts to CAD $39,104.89 (including HST).

Methods & Demographics

A Drop-Off-Pick-Up (DOPU) method was used to distribute the questionnaire in four towns: Holyrood, Harbour Main-Chapel's Cove-Lakeview, Clarke's Beach and Bay de Verde (Figure 2) between August – November 2021. Provincial and federal guidelines for COVID-19 during data collection (i.e., wearing mask, maintaining physical distance, and using hand sanitizer). A random proportionate sample frame was used to collect data from residents in the four towns. Participation was voluntary and only participants over the age of 18 were invited to complete the survey. A total of 764 individuals were invited to participate in this study, and 320 questionnaires were obtained, representing a 51% overall response rate. As the data were obtained in rural communities in Newfoundland, the findings cannot be extrapolated to urban centers such as St. John's.

Sampling was of an almost even split between people identifying as female and male. While the demographic profile of respondents generally reflects the 2016 census data, the data is skewed towards people of an older age. The majority of respondents were over 50 years of age thus the findings do not speak about the perceptions of younger populations. This is in part because individuals under the age of 18 were not invited to participate in the study.

Key Findings

The majority of respondents (67.64%) had not heard about the *Puffin and Petrel Patrol* and very few (0.65%) intended to participate in the *Puffin and Petrel Patrol.* Almost two-thirds of the respondents indicated that they are aware that puffins exist in Conception Bay. Around two-fifths have seen puffins in Conception Bay. Just about half of respondents were aware that storm-petrels exist in Conception Bay, with around two-fifths reporting having seen storm-petrels. Based on respondents' answers to a series of knowledge questions, over half of the respondents (57.00%) can be considered knowledgeable about puffins and 43.00% can be characterized as

unknowledgeable. A lower percentage of respondents (50.00%) can be characterized as knowledgeable about storm-petrels and 50.00% as unknowledgeable. Generally, respondents were unaware that Newfoundland and Labrador is the largest nesting site of Leach's storm-petrels in the world. Results indicate that knowledge levels for storm-petrels differ between male and female respondents, with male respondents reporting higher awareness of storm-petrels.

Data collection was on respondents' wildlife value orientations, basic beliefs held by people about the place of wildlife in the world. Wildlife value orientations can be separated into four categories: mutualists (caring and social affiliation with wildlife), traditionalists/utilitarian (hunting and use of wildlife), pluralists (individuals who hold both mutualistic and utilitarian basic beliefs), and distanced (individuals who are not particularly interested in wildlife and score low on both mutualistic and utilitarian). The majority of respondents (36.00%) hold mutualistic wildlife value orientations, followed by pluralists (29.87%), traditionalists (18.51%) and distanced (15.59%). In Holyrood (40.65%) and Harbour Main-Chapel's Cove-Lakeview (33.33%), the majority of respondents have mutualistic wildlife value orientations. In Clarke's Beach (36.84%) and Bay de Verde (33.33%), the majority have pluralistic wildlife value orientations. This has implications for framing of communication. While most respondents can be characterised as "mutualists" or "pluralists", communication efforts should target each wildlife value orientation. Communication efforts should also target the community in which they are intended, as differences in wildlife value orientations across communities were observed.

Attitudes are an individual's evaluation of an entity (e.g., person, object, action, species) and can be either favourable, neutral, or unfavourable. Overall, most respondents hold positive or neutral attitude towards puffins. Respondents indicated that they think of puffins in their community as good, beneficial, and positive. Respondents held slightly less positive attitudes toward storm-petrels. On average, respondents think of storm-petrels in their community as neither bad nor good, somewhat beneficial, and neither negative nor positive. No statistically significant differences were detected between male and female respondents across attitudes towards puffins and storm-petrels.

Emotions are physiological, cognitive, and behavioural reactions to experiences, and play a role in the intensity and direction of how an individual perceives wildlife. Seeing puffins in the community left respondents with positive emotions. Overall, respondents indicated that seeing puffins made them feel happy, compassionate, excited, pleased, and in awe. These emotions were not as pronounced for storm-petrels, where a higher number of respondents indicated that they were neutral in terms of their emotional response. Yet respondents overall reported feeling neither angry nor happy, somewhat compassionate, neither disgusted nor excited, neither upset nor pleased, and in awe when seeing storm-petrels in the community. Respondents identifying as female held slightly more positive emotions towards puffins than male respondents. No statistically significant differences were detected for emotions towards storm-petrels between male and female respondents.

Beliefs an individual holds about a species' right to existence and the importance of species conservation for future generations are called *existence beliefs*. Respondents agree that both puffins and storm-petrels have a right to exist and should be conserved for future generations. Respondents also believe that puffins, and less so storm-petrels, have a positive impact on tourism.

To understand norms around puffins and storm-petrels, awareness of consequences of human actions on seabird conservation and the degree to which individuals ascribe responsibility to themselves were measured. Higher mean values for ascription of responsibility items were observed for puffins than storm-petrels. Respondents believe that they are responsible for the conservation of puffins, but less so for storm-petrels. On average, respondents do not feel particularly obligated to educate others about the importance of puffins or storm-petrels. On average, respondents reported high awareness of consequences: respondents indicated that their personal actions could impact the ability of puffins and storm-petrels to thrive. Respondents also indicated that they are aware of the impacts humans can have on puffins and storm-petrels.

To understand what influences perceptions, testing of interactions with the seabirds took place (awareness of their existence and seen them, vs. awareness of their existence without having seen them, vs. unaware and not seen them). No significant differences were detected in how puffins are perceived based on respondents' interactions with puffins. However, differences were detected in how storm-petrels are perceived based on interactions. For storm-petrels, a higher knowledge level and stronger existence beliefs for both awareness categories were observed. Significant differences in awareness of consequences and ascription of responsibility for respondents who are aware and have seen storm-petrels compared to respondents who were unaware and had never seen the bird were observed, with the aware respondents reporting higher levels of awareness of consequences and ascription of responsibility.

The relationships between cognitions, emotions, and personal normal (i.e., ascription of responsibility and awareness of consequences) for both seabirds were examined using linear regression. For puffins, weak relationships were detected between wildlife value orientations and attitudes, and knowledge and attitudes. A strong relationship was detected between respondents' attitudes and emotions and weaker relationships between attitudes and ascription of responsibility. Relationships between emotions and ascription of responsibility and awareness of consequences were also detected. For storm-petrels, the relationships between cognitions, emotions, and personal norms were less pronounced, with a detection of a weak relationship between knowledge and awareness of consequences. It also showed a relationship between emotions and ascription of responsibility for storm-petrels, and emotions and awareness of consequences. A weak relationship was also detected between attitudes and ascription of responsibility. For both species, a strong relationship between the two norm variables (ascription of responsibility and awareness of consequences) was observed.

Respondents were asked to indicate the first three words that came to mind when thinking about puffins and storm-petrels respectively. The most common category of words for puffins were *bird*

attributes (41.15%). Of these, the majority were positive attributes (84.11%) such as “beautiful”, “nice”, “pretty”, and “fun”, followed by neutral (8.61%), and only very few negative attributes (1.99%). The second most common category was *bird characteristics* (26.19%) such as “small”, “fast”, and “colorful”, followed by *location* (8.63%), *animals* (7.91%), and *cultural identity* (5.76%). Examples of cultural identity included “Buddy the Puffin”, “home”, and “iconic”. Words associated with puffins are generally positive in character, focused on the bird’s appearance, and specific locations where they bird can be encountered. For storm-petrels, *bird attributes* were also the most common category (23.72%). The majority were positive attributes (43.36%) such as “graceful”, “beautiful”, and “nice”, followed by negative attributes (24.78%) such as “stink”, “smelly”, “foolish”, and “odor”, and neutral attributes (14.16%) such “fast”, “free”, and “quick”. Similar to puffins, the second most common category was *bird characteristics* (22.25%), which included words like “small” and “black”, followed by *lack of knowledge* (13.69%). Other prominent categories included *meteorological conditions* (9.54%) which included weather related events that impact to storm-petrels and words like “storm”, “bad”, and “wind”. *Animals* (9.29%) was also a common category and included words like “birds”, “gulls”, “whales”, and “wildlife”. *Built environment* (8.56%) included threats to storm-petrels associated with built structures such as “attracted to light” and other infrastructure such as “oil rigs”, “streetlights”, and “windows”. Words associated with storm-petrels are less positive than for puffin, and to a larger extent focused on unawareness and threats to storm-petrel conservation.

Expected use of results & extrapolation of findings

- While puffins and storm-petrels are both seabirds, one species has been taken in as a cultural icon, the other has not. This indicates a value placed on each animal. How people value wildlife can directly influence their support of the species conservation. The residents of Conception Bay generally have positive beliefs and attitudes toward storm-petrels but they lack information which might shift them to care for the species instead of tolerating them.

- There are several species of concern that are not necessarily valued by people. Getting people to care is critical in supporting conservation planning and execution.

- Storm-petrels are not as well-known as puffins. Attitudes and beliefs were not negative, but benign. To help conservation efforts, an expansion of education programs could help garner the support of local community members.

Political Neutrality Certification

I hereby certify that the final deliverables fully comply with the Government of Canada political neutrality requirements outlined in the Communications Policy of the Government of Canada and Procedures for Planning and Contracting Public Opinion Research.

Specifically, the deliverables do not include information on electoral voting intentions, political party preferences, standings with the electorate, or ratings of the performance of a political party or its leaders.

Signed: _____

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Date: March 31, 2022