**Intro:**

* Before proceeding to a description of the analysis, there are a number of sampling biases which the reader should be made aware.
* These biases arise through a number of factors, failures and practical constraints of real-life experiments, though some arise through a lack of robust sampling protocols.

**Study design:**

**Sampling biases:**

1. ***Study region selection*** :
   1. Sampling study regions were chosen for their proximity to local wharfs and lobster fishing grounds, as well as being amenable to Scuba transect sampling.
2. ***Transect site selection / retention*** - Transect sampling locations and times were chosen based on:
   1. knowledge of local fishing grounds,
   2. suitability of bottom as recruitment habitat for larval and small lobsters.
   3. being far enough from industry lobster seeding activities and artificial reef creation, so as to not have been influenced by these activities.
   4. environmental / sampling conditions which are reliable enough to be sampled.
   5. timing of sampling activities with local fishing activities (sampling performed either before or after the lobster fishing season).
3. ***Transect location drift*** : placement of transect end points is not exact from year to year.
4. ***Section removals*** :
   1. Pre-mature transect ending (e.g. lack of air, time, or degrading weather conditions) before the 100-meter mark.
   2. Sampler training / reliability issues.
   3. Complex or poor habitat degradation (e.g. drifting sand dunes, strong algal growth).
   4. Water visibility issues (e.g. wafting sediment, current eddies).
   5. Technical issues (e.g. problems with gear).
5. ***Swept area sampling selection*** :
   1. Imprecise 1 or 2-meter distance from the reference line. This includes drifting of the diver away from the line to explore habitat which lies outside the nominal sampling distance.
   2. Lack of reference measure to help define the sampling area in earlier years.
6. ***Lobster detection / selection***:

* Divers attempted to capture every lobster observed on either side of their respective line-transect.
* Captured lobsters were measured for carapace length (CL) and the sex was determined for CL above 20mm.
* For lobsters which were observed but not captured, a size estimate was provided, generally by 5 mm size groups, reflecting the perceived size precision for these lobsters.
* Sexes were left undetermined for escaped lobsters.
* In certain years, various seafloor characteristics were recorded such as the granularity of sediment (sand, pebbles, cobblestones, ledges) as well as algal coverage.
* Information was recorded on underwater sampling sheets for every 5-m interval, at a widths of 2 meters on either side of the transect line up to 2018, and 1 or 2 meters from 2019 onwards, depending on the density of small lobsters.

Table X : Summary statistics by sampling year.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Regions** | **Transects** | **Divers** | **Length** | **Sampling proportion** |  |
| 2001 |  |  |  |  |  |  |
| 2002 |  |  |  |  |  |  |
| 2003 |  |  |  |  |  |  |
| 2004 |  |  |  |  |  |  |
| 2005 |  |  |  |  |  |  |
| 2006 |  |  |  |  |  |  |
| 2007 |  |  |  |  |  |  |
| 2008 |  |  |  |  |  |  |
| 2009 |  |  |  |  |  |  |
| 2010 |  |  |  |  |  |  |
| 2011 |  |  |  |  |  |  |
| 2012 |  |  |  |  |  |  |
| 2013 |  |  |  |  |  |  |
| 2014 |  |  |  |  |  |  |
| 2015 |  |  |  |  |  |  |
| 2016 |  |  |  |  |  |  |
| 2017 |  |  |  |  |  |  |
| 2018 |  |  |  |  |  |  |
| 2019 |  |  |  |  |  |  |
| 2020 |  |  |  |  |  |  |
| 2021 |  |  |  |  |  |  |

Figure X : Diagram of the 5-meter sections making up a typical transect, along with an example of a sampling pattern.

0 m

50 m

100 m

Left

Right

Covered

Abandonned

sections

Sampled

section

Skipped or removed

section

Sampling ends