NORTHERN HARVEST SEA FARM HIGH TEMPERATURE MORTALITY EVENT IN FORTUNE BAY NORTH – INTERIM REPORT

NOVEMBER 29, 2019
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2 Introduction

MAMKA has been asked to provide environmental monitoring services for a mass mortality event on the South Coast of Newfoundland at ten of NORTHERN HARVEST SEA FARMS aquaculture sites and surrounding effected area. A total of seven aquaculture sites were monitored with three sites remaining. The exact timeline and intensity of this monitoring plan is fluid and will be subject to the geographic scope and duration of potential impacts. This work was and continues to be guided by input from Fisheries and Oceans Canada (Ecosystems Management Branch). Northern Harvest Sea Farms (NHSF) have provided MAMKA with site coordinates and boundaries with guidance on biosecurity and site visitation protocols. This report is intended to provide an update on progress made to date and give preliminary results. A full comprehensive report will be made upon completion of work.

Sites monitored:

1. Deep Water Point
2. Old Woman’s Cove
3. Little Burdock Cove
4. Foshies Cove
5. McGrath Cove South
6. The Hobby
7. Rencontre Island

Sites to be monitored:

1. Harvey Hill East
2. Harvey Hill North
3. Broad Cove

3 Sampling and Monitoring Results

Visual inspection and/or drone footage of each site and surrounding area assisted in determining areas of potential impact and guided monitoring efforts so that a more directed approach can be completed in areas of potential impact. Areas affected/unaffected was mapped using GIS software. Video analysis of potential benthic impacts may guide further monitoring of the benthic environment and/or the water column. The benthic monitoring component of this plan will be completed when weather allows.
3.1 UAV Assessments

Shoreline not approachable on land was observed by technicians in close range vessel patrols and via drone footage. Video footage collected via drone assessments was analyzed to document any visuals of salmon fat. Salmon fat was identified as either floating white matter, fat on vegetation, or fat on rocks. It should be noted that low density fat deposits are difficult to identify via drone footage and may have been missed by visual analysis. Also, unmanned aerial vehicle (UAV) assessments only includes data from footage with geographic data associated with them – the total shoreline assessed by MAMKA was much greater than what is listed, but only a small portion of the data was useable from a GIS perspective. Anything outside of that subset of data was omitted from the statistics.

3.2 Shoreline Assessment and Transects

Shorelines were monitored by boat and foot where accessible. Where fat deposits were identified, shoreline transects were completed perpendicular to shoreline and permanent photo monitoring sites were established. Surveyors documented debris present, fat present, coordinates of impacted area, width of impacted area, thickness of fat, presence of sediment penetration, and depth of sediment penetration.

3.3 Monitoring Results

Results included in this interim report are for the components of the monitoring plan that have been completed to date. Poor weather has delayed monitoring efforts and key components will be completed as weather allows.

The data provided in Table 1 outlines shoreline assessed (m), impacted shoreline (m), and percent of shoreline impacted collected to date. Surveyors monitored a total of 54,608 meters of shoreline through each technique. Analysis of data shows a total of 1,565 (2.87%) meters of impacted shoreline. Again, it is important to note that salmon fat deposits are difficult to identify via drone footage and amounts may be higher or lower than recorded. Drone footage for Foshie Hobby present a white matter that appears more like ocean
foam (see figures 7, 8 and 10). Further, when this area was visited and monitored by the MAMKA technicians no shoreline fat was observed. Revisiting sites will be necessary as the identified materials may move between visits. No impacted avian species were observed during any monitoring.

Table 1. Impacted shoreline assessments.

<table>
<thead>
<tr>
<th>Shoreline assessed (m)</th>
<th>Impacted shoreline (m)</th>
<th>% impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoreline Assessed</td>
<td>54,608</td>
<td>1,565</td>
</tr>
</tbody>
</table>
Appendix A - Photo Monitoring

Figure 1. Deep Water Point Permanent Photo Monitoring. Salmon fat present, November 5, 2019.
Figure 2. Deep Water Point. Patchy spots of salmon fat present on shoreline, November 5, 2019.
Figure 3. Little Burdock Permanent Photo Monitoring. Salmon fat present on rocks and kelp, November 5, 2019.
Figure 4. Coated shoreline rocks in Little Burdock Cove. November 5, 2019.
Figure 5. McGrath Cove. Fat covered leaves floating in the water. November 18, 2019.
Figure 6. McGrath Cove Permanent Photo Monitoring. Salmon fat present on beach sand and mixed into beach about 3 inches deep. November 18, 2019.
Appendix B – Video Analysis

Figure 7. UAV video screenshot of salmon fat and/or sea foam at Foshie Hobby. October 21, 2019.
Figure 8. UAV video screenshot of salmon fat and/or sea foam at Foshie Hobby. October 21, 2019.

Figure 9. UAV video screenshot of salmon fat on vegetation at Rencontre Island. October 21, 2019.
Figure 10. UAV video screenshot of salmon fat and/or sea foam on rocky shoreline near Foshie Hobby. October 21, 2019.
Appendix C – Mapping

Shoreline Assessments
Overview
2019
Map No. 1 of 6
Shoreline Assessments
Rencontre Island
2019
Map No. 5 of 6