Massachusetts In-Lieu Fee Program

Five Year Review

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Aquatic Mitigation Specialist
Overview of today’s webinar

• What is an in-lieu fee program?
• Structure of the MA In-Lieu Fee Program
• Ongoing in-lieu fee mitigation projects in MA
• Future of in-lieu fee program in MA
What is an In-Lieu Fee Program?

• Under Section 404 of the Clean Water Act, the Army Corps of Engineers requires compensatory mitigation for impacts to aquatic resources
  • The Corps authorizes 22,000 acres of wetland impacts and requires 49,000 acres of compensatory mitigation annually (Mitigation Rule Brochure 2018)
• ILFP allows Corps permittees to make monetary payment “in-lieu” of mitigation
  • ILFP Sponsor uses fees to fund mitigation projects
• Avoid/minimize impacts before payment is allowed
What is an In-Lieu Fee Program?

Operate under:
- 2008 Federal Mitigation Rule
- Corps District SOPs
  - *New England District 2016 SOPs currently under revision*
- Corps-approved instruments
- *Vary across programs*
- Program sponsor
  - *Typically a state agency or regional conservation organization*
    - Establishes fees, collects payments and assumes responsibility for mitigation
- Oversight of Interagency Review Team (IRT)
What is an In-Lieu Fee Program?

Credit Sales

• Permittees purchase credits per acre or linear foot of impact using ratios set by Corps
• Mitigation is required at greater than 1:1 ratio to account for time lag between credit sale and initiation of mitigation project and success rate
What is an In-Lieu Fee Program?

Credit Sales

• New programs sell advance credits up to maximum amount set in program instrument

• Advance credits allocated by service area and resource type
  • Service areas typically defined geographically by physical boundary such as HUC or political boundary such as county
  • Wetland and stream credits typically separated

• After mitigation for advance credit sales is complete, those credits are available for sale again
About the MA ILFP

• Established in 2014
• Sponsor = Department of Fish and Game (DFG)
• Four service areas
  • Berkshire/Taconic
  • CT River
  • Quabbin/Worcester
  • Coastal
• Sell wetland and stream credits
PROGRAM GOALS

To establish an ILFP that utilizes and benefits from the existing technical expertise, analytical tools and programmatic experience of DFG’s three divisions, and its habitat protection and restoration programs

- Permanent protection of priority areas containing high-quality aquatic resources under threat of loss or adverse modification
- Restore degraded wetlands and coastal habitats connected to high-quality aquatic habitats
- Restore riparian buffers in active agricultural lands
- Increase fish passage in rivers that drain directly to the Atlantic Ocean or high-quality coldwater streams
- Restore habitat continuity in high-quality streams and along the coast by removing dams and replacing culverts with those that meet NAACC stream crossing standards
- Facilitate coastal wetland migration to adapt to sea level rise
MA ILFP
Revenue by Permittee Type
ILF Mitigation Projects in MA

• Funded 10 projects to date
  • 4 restoration vs. 6 land preservation
    • All restoration projects are in tidal environments
    • 2 projects are being used to mitigate stream impacts
  • 2 service areas
Coastal Service Area

• Coastal resource fees are charged to compensate for the following impacts:
  • Winter flounder
  • Sedimentation
  • Fill
  • Dredging
  • Shading

• Examples of potential coastal ILF project types
  • Remove tidal restrictions, structures & debris
  • Enhance/restore saltmarsh, eelgrass, fish and shellfish habitat
  • Permanently protect resources, allow for salt marsh migration
Coastal Service Area

- Most active service area
- 9 projects to date
  - 5 land conservation projects
    - 2 external partners this year
  - 4 restoration projects
    - No external project sponsors to date
Eelgrass Restoration
Middle Ground
Salem Sound
### Table 1: Planting Dates (1 plot=6 planted m²). Original sets were MGW and MGE. MGS and some plots in MGW are supplemental/adaptive management shown in red. Note: Mono indicated donor plants are from one site and Poly indicates donor plants are from multiple sites.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGW Mono</td>
<td>4/20/2017</td>
<td>2 plots planted</td>
</tr>
<tr>
<td>MGW Mono</td>
<td>5/4/2017</td>
<td>2 plots planted</td>
</tr>
<tr>
<td>MGW Mono</td>
<td>5/10/2017</td>
<td>2 plots planted</td>
</tr>
<tr>
<td>MGW Mono</td>
<td>5/12/2017</td>
<td>2 plots planted</td>
</tr>
<tr>
<td>MGW Mono</td>
<td>5/19/2017</td>
<td>2 plots planted</td>
</tr>
<tr>
<td>MGW Poly</td>
<td>5/24/2017</td>
<td>8 plots planted</td>
</tr>
<tr>
<td>MGE Mono</td>
<td>8/31/2017</td>
<td>10 plots planted</td>
</tr>
<tr>
<td>MGE Poly</td>
<td>9/7/2017</td>
<td>8 plots planted</td>
</tr>
<tr>
<td>MGW Mono</td>
<td>5/2/2018</td>
<td>4 plots planted</td>
</tr>
<tr>
<td>MGS Mono/Poly</td>
<td>5/10/2018</td>
<td>6 plots planted</td>
</tr>
<tr>
<td>MGS Mono/Poly</td>
<td>5/17/2018</td>
<td>6 plots planted</td>
</tr>
<tr>
<td>MGW Mono</td>
<td>5/23/2018</td>
<td>1 plot planted</td>
</tr>
<tr>
<td>MGS Mono/Poly</td>
<td>5/23/2018</td>
<td>6 plots planted</td>
</tr>
<tr>
<td>MGW seeding test plots</td>
<td>10/12/2018</td>
<td>1 seed plot planted</td>
</tr>
</tbody>
</table>
Eelgrass Restoration
Middle Ground
Salem Sound
Eelgrass Restoration
Middle Ground
Salem Sound
Eelgrass Restoration
Middle Ground
Salem Sound
Eelgrass Restoration
Middle Ground
Salem Sound

Middle Ground South
Planted May 2018

50 shoots per quadrat
300 shoots per plot
5,400 shoots total site

Planted spring 2018
Lost in 2019
Eelgrass Restoration
Middle Ground
Salem Sound

Figure 1. Middle Ground eelgrass restoration site and reference meadows (Aquavitto, Peaches point and West Beach) in Salem Sound
<table>
<thead>
<tr>
<th>Site</th>
<th>1 month</th>
<th>6 month</th>
<th>1 year</th>
<th>2 year</th>
<th>3 year (anticipated)</th>
<th>4 year (anticipated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGW</td>
<td>6/12/17</td>
<td>11/14/17</td>
<td>4/9/18 post-storm 7/11/18</td>
<td>7/18/19</td>
<td>7/20</td>
<td>7/21</td>
</tr>
<tr>
<td>MGW (2018 supplemental)</td>
<td>7/11/18</td>
<td>NA</td>
<td>7/18/19</td>
<td>7/20</td>
<td>7/21</td>
<td>---</td>
</tr>
<tr>
<td>MGE</td>
<td>10/12/17</td>
<td>4/2/18</td>
<td>7/11/18</td>
<td>---</td>
<td>7/20</td>
<td>7/21</td>
</tr>
<tr>
<td>MGS</td>
<td>6/14/18</td>
<td>NA</td>
<td>7/10/19</td>
<td>7/20</td>
<td>7/21</td>
<td>---</td>
</tr>
<tr>
<td>West Beach</td>
<td>NA</td>
<td>NA</td>
<td>7/18/17, 7/24/18</td>
<td>8/6/19</td>
<td>7/20</td>
<td>7/21</td>
</tr>
<tr>
<td>Peaches Point</td>
<td>NA</td>
<td>NA</td>
<td>8/9/17, 7/3/18</td>
<td>7/24/19</td>
<td>7/20</td>
<td>7/21</td>
</tr>
<tr>
<td>Aquavitae</td>
<td>NA</td>
<td>NA</td>
<td>7/3/18</td>
<td>7/24/19</td>
<td>7/20</td>
<td>7/21</td>
</tr>
</tbody>
</table>

Table 2: Monitoring Dates. Dates in red represent anticipated monitoring events. Contract ends in 2021.
Eelgrass Restoration
Middle Ground
Salem Sound
Figure 4.
MGW eelgrass metrics (solid line) compared to the same metric measured at the mean of three reference sites (dashed)
### Credit Release Schedule

<table>
<thead>
<tr>
<th>Project planting (years 1 &amp; 2)</th>
<th>Credit release (%)</th>
<th>Completed activity/deliverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring year 1</td>
<td>10%</td>
<td>Year 1 monitoring report</td>
</tr>
<tr>
<td>Monitoring year 2</td>
<td>10%</td>
<td>Year 2 monitoring report</td>
</tr>
<tr>
<td>Monitoring year 3</td>
<td>10%</td>
<td>Year 3 monitoring report</td>
</tr>
<tr>
<td>Monitoring year 4</td>
<td>10%</td>
<td>Year 4 monitoring report</td>
</tr>
<tr>
<td>Monitoring year 5</td>
<td>10%</td>
<td>Year 5 monitoring/Final Report – including proposed hydroacoustic mapping results</td>
</tr>
<tr>
<td>Final sign off</td>
<td>10%</td>
<td>DMF and the Corps agreed that project performance standards have been met</td>
</tr>
</tbody>
</table>

Eelgrass Restoration  
**Middle Ground, Salem Sound**
Nemasket River Preservation
Nemasket River Preservation
Nemasket River Preservation

87.5 acres
22.9 acres freshwater wetlands
64.6 acres upland
Nemasket River Preservation
Town Farm Road Saltmarsh Preservation, Ipswich
Town Farm Road
Saltmarsh Preservation
24 acres saltmarsh
5 acres upland
Yarmouth Artificial Reef

NOAA Chart 13237 depicting location of Yarmouth Artificial Reef site in Nantucket Sound

Yarmouth Reef Location
<table>
<thead>
<tr>
<th>Type of mitigation</th>
<th>Project Footprint</th>
<th>Proposed Habitat Area</th>
<th>Proposed Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artificial Reef Habitat</td>
<td>(Proposed) 1.1 acres</td>
<td>Reef structure – 0.35 acres Undisturbed sandy bottom – 0.66 acres</td>
<td>.366* wetland (marine subtidal) credits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within Proposed Area: 14,426 ft² (0.33 acres)</td>
<td>Within Proposed Area:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total (including enhancement outside proposed area: 30,838 ft² (0.71 acres)</td>
<td>Total (including enhancement outside proposed area)</td>
</tr>
</tbody>
</table>

Yarmouth Artificial Reef
Yarmouth
Artificial
Reef
<table>
<thead>
<tr>
<th>Performance Standards &amp; metrics</th>
<th>% total Credit</th>
<th>Credit amount</th>
<th>Timeline - credit release</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design &amp; Construction Parameters:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials deployed to site as specified in design</td>
<td>50%</td>
<td>0.1830</td>
<td></td>
</tr>
<tr>
<td>Material remains within proposed site and remains stable in accordance with permit conditions</td>
<td>40%</td>
<td>0.1464</td>
<td>2019 / 2020</td>
</tr>
<tr>
<td></td>
<td>10%</td>
<td>0.0366</td>
<td>2024 Post 5-year monitoring report</td>
</tr>
<tr>
<td><strong>Monitoring: Conducted as per monitoring plan</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecological Performance: Diversity</td>
<td>25%</td>
<td>0.0915</td>
<td></td>
</tr>
<tr>
<td>Species diversity – mobile species</td>
<td>12.5%</td>
<td>0.04575</td>
<td>2020-2024 Percent similarity exceeds 60% in two</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>monitoring periods</td>
</tr>
<tr>
<td>Species diversity – sessile species</td>
<td>12.5%</td>
<td>0.04575</td>
<td>2020-2024 Percent similarity exceeds 60% in two</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>monitoring periods</td>
</tr>
<tr>
<td>Ecological Performance: Production</td>
<td>25%</td>
<td>0.0915</td>
<td></td>
</tr>
<tr>
<td>Size/age class similarity of mobile species – upper-level consumers</td>
<td>12.5%</td>
<td>0.04575</td>
<td>2020-2024 Percent similarity exceeds 60% in two</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>monitoring periods</td>
</tr>
<tr>
<td>Size/age class similarity of sessile species – benthic community/ lower level producers</td>
<td>12.5%</td>
<td>0.04575</td>
<td>2020-2024 Percent similarity exceeds 60% in two</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>monitoring periods</td>
</tr>
<tr>
<td><strong>Total Credit Potential</strong></td>
<td>100%</td>
<td>0.366</td>
<td>2020-2024</td>
</tr>
</tbody>
</table>
Willowdale Dam Fishway, Ipswich
Willowdale Dam Fishway, Ipswich
Willowdale Dam 
Fishway, Ipswich
<table>
<thead>
<tr>
<th>Type of Mitigation</th>
<th>Area</th>
<th>% of Total Area</th>
<th>Potential Credits*</th>
<th>Stream Mitigation Required in Coastal-North</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restoration of fish passage</td>
<td>14.5 river miles</td>
<td>100%</td>
<td>343.2 Stream Credits</td>
<td>247.66 stream credits</td>
</tr>
</tbody>
</table>

Miles 1-10
0.03 miles = 158.4 LF
(miles 1-3 at ratio of 0.01) +
0.035 miles = 184.8 LF
(miles 4-10, ratio 0.005)

*credit calculations based on Corps NE District Compensatory Mitigation Guidance, Table C5
<table>
<thead>
<tr>
<th>PERFORMANCE STANDARDS</th>
<th>% total Credit</th>
<th>Credit amount</th>
<th>Timeline – credit release</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Design &amp; Construction: The fishway is designed and constructed to maximize its potential to function effectively as a fish passage structure, in accordance with the Final Design Plans</td>
<td>40%</td>
<td>137.28 Stream Credits</td>
<td>Upon completion of construction and submittal and approval of as-built documentation by the Corps</td>
</tr>
<tr>
<td>2. Operations &amp; Maintenance: Conducted as per O&amp;M Plan and submitted annually (Year 1-5)</td>
<td>35%</td>
<td>120.12 Stream Credits</td>
<td>7% each, Years 1-5, (2020-2024) based on O&amp;M documentation submitted to and approved by the Corps</td>
</tr>
<tr>
<td>3. Use of steeppass by anadromous fish species (minimum of 10 individuals)</td>
<td>25%</td>
<td>85.8</td>
<td>When use of steeppass occurs</td>
</tr>
<tr>
<td>Total Stream Credit potential</td>
<td>100%</td>
<td>343.2</td>
<td></td>
</tr>
</tbody>
</table>
New Projects Approved in 2020

• 3 land preservation projects
  • Rattlesnake Hill Preservation, Sharon, MA
    • Acquired January 2020
    • Contracting Baseline Documentation Report
  • Parker River Connector Saltmarsh Preservation, Newbury, MA
    • Acquisition anticipated imminently
  • Lyons Brook Coldwater Stream Preservation, Westport, MA
    • Acquisition anticipated June 2020
Berkshire/Taconic Service Area

- Least active service area
- 1 project to date
  - 1 land conservation project
    - No external project sponsors to date
  - No restoration projects
- Insufficient funds available to support a new project at this time
Williams River Preservation
Williams River Preservation

Map 2
Project Location with Open Space
Williams River
West Stockbridge, MA

Legend
- Williams River
- Open Space
- Agricultural Protection Restrictions
- Open Space: Land
  - Department of Fish & Game
  - Municipal
  - Private

Map Scale: 1 inch = 2,500 feet

[Map Image]
Williams River Preservation

49 acres
28 acres forested wetland
11 acres upland
0.95 river miles
New Challenges and Opportunities for ILF Mitigation

• 3-year timeline for implementing mitigation from receipt of fees
  • Difficulty accruing sufficient fees to fund projects in 3 years
  • Opportunity to collaborate with partners to leverage funds

• Trends in development
  • Anticipate increase in permitting around I-495 belt
    • Quabbin/Worcester Service Area
  • Potential to develop relationships with planning agencies to better anticipate fee payments and line up mitigation projects

• Adjust program goals to capture best mitigation opportunities