

HABITAT RESTORATION HIGHLIGHTS

Focus on New Brunswick



Gulf of Maine
Council on the
Marine Environment



Habitat Restoration

Patterns of land and water use in the Gulf of Maine region over hundreds of years have changed the structure and functioning of watersheds and nearshore systems, many of which now experience impaired tidal and stream flow, blocked fish passage, and colonization by invasive species. The practice of habitat restoration seeks to return impaired salt marshes, streams, and shellfish flats to diverse, productive natural systems that are the foundation of our coastal economy.

Economic Implications

Habitat restoration not only addresses impaired ecological conditions that influence the well-being of people, but also provides local economic benefits. Restoration of our coasts and estuaries involves planning, engineering, and on-the-ground construction work relying on skills and machinery from the local workforce. As a result, money spent on physical habitat restoration stays in the local economy. By way of example, over 80 cents of each dollar spent on watershed restoration projects in Oregon stayed in the county where the project was located, and over 90 cents of every dollar spent stayed in the state.

Gulf-wide Impacts of the GOMC-NOAA Habitat Restoration Program

Supported by NOAA and matching funds from across the Gulf, the GOMC-NOAA Habitat Restoration Partnership provides grants and technical assistance supporting community-based restoration. The Partnership is implemented with assistance from GOMC Habitat Restoration Subcommittee members representing each of the Gulf's jurisdictions. Most projects focus on feasibility/design, construction, and/or monitoring phases of projects seeking to remove barriers to tidal flow and/or fish passage.

For more information: <http://restoration.gulfofmaine.org>

The mission of the Gulf of Maine Council on the Marine Environment is to maintain and enhance environmental quality in the Gulf of Maine to allow for sustainable resource use by existing and future generations.

How Restoration Creates Jobs



Slade Moore and John Sowles



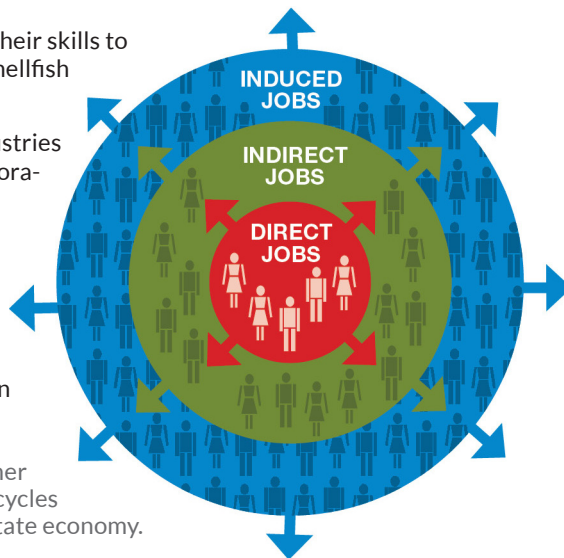
Slade Moore

Restoration improves coastal habitats (left), which have great value for fisheries and many other industries. Restoration projects also help local economies by creating jobs (right). Three different types of jobs are created:

DIRECT JOBS: People using their skills to restore damaged wetlands, shellfish beds, and fish passages.

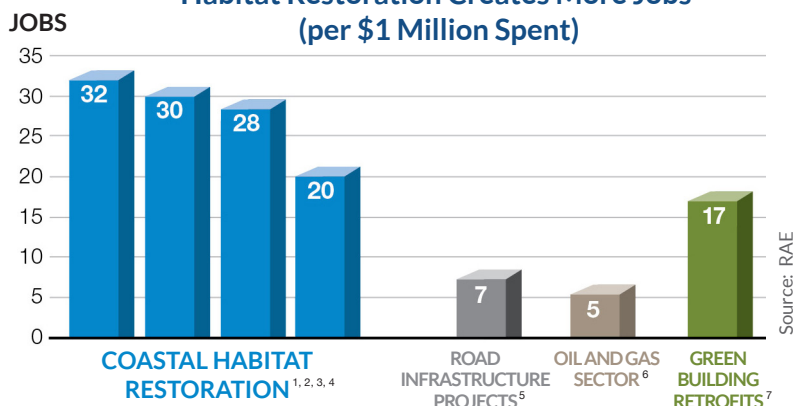
INDIRECT JOBS: Jobs in industries that supply materials for restoration projects, such as lumber, concrete, and nursery plants.

INDUCED JOBS: Jobs in businesses that provide local goods and services, such as clothing and food, to people working on restoration projects.



This is multiplied by other economic activity as it cycles through the local and state economy.

Habitat Restoration Creates More Jobs (per \$1 Million Spent)



¹ NOAA Restoration Center; ARRA Economic Impact Summary Report (In preparation)

² http://www.doi.gov/news/pressreleases/2010_02_23_release.cfm

³ http://www.americanprogress.org/issues/2011/02/pdf/beyond_recovery.pdf

⁴ <http://wilderness.org/files/Green-Jobs-Fact-Sheet.pdf>

⁵ http://www.bikeleague.org/resources/reports/pdfs/baltimore_Dec20.pdf

⁶ http://www.americanprogress.org/issues/2011/02/pdf/beyond_recovery.pdf

⁷ http://adpartners.org/tables/Job_Creation_for_Investment_-_Garrett-Peltier.pdf

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During the 2007-2011 GOMC Action Plan cycle the Partnership contracted forty-nine new projects (annual range: 8-12 projects) and managed a total of 62 projects (13 originated during the previous cycle), of which 48 were completed and 14 are underway (Figure 1). Grant awards made to projects managed during this period totaled \$2.5 million, with \$3.8 million in matching non-federal support (Figure 2). Annual total funds awarded each year ranged from \$306-510K.

Fig. 1: Projects Completed and Underway

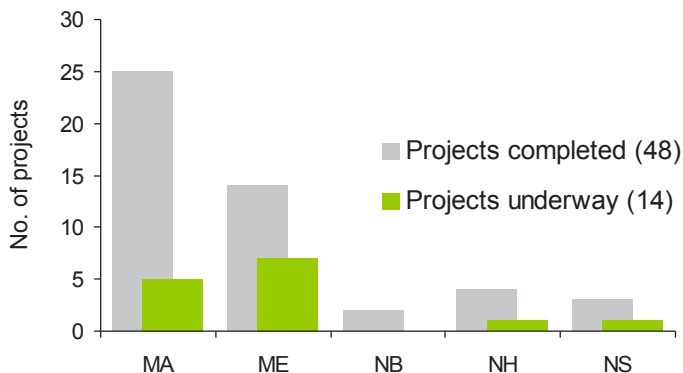
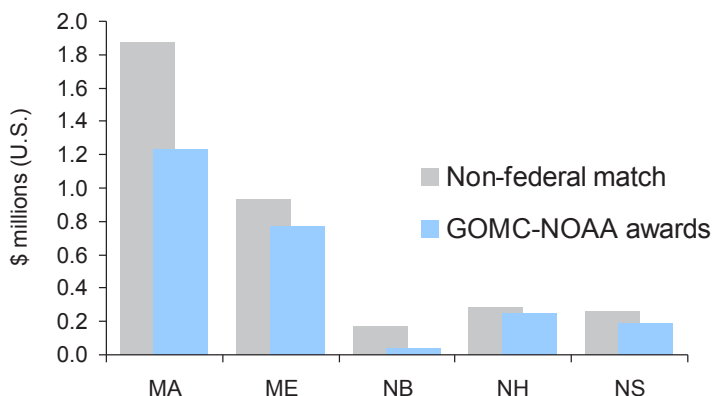


Fig. 2: Project Awards and Matching Funds



Habitats Restored

Projects completed during the 2007-2011 Action Plan cycle restored 335 salt marsh acres and approximately 126 miles of barrier-free streams, in addition to improving other subtidal, intertidal, and channel-riparian habitats (Table 1). The projects opened an estimated 145 miles of streams to fish passage and made 1,562 acres of lakes re-accessible to spawning alewife (Table 2).

Notes: Potential tributary miles listed are potential minimums, when road barrier surveys have not been conducted and because most projects before 2010 did not calculate network length including tributary streams. The length of upstream tributary opened to fish passage is often less than reported due to road-stream crossings that are barriers to fish movements. The tables do not show numbers for non-construction grants that advanced projects toward subsequent implementation.

Table 2: Fish passage improvements through GOMC-NOAA project contributions from 2007 through 2011, by project status (completed or active as of December 2011).

State / Province	Stream miles (minimum)		Stream miles (potential)		Alewife spawning acres	
	Completed	Active	Completed	Active	Completed	Active
MA	2.0	0.2	2.0	0.2	20.9	0.0
ME	47.3	4.5	129.0	4.5	1541.0	219.0
NB	0.0	0.0	0.0	0.0	0.0	0.0
NH	14.0	7.0	14.0	7.0	0.0	0.0
NS	0.0	4.2	0.0	7.8	0.0	0.0
Total	63.3	15.9	145.0	19.5	1561.9	219.0

Table 1: Acres and miles of habitats restored or enhanced through GOMC-NOAA project contributions from 2007 through 2011, by project status (completed or active as of December 2011).

State / Province	Subtidal acres (non-stream)		Intertidal acres (non-marsh)		Intertidal acres (salt marsh)		Channel-riparian acres		Channel-riparian miles		Barrier-free stream miles (minimum)		Barrier-free stream miles (potential)	
	Completed	Active	Completed	Active	Completed	Active	Completed	Active	Completed	Active	Completed	Active	Completed	Active
MA	8.0	10.7	0.0	0.3	135.0	5.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
ME	0.1	0.0	0.0	0.0	200.0	17.0	1.0	4.0	0.0	0.2	30.4	4.5	111.9	4.5
NB	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.6	0.0	0.0	0.0	0.0	0.0
NH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	14.0	7.0	14.0	7.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	4.2	0.0	7.8
Total	8.1	10.7	0.0	0.3	335.0	22.0	1.7	6.6	0.9	0.2	44.4	15.9	125.9	19.5

NEW BRUNSWICK FOCUS

Two New Brunswick restoration grants were managed by Partnership Project Teams during the 2007-2011 Action Plan cycle (see Table 3). Total awards and value of matching contributions to these projects were \$38,919 and \$170,514, respectively. Each project is discussed below.

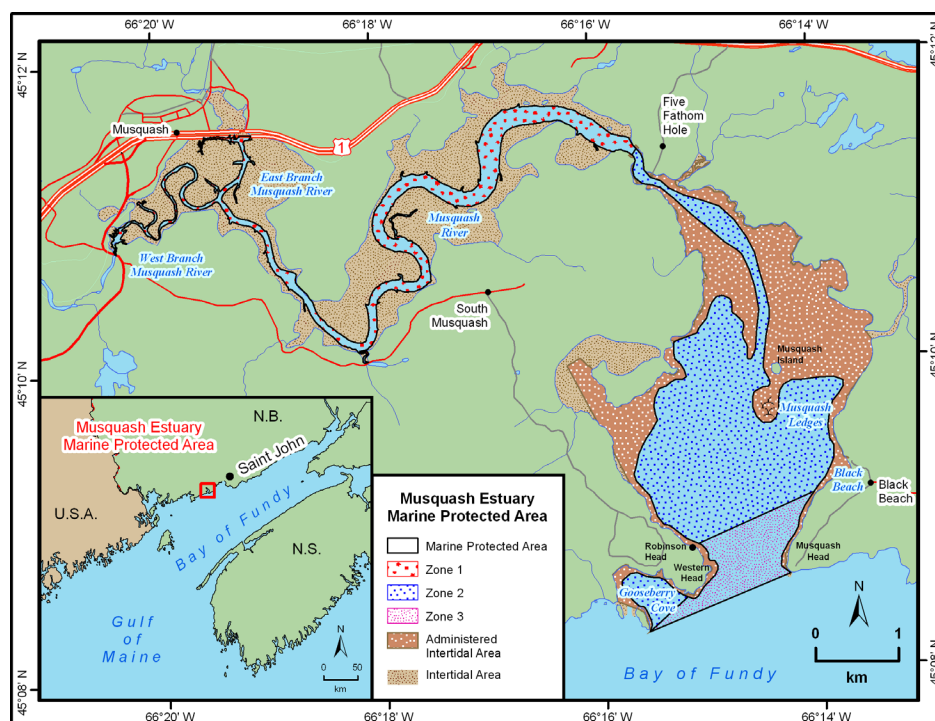
Table 3: New Brunswick projects completed during the 2007-2011 Action Plan cycle.

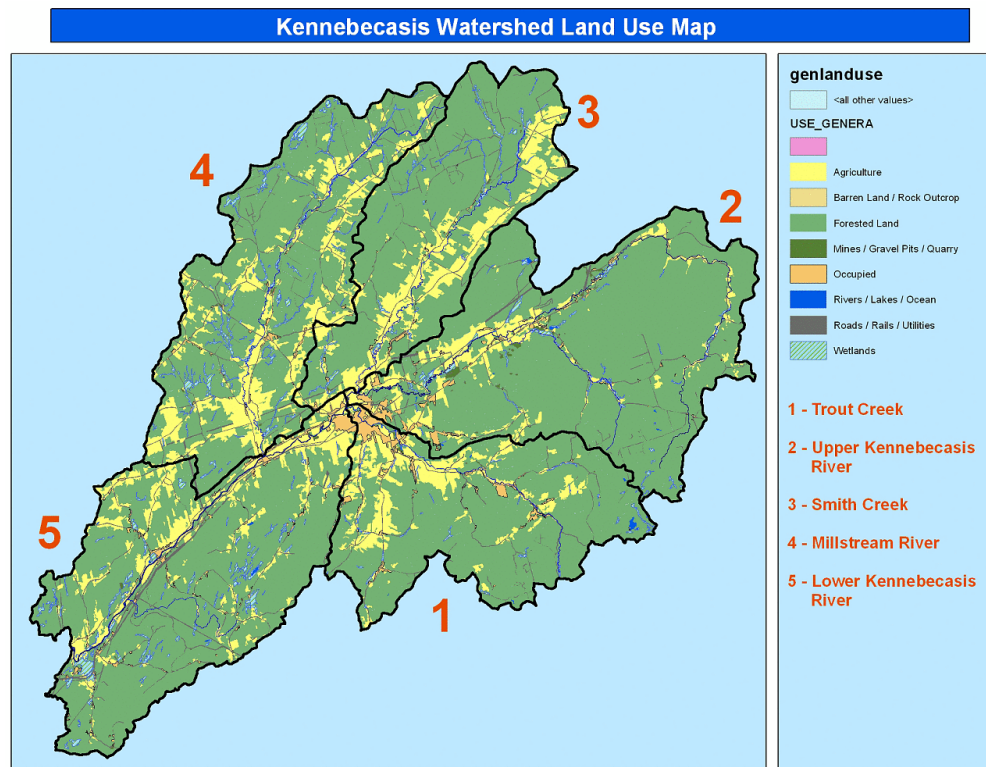
Project Area	Lead Organization	Project Type	Award (\$)	Match (\$)
Musquash Marsh	Ducks Unlimited-Canada	Monitoring	20,000	125,580
Lower Kennebecasis River	Kennebecasis Watershed Restoration Committee	Habitat assessment/ riparian restoration	18,919	44,934
Total			38,919	170,514

Project Highlight:

Musquash Marsh Post-Restoration Monitoring

Since 1882, a 7.6-hectare portion of the Musquash Marsh in New Brunswick suffered from impaired tidal flow and impoundment by a railroad bed and more recently an agricultural dyke and divided highway. Between 2002 and 2005, Ducks Unlimited and partners completely removed the 1,097 meters of rail bed and 6,000 cubic meters of dyke, dramatically improving tidal flow over the marsh. Subsequent to the construction phase, a \$20,000 GOMC-NOAA Partnership grant and contributions from other sources allowed Ducks Unlimited to monitor the site. Post-construction results show that tidal waters completely flood the marsh during spring high tide and the marsh's network of creeks and salt marsh vegetation is expanding. Increased sediment deposition is expected to improve resiliency of the marsh over time by allowing marsh elevations to keep in-step with sea level rise. These changes indicate that the marsh will continue to develop into a fully functional system. Project partners included the Canadian Wildlife Service, Mount Alison University, Fisheries and Oceans Canada and Irving Oil.





Project Highlight: Kennebecasis River Assessment and Restoration

In 2009, a \$19,000 GOMC-NOAA Partnership grant and other contributions (NB Environmental Trust Fund, NB Wildlife Trust Fund, NB Student Employment and Experience Program, Canada Summer Jobs program, Sussex Fish and Game Association) allowed the Kennebecasis Watershed Restoration Committee to begin habitat assessments, monitoring, and restoration of Thompson Brook sites chronically disturbed by roaming cattle.

Six tributaries to the Lower Kennebecasis sub-watershed were assessed for riparian and aquatic habitat conditions which will inform management of these tributaries. On Thompson Brook, a 603-meter section of stream was fenced to prevent cattle access. Combined with 430 streamside tree/shrub plantings, these actions allowed 3,015 square meters of riparian vegetation to re-establish. Installation of a stable rock ford is anticipated to improve water quality along with the re-established streamside buffer. The project is a model for successfully integrating cost-effective stream conservation measures into an agricultural context.



Installation of cattle fencing (left) for restoration of impaired riparian habitat (right).