For human communities, the waving grasses and mounds of glistening shells form a gateway along the shoreline that buffers the flow of pollution coming from land to sea, while protecting inland areas against storms and erosion.

While overharvesting, pollution, coastal hardening and the invasion of non-native species have led to major declines over the last century, restoring and rebuilding coastal habitats can help bring back essential services for people and nature. In Wellfleet Bay, the Conservancy is launching Massachusetts' first-ever oyster reef restoration project with the goal of revitalizing populations of the American oyster. And in New Hampshire's Great Bay Estuary, we are working to control invasive species like common reed grass (*Phragmites australis*) that can outcompete native wetland plants.

The Conservancy has helped protect thousands of acres of coastal habitat in the Gulf, but we must ramp up our work to restore salt water exchange in degraded marshes, remove invasive species and prevent their colonization, reduce the impact of organic pollution on coastal habitats and restore the reefs and sea grass beds that sustain so many creatures.

Looking to the Future

It is amazing to think of the abundance of life swimming and crawling under the waters of the Gulf of Maine and flying over its waves and shorelines. From humpback whales to lobsters to least terns, they live so close to us, yet we often overlook them and forget our responsibility to make sure their homes are protected—for our own sake as well as for theirs.

The pressures on the Gulf of Maine are intense, and they are escalating. Until little more than a decade ago, the decline of the world's coastal and marine habitats went largely unheeded by the international conservation community. Today, less than one percent of global ocean habitat is protected. And with unprecedented new proposals for coastal and offshore development and the threats posed by climate change, we must act now to find a balance that secures the health of the Gulf and its ocean-dependent communities.

The Conservancy is uniquely poised to help the Gulf of Maine regain its status as one of Earth's most productive marine ecosystems. Our freshwater and terrestrial protection programs position us to address marine and coastal watershed management more comprehensively by tackling threats upstream, at the source, before they ever reach the ocean. And we're taking our tactics directly to the seas, as well. From Nova Scotia to Cape Cod, we are bringing our leading expertise in land and water conservation to the marine environment. Many of the programs that have worked so well for us on land may prove equally effective in salt water.

Exciting plans are on the horizon. As our program expands, we will continue to look at ways of applying modified versions of the market-based approaches we have honed in land conservation—such as easements, leasing and purchasing of resource rights—to secure additional protection of marine habitats. We will deepen our conversations with fishermen to explore alternative approaches to fisheries management that recognize ecological differences and involve fishermen in devising approaches that make sense for their fisheries. We will also dive deeper into exploring the effects of climate change on our oceans and help ensure that human response to sea level rise is smart and sustainable.

How You Can Help

We cannot afford to ignore the central role the Gulf of Maine plays in the conservation landscape of New England. Steered by rigorous scientific methodology and research, we can chart a course toward resilient coastal habitats, rebounding wildlife populations and healthy coastal communities.

The Nature Conservancy's Gulf of Maine program brings conservation practitioners from Maine, New Hampshire and Massachusetts together to understand the movement of marine species and processes across geographic boundaries. We draw on the expertise of our colleagues around the world and readily share our experience and tools with a wide range of partners.

Funding from a variety of sources—private foundations, state and federal agencies, local communities and committed individuals—will be necessary to reach our goals. To support these efforts, or for more information, please visit *nature.org/gulfofmaine*.

Photography: Cover: *Great Bay, New Hampshire* ©Eric Aldrich/TNC; Inside (from left to right): *Humpback whale and calf* ©Dr. Louis M. Herman, NOAA; *Atlantic puffin on Machias Seal Island in Maine* ©Charles D. Duncan/TNC; *Horseshoe crab* ©Jerry Monkman; *Staff and partners examine oysters in Wellfleet Bay, Massachusetts* ©Boze Hancock/TNC; *Sandy Neck beach, Massachusetts* ©Farley Lewis; *Maine Department of Marine Resources staff conduct survey of groundfish* ©Bridget Besaw; *Seal on Cape Cod, Massachusetts* ©Cheryl Rose; *Alewife in the Penobscot River, Maine* ©Doug Watts; *Cobscook Bay in Maine* ©Bill Silliker Jr; Back cover: *Salt marsh in Massachusetts* ©Venessa Salvucci/TNC.

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Gulf of Maine

The Underwater Garden

Picture an aquatic garden. Seals swim slowly along the coast, stopping to feed among eelgrass. Young lobsters and sparkling silver minnows dart in and out of the waving streamers. Further offshore, a humpback whale and its calf chase a spiraling school of sand lance. Miles below, deep-water corals sustain otherworldly creatures like basket stars and anemones.

This scene is not taking place in the tropical waters off of some Pacific island, but within commuting distance of Boston, Portland and Portsmouth in the familiar waters of the Gulf of Maine. More biologically productive than most other places in Earth's oceans, the complex underwater lands and well-mixed waters of this "sea within a sea" support life ranging from the most miniscule phytoplankton to the great right whale.

Millions of people rely on the Gulf's resources as well. Its riches of cod, haddock and flounder sparked one of history's best and busiest fishing industries. And its seas and shores still provide ports of commerce, defense against storms and beautiful places to sail and comb the beaches. From its freshwater sources to the coast, the Gulf of Maine's watershed encompasses 69,115 square miles—an area inhabited by nearly 6 million people.

Once considered limitless and inexhaustible, the Gulf is now showing signs of distress. Many of its historic populations of groundfish have been depleted. Critical coastal habitats have been developed or degraded by pollution. Storm surges are stronger and sea levels on the rise. But it is not too late to reverse damage from past decades and meet today's challenges.

Charting the Course

Before setting off, the sailor checks the conditions. She looks at the tide chart, notes the speed of the wind and the position of the stars. She consults a map and packs her gear and provisions. Equipped with knowledge and tools—and prepared for the unexpected—she sets sail.

Like a captain preparing to launch, The Nature Conservancy began its work in the Gulf of Maine by undertaking an assessment of the conditions, species and habitats that would represent a healthy system and then compared those with the realities on the ground and in the water.

Through a well-honed process called an ecoregional assessment, the Conservancy is working with many partners to integrate data from oceanography, biology, chemistry and even social science to identify threats and provide fresh insight into long-standing problems. This process enables us to establish a baseline for the region that will help conservation workers and other stakeholders develop strategies tailored to the Gulf of Maine.

From adapting to sea level rise to improving fish migration, the Conservancy is developing a broad range of projects aimed at reviving and sustaining the Gulf's invaluable resources. These projects include the following four components.

Adapting to Climate Change

Red knots fly in low above the tide line. Funneling into Cape Cod Bay, the flock finds rest on a mudflat revealed by the receding tide. Here the shorebirds ply the mud for mussel spat, crabs and insects, refueling for an ancient journey.

Will this muddy bay support the red knot and other shorebirds in 100 years? Will the bay even be recognizable? As sea levels rise and storm surges increase due to climate change, the Gulf of Maine's shoreline could move hundreds of meters inland in places, threatening an array of coastal habitats.

Changes in sea level are nothing new. Coastlines have migrated hundreds of miles over geologic time, and species and ecosystems have followed this migration. But shoreline development restricts natural migration, stranding coastal habitats between the open ocean and jetties and seawalls built to protect people's backyards. As the low, flat lands of the Gulf's coast change, human communities will also be in danger.

The Conservancy is using the latest technology to assess and prepare for this threat. In places like Great Bay in New Hampshire, we are working with partners to obtain a series of high resolution elevation maps of seacoasts and estuaries—data that will help us identify the coastal lands that are most vulnerable and protect the inland parcels that will become tomorrow's marshes.

Reinvigorating Migratory Fish Populations

Glimmering silver masses of alewife surge beneath the water's surface. Guided by an invisible compass, they head to the shores of the Gulf of Maine and make their way up hundreds of miles of rivers—each one seeking the stream, lake or pond where it was born.

The health of both freshwater and marine habitats depends on the migration of fish to fuel marine food webs and transport nutrients. But many of the rivers and streams that link headwaters to the ocean have been blocked and degraded, severing the passage of alewife, shad, Atlantic salmon, Atlantic sturgeon and other species.

From mussels in our river bottoms to osprey that circle above, countless creatures have been affected by the disruption of these ancient migrations. The same freshwater flows used as aquatic highways by migratory fish bring water and essential nutrients to the Gulf of Maine. More than 60 rivers contribute 250 billion gallons of water a year to the Gulf, helping to create critical spawning habitat and vibrant coastal ecosystems.

In watersheds throughout Massachusetts, New Hampshire and Maine, the Conservancy is restoring migratory fish habitat by removing dams or installing fishways. And in the country's most ambitious river restoration project, we are working with partners to restore access to over 1,000 miles of Maine's Penobscot River and its tributaries while working with dam owners to minimize any loss of generating power. Revitalizing native migratory fish populations will have cascading benefits for shorebirds, seals, predatory fish, whales and other species in the Gulf of Maine—as well as for human communities.

Revitalizing Coastal Habitats

With the grace of a tiny seal, a young eider dives to the base of a shellfish bed. Using its wings like fins, the bird swims down and pries a mussel from the bottom. Humans, crabs, lobsters, fish and seabirds all consume large quantities of shellfish, but across the world, these fragile oases are becoming more uncommon.

Along the Gulf's coast, a labyrinthine landscape of shellfish beds, salt marshes, eelgrass beds and coastal creeks branches out like a tree of land and water, providing nurseries for fish, feeding ground for shorebirds and a more stable shoreline.