

FALL 2011

SANCTUARY

WATCH

Featured:

MARITIME HERITAGE

Understanding Our Past, Navigating the Future

Sanctuary Voices:

CALLUM ROBERTS

Author of The Unnatural History of the Sea

Page 13

IN THIS ISSUE



MARITIME HERITAGE

- 2 CULTURAL LANDSCAPES
- 4 MARITIME MIGRATIONS
- 6 THE GLOBAL MARITIME ECONOMY
- 8 SAPELO ISLAND
- 9 STAR OF THE SEA:
JAMES P. DELGADO
- 10 MARITIME HERITAGE STORIES
- 12 PROJECT SHIPHUNT
- 13 SANCTUARY VOICES:
CALLUM ROBERTS
- 14 SANCTUARY SNAPSHOT

THE OFFICE OF NATIONAL MARINE SANCTUARIES is part of NOAA's National Ocean Service, 1305 East-West Highway, Silver Spring MD 20910 | Phone: 301-713-3125 | Web: <http://sanctuaries.noaa.gov>

SANCTUARY WATCH is a publication of the Communications, Outreach and Education Division of the National Oceanic and Atmospheric Administration's (NOAA) Office of National Marine Sanctuaries. NOAA is an agency of the U.S. Department of Commerce.

COVER PHOTO: Green Street Wharf, San Francisco; Courtesy J. Porter Shaw Library, San Francisco Maritime National Historical Park

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Why should we care about maritime heritage? Because our discovery of the past will help us chart our common future. The world as we know it today, from the global economy to the state of the ocean's ecosystem, has its roots in our past. Our past is responsible for everything from our current technologies to the blending of unique cultures worldwide.

The stories of our maritime heritage, which I call “bridging the sea,” encompass the recent centuries’ greatest mass migrations of human populations in history; a world connected that created global commerce and drove the industrialization that changed the face of human cultures everywhere; a planet’s ocean that has been exploited to fuel the explosion of human populations; and a changing climate causing all of us to ponder an uncertain future. The forces of change that bridged the sea still drive our world today, perhaps at an ever-increasing rate.

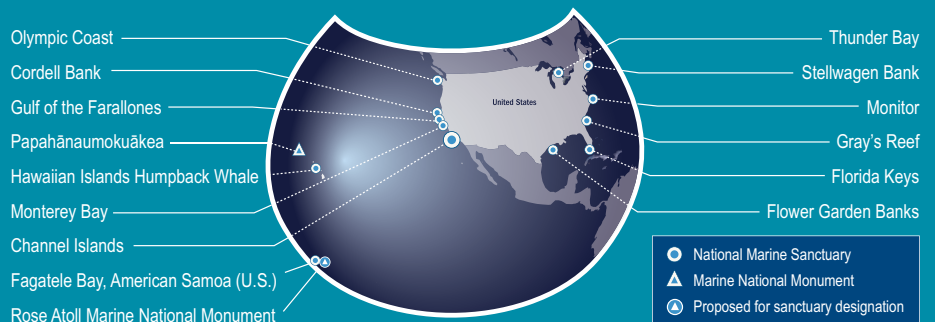
The full consequences of migration across the ocean and the exploitation of its resources could not be perceived during a time when human populations were smaller, and the world seemed limitless and inexhaustible. The signs and signals could not be read or extrapolated. Today, however, we are more cognizant of “failing to adjust” as our actions change the world around us. Consequently, rediscovering our past through the lens of our shared maritime heritage can allow us to see how we may better navigate these same — or similar — situations and challenges in the future.

In this issue, we celebrate the nation’s maritime heritage and shed light on how NOAA’s National Marine Sanctuary System works to share the stories of our past, to challenge us to better understand the world around us, and to protect our communities and our culture for tomorrow.

Sincerely,

Daniel J. Basta, Director
Office of National Marine Sanctuaries

NATIONAL MARINE SANCTUARY SYSTEM



Scale varies in this perspective. Adapted from National Geographic Maps.

Students Discover Shipwrecks on 'Project Shiphunt'

INNOVATIVE PARTNERSHIP INTRODUCES SAGINAW YOUTH TO OPPORTUNITIES IN MARITIME ARCHAEOLOGY

Five high school students from Saginaw, Mich., experienced the adventure of a lifetime when they discovered two sunken ships during an innovative research expedition in Thunder Bay National Marine Sanctuary in May.

"Project Shiphunt," a groundbreaking science and technology education initiative sponsored by partners Sony and Intel, brought the students together with maritime historians and technical experts to locate and identify lost shipwrecks in the depths of Lake Huron. The participants studied historical records, helped map out a plan for the expedition, and operated sophisticated equipment in their search. Their efforts, chronicled in a documentary released Aug. 30, revealed two previously undiscovered shipwrecks: the schooner *M.F. Merrick* and the steel freighter *Etruria*.

Project Shiphunt involved NOAA staff from the Office of National Marine Sanctuaries, the Office of the Coast Survey and the Great Lakes Environmental Research Laboratory, as well as scientists from the Woods Hole Oceanographic Institution. The project is a tremendous example of the power of partnerships and how science and technology education can open doors to new opportunities for our nation's youth.



The Project Shiphunt team poses on the deck of the NOAA research vessel *Laurentian*. Read Tirrea Billings' (second from right) account of the expedition on page 12 of this issue.

Photo: Justin Wilkes

Enhancing Cultural Understanding through Marine Science 'OCEAN FOR LIFE' PROGRAMS CONNECT STUDENTS INTERNATIONALLY



Photo: Jim Webb/National Geographic

Twenty-eight high school students from around the globe traveled to Channel Islands National Marine Sanctuary in July for "Ocean for Life," an educational program that blends ocean science with cultural interaction and discovery.

Participants included youth from six countries in the Greater Middle East and 12 locations across North America, including American Samoa and Canada. Sanctuary staff hosted the students during their field study introducing them to marine science activities and

issues facing the ocean. Assisted by National Geographic photographers and American University film students, the Ocean for Life participants took 54,000 photos and many hours of video and developed five "youth media projects" that will help them share their knowledge to promote ocean conservation and cultural understanding.

In October 2011, staff from the sanctuary system also conducted several days of Ocean for Life marine science, ocean conservation and stewardship activities during a QFI student exchange in Qatar in the Middle East. During this cultural exchange, students from Chicago and Qatar conducted mangrove monitoring, experienced snorkeling in the Arabian Gulf for the first time, and learned more about climate change and ocean acidification.

Ocean for Life is a partnership between NOAA's Office of National Marine Sanctuaries, the GLOBE Program, SCUBAnauts International, and the National Marine Sanctuary Foundation funded primarily in 2011 by Qatar Foundation International (QFI).

NEW REPORT REVEALS THREATS TO FLORIDA KEYS ECOSYSTEMS

The 2011 Condition Report for Florida Keys National Marine Sanctuary is now available, providing a comprehensive look at the status and trends of the sanctuary's resources. The report, which was released in October, found that pressure from increasing coastal populations, ship and boat groundings, marine debris, poaching, and climate change are critically threatening the health of the Florida Keys ecosystem.

As part of an ongoing series examining each of the 14 sites in the National Marine Sanctuary System, the condition report goes beyond a basic assessment of the current state of sanctuary resources. It documents the relationship between people and the environment using a rigorous pressure-state-response approach, highlighting the ways human activities have affected the ecosystem over time — and the impacts they are likely to have in the future.

See the back cover of this issue of *Sanctuary Watch* for more about the work NOAA researchers are doing to understand and learn from the history of our interactions with the sea.

VIEWING THE FUTURE

through the Lens of Maritime Cultural Landscapes

In the scene below, artist J.W. Hill depicted the bustling harbor of Portland, Maine, capturing the commotion and complexity of waterfront life in 1853. From maritime commerce to shipbuilding, each element in Hill's painting is individually significant, but their true importance lies in their relationship to one another and to the natural environment. These relationships are the hallmarks of maritime cultural landscapes.

Cultural landscapes capture the living past that surrounds us and give us a better understanding of the links between the natural history and human history of a place. They illustrate how we have shaped the world, and how the world's natural environments have shaped us. Perhaps most importantly, cultural landscapes can also provide us with valuable insights into the future, such as the relationship between the health of natural resources and human wellbeing and prosperity.

Understanding Maritime Cultural Landscapes

While investigating cultural landscapes involves the combined study of history, archaeology, geography, oral traditions and other social and environmental sciences, understanding the concept is a matter of common sense.

At their most basic, cultural landscapes are specific places where combinations of human activity and natural forces have left a discernable mark on the world. They are found everywhere people have lived,

worked and explored, from the driest parts of the Mojave Desert to the deep submarine canyons of the North Atlantic.

Many human elements make up maritime cultural landscapes. Shipwrecks, lighthouses, abandoned docks, working waterfronts, tribal and indigenous dwellings or sacred places, trawl scours, lost fishing gear, navigation lanes, and shell middens are a few of the hundreds of potential human imprints on the landscape. Equally important are natural features found in the geology, geography and living resources of a place.

Our coasts contain many famous, recognizable maritime landscape features. The magnificent lighthouse on Cape Hatteras, N.C., for example, is a powerful element of the landscape. Within a cultural landscape context, the lighthouse itself is important — not just as an example of engineering, but for the human meanings and environmental connections associated with it. When it was built, the Cape Hatteras lighthouse was a beacon of hope and safety for the mariners



“Cultural landscapes illustrate how we have shaped the world, and how the world’s natural environments have shaped us.”

navigating the treacherous “Graveyard of the Atlantic.” What was important to them was that the light could be seen far out to sea.

Today, we value the same lighthouse for the architectural beauty and tourist dollars it contributes to the seashore. We built this lighthouse to preserve lives in the past, and we have now spent millions of dollars preserving the lighthouse in order to enrich lives today. Across America, our historic lighthouses continue to do both, and will likely do so for centuries to come. Cultural landscapes help us see the many different kinds of meaning we have given to our cultural and natural resources, as well as understand their importance in learning from the past while planning for the future.

Cultural Landscape Lessons

Analyzing cultural landscapes also provides an understanding of how technological, political or economic shifts can alter the health of ecosystems and the future of human communities. For example, we see how the introduction of otter trawling and industrial fish processing to Newfoundland transformed the natural habitats of cod and the livelihoods of cod fisherman, threatening the survival of both.

Another facet of cultural landscapes reveals how indigenous or subsistence-based communities practiced the sustainable use of places and their resources, such as in the Hawaiian Islands and American Samoa. Maritime cultural landscapes make human heritage visible and give a voice to all groups with connections to coastal and ocean places, past and present. Tribal and indigenous cultures, fishing communities, wind power developers, surfers, seaside

restaurant owners and many others share a direct stake in the past, and in the future promise of our coastal areas and oceans.

Cultural landscapes are reservoirs of human experience that preserve undeniable examples of human triumph and loss. Retaining the intangible as well as tangible parts of human culture, cultural landscapes can do something that the natural sciences alone cannot. They convey the human meaning of places — even after all physical remnants and artifacts have been wiped away. For instance, the site of the World Trade Center would retain historical and cultural meaning even if all recognizable traces of the events of 9/11 were removed from Ground Zero. Such human memories and values create the cultural heritage of places.

The lens of maritime cultural landscapes reveals the many human communities that overlap with marine environments such as our national marine sanctuaries. It provides room for different kinds of knowledge and meaning, and gives voice to all people with important connections to our coasts and oceans. By studying maritime cultural landscapes and exploring the links between our natural and cultural heritage, we provide the foundations for building a better future through understanding the wisdom — and learning from the tragedies and triumphs — of the past. 🌊

Authors

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BRIDGING

HOW MARITIME MIGRATIONS SHAPED

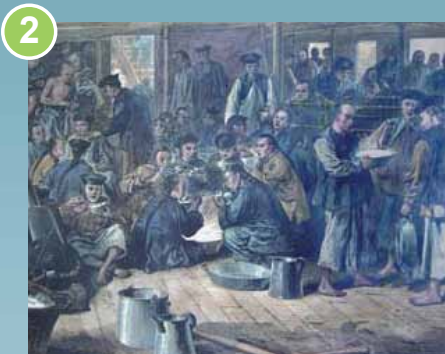
Throughout our history, the sea has been a highway for the greatest human migrations the world has ever known. People of all ages, ethnicities, beliefs and backgrounds have crossed oceans and followed coastlines in search of a better life, transforming the world with their voyages. Some sought relief from economic depression. Others fled religious persecution, political upheaval or war. But migrations have also been propelled by more than just human factors. Environmental changes like drought, famine and rising sea levels have caused untold millions to board ships and set sail for new opportunities, taking many plants and animals with them. America has been shaped by immigrants, the vast majority of whom arrived by the sea. From North America's



Photo: Robert Schwemmer/NOAA

1 First People

Following retreating ice and a coastline that gradually submerged as the sea level rose at the end of the Ice Age, humans both on foot and in boats migrated from Asia's Arctic shores into the Americas, spreading across the continent throughout what is now the United States and down to the tip of South America. Archaeologists also suspect that others similarly journeyed in boats from Europe, following the edge of the ice that covered much of the North Atlantic. Travel by boat was fast, and as some first peoples such as the Coast Salish of the Northwest Coast have said, "When the tide was out, the table was set" thanks to marine resources that could be harvested for food. This traditional Chumash tomol navigates the ancient routes its ancestors once plied along the California coast.



Courtesy of Stephen and Jeremy Potash

2 Asia

Beginning in the mid-19th century, increasing numbers of Chinese and other Asians began to arrive in California in response to the Gold Rush. From there, they spread across the country, helping build the transcontinental railroad that linked the great ports on the Pacific to the East Coast. The large steamers of the Pacific Mail Steamship Company brought thousands of people — mostly men — from China and Japan in the 1870s, 1880s and 1890s. Those numbers slowed to a trickle by the end of the century in response to anti-immigration laws, but would eventually rebound after World War II. This hand-colored woodblock print depicts Chinese immigrants bound for San Francisco on the Pacific Mail steamer *Alaska* in 1876. They are eating and socializing as the ship's captain makes a daily inspection.

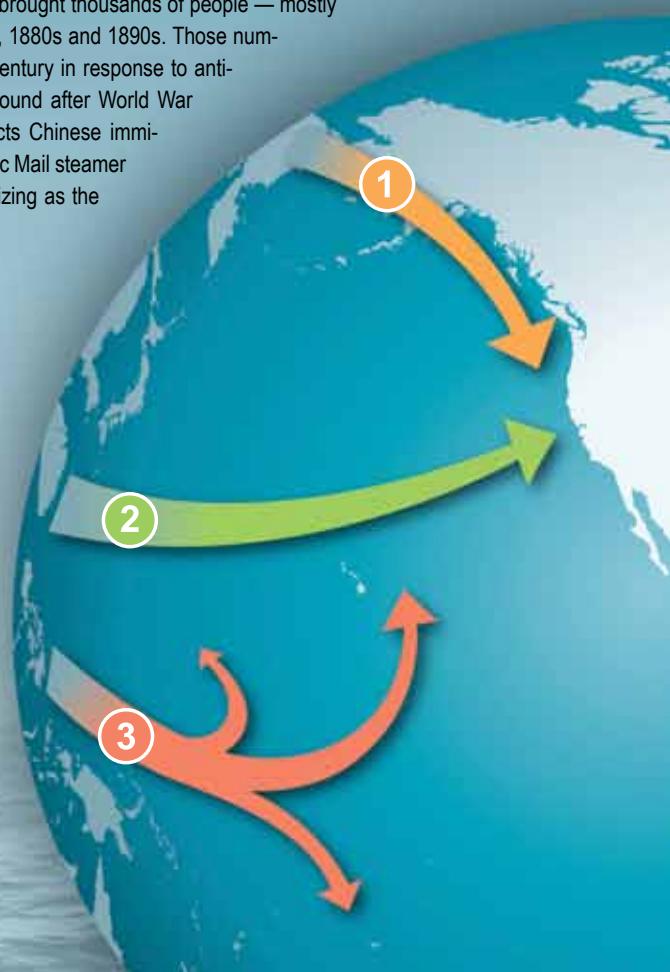


Photo: Nā'alehu Anthony

3 Polynesian Voyagers

Using traditional skills observing the patterns of the ocean and the stars, human beings spread out from Southeast Asia for thousands of years to populate the islands of Oceania. The navigators of ancient Oceania traveled the vast maritime cultural landscape of the Pacific with an incredibly sophisticated understanding of currents, prevailing winds, and

remarkably resilient voyaging canoes in what is likely the most successful mass migration of humans by water in history. Today, a modern canoe, the *Hōkūle'a*, shown here, is part of a reviving tradition of traditional navigation and seafaring.



THE SEA

AMERICA — AND THE WORLD

By Matt Dozier
& James P. Delgado

earliest native inhabitants to the throngs of fortune-seekers lured to San Francisco by the Gold Rush, to the “huddled masses” arriving at Ellis Island from Europe, each group of new arrivals brought with them unique cultures and traditions that are reflected in America’s identity today. But people, plants and animals migrating over water is more than just an interesting footnote in history. Even today, immigrants arrive by ship in great numbers — both legally and illegally — seeking freedom, prosperity, or a new beginning. Understanding the role of past maritime migrations provides insight into the forces of change at work today and will help us better prepare for adapting to an uncertain future.

Great Lakes

The Great Lakes, like the inland waters of the great rivers, were a highway for American immigration. After arriving by ship in New York, Boston and other seaports, many immigrants took canal boats or trains to ports on the Lakes. They established communities like Chicago, Milwaukee, Cleveland and Alpena, to name a few, and from there spread out to numerous smaller towns and settlements in the heartland of America. It was by water that much of America was settled in the late 19th and early 20th century, and those same waterways also supported the mining, farming and manufacturing economies that would allow these newly settled lands to flourish and prosper. The 131-foot steamer *Celtic*, shown here with its decks crowded with immigrants from Europe, operated between Montreal and Chicago in the late 1800s.

4



Thunder Bay Research Collection

Europe

From the late 15th century and well into the 20th century, millions of Europeans left their homes and set out across the Atlantic Ocean for the Americas, starting with the colonial endeavors that created colonies on the eastern seaboard and in the Caribbean, Mexico, and what is now Canada. Following the American Revolution, their numbers increased to a massive influx of people who arrived daily in immigrant ships under sail and steam power, fleeing oppression and persecution or seeking better opportunities. Between 1836 and 1914, more than 30 million people migrated by sea to America. In this 1890s engraving, German immigrants arriving in New York sail past an enduring part of the maritime cultural landscape: the Statue of Liberty, which was erected facing the sea to welcome incoming ships and people.

5



Photo: Library of Congress

Africa

One of the largest forced human migrations in history was the Atlantic Slave Trade, in which historians estimate that some 12 million enslaved Africans were forcibly taken from their homes and shipped in inhumane conditions to the Americas. Untold numbers died after their capture or while being transported, while others were murdered by slavers or succumbed to disease or injury. Enslaved persons were shipped to Spanish, English and French America and Dutch colonies in the 16th, 17th and 18th centuries. The maritime transport of slaves was outlawed in the 19th century, but the practice of slavery remained, and so the slave trade continued illegally. This 18th-century illustration of enslaved captives chained in the hold of a slave ship graphically illustrates the horrific conditions of this enforced migration.

6

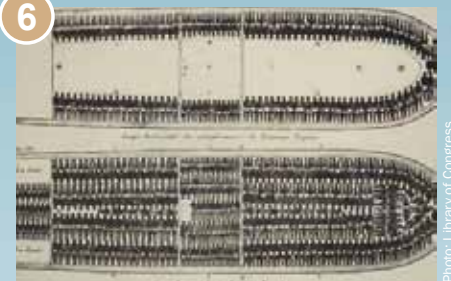
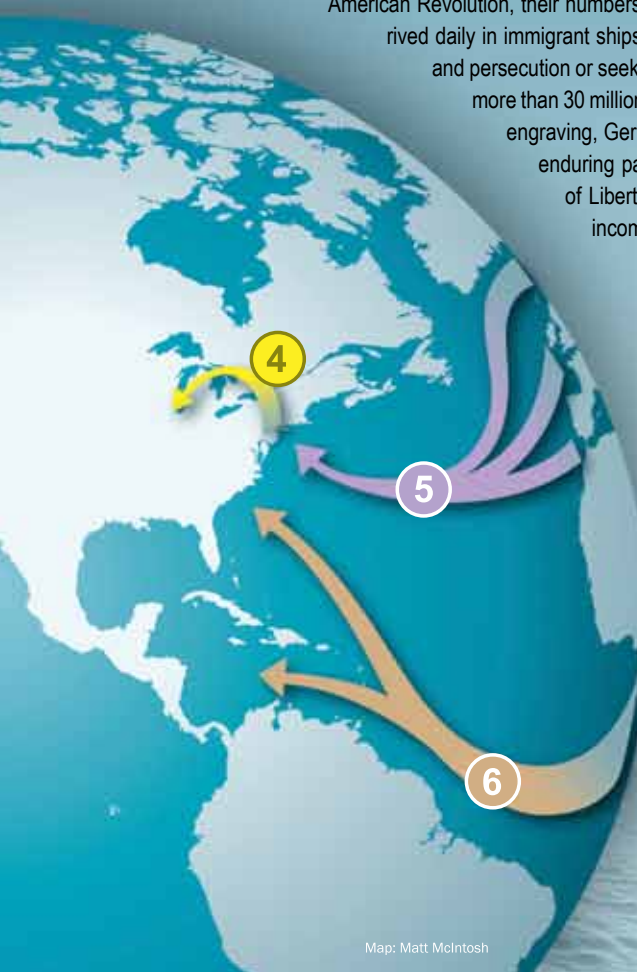


Photo: Library of Congress



The Global Maritime Economy

Linking Our



Photo: © Kevin Collins

Shipwrecks: Time Capsules of Global Maritime Connections

To see the global maritime connections evident in our nation's history, one need look no further than a shipwreck named the *General Harrison*, which was excavated in 2001 from the heart of downtown San Francisco. Beached and moored in the mud in 1850 after its arrival from New York, the vessel served as a merchant's warehouse and auction hall for goods that arrived by ship.

In 1851, the *General Harrison* burned to the waterline and was covered by the water. It lay forgotten for 150 years as San Francisco built up over and around it, until it was swallowed by the expanding city. When archaeologists excavated the wreck in 2001, they found more than 50,000 artifacts on board. Ale and stout from Scotland, wine from France, shoes from Boston, iron from Sweden, hardware supplies from New York, beans and barley from Chile, beer from Philadelphia, cigars from Cuba — the diversity of the ship's cargo was astounding. This rediscovered "time capsule" illustrates the pull of the California Gold Rush, and the global maritime trade that transformed San Francisco from a small frontier settlement into America's busiest port on the Pacific Ocean.

Other lost ships that speak to the importance of maritime commerce include the nearly 200 wrecks that lie in Lake Huron in and around Thunder Bay National Marine Sanctuary. The Great Lakes were and are one of the major economic trade routes of the United States. Following the War of 1812, the lakes were opened to global maritime trade when the newly constructed Erie Canal linked them to New York and the Atlantic Ocean.

Raw commodities including iron ore, lumber and coal were shipped by water to newly established port cities like Chicago, Minneapolis, Buffalo, Detroit, Saginaw and Alpena, where industry boomed and immigrants flowed in on ships to build thriving communities. The Great Lakes were not a barrier: they were a highway, and schooners and steamers plied those waters like semis and tractor-trailer rigs on the modern interstate. In the century between 1830 and 1930, Great Lakes shipping ensured not only the growth of the industrial heartland of America, but also linked those trades and the commodities of the lakes to the rest of the world.

The global economy that we take for granted today — that surrounds us and links nations and people all over the world — was created by ships. From the earliest wooden sailing vessels to massive diesel-powered tankers, ships have driven centuries of maritime commerce and industry that continue to shape our world.

Ships have moved people, ideas and goods throughout history, creating overseas colonies, building vast empires dependent upon sea trade and establishing some of the world's greatest cities. London, Amsterdam, Lisbon, New York, Mumbai, Sydney, Guangzhou, San Francisco, Chicago, Panama City, Istanbul and Stockholm are but a few of the ports where goods shipped by water were freely exchanged by traders and merchants seeking spices, porcelain, silks, gold, tea, tobacco and many other commodities.

Over the last 500 years, the expansion of Europeans by sea into Africa, the Americas, the Indian Ocean and the Pacific propelled maritime commerce into a truly global market. Even today, the greatest force that unites the world's markets is not the internet or air carriers but ships, which at the advent of the 21st century carry 90 percent of the world's trade goods.

World

By James P. Delgado

This explosion of seafaring commerce left behind shipwrecks that now form part of the region’s maritime cultural landscape. These remnants of the “shipwreck century” remind us not only of the vessels and the lives lost in the often treacherous waters of Lake Huron, but of shipping’s critical role in building and sustaining America through maritime trade. The Great Lakes remain an important maritime highway in the 21st century, with massive ships carrying in their holds on a single voyage what once would have taken a fleet of schooners many trips to transport.

Whaling: A Lost Link in the Global Economy

One global maritime industry in particular that shaped America’s expansion, economy and culture has all but vanished. The whaling trade, which began in the 17th century after newly arrived immigrants learned from Native American whalers how to harvest these behemoths, soon expanded from New England’s shores to encompass the entire world. By the mid-19th century, New Bedford, Mass., home of many whalers, became a famous and vital link in the global economy because its exports of whale oil for lamps made it the “City that Lit the World.”

The quest to feed America’s hunger for whale oil led whalers throughout the Atlantic, Pacific and finally the Arctic. They slaughtered their prey by the thousands at each new hunting ground, decimating whale populations and forcing subsequent whaling expeditions to travel farther and stay at sea for years at a time. We can see the reach of these epic voyages in shipwrecks like the *Two Brothers*, a 19th-century whaler from Nantucket

that sailed thousands of miles from home before sinking nearly 600 miles northwest of Honolulu, in the waters of what is today Papahānaumokuākea Marine National Monument.

Grueling expeditions like this one extended American influence and economic interests around the globe, but they also drove many whale species to the brink of extinction and contributed to the collapse of the industry. Another factor, however, was perhaps even more significant in bringing about the death of large-scale whaling: the shift from whale oil to petroleum as the world’s main energy source.

The World’s Economy: Forever Tied to the Sea

As the switch from whale oil to petroleum demonstrates, the global maritime economy is constantly in flux. The types of commodities being transported have changed over time, port cities and waterfronts have grown to accommodate larger ships and new technologies, and certain industries give way to others, all of which contribute to the ever-shifting maritime landscape. The types of ships have also evolved, from sail to steam to motor vessels, yet for all the changes, the maritime landscape remains inexorably linked to trade and commerce.

The sea is not only the greatest museum of our maritime past and the creation of the modern global economy, but the ongoing means by which that economy is sustained. Examining the evolution of global commerce through maritime landscapes helps us understand how we can successfully manage future change along our coasts.

CRITTER FILES:

SPERM WHALE

Few creatures have inspired fear, greed and wanderlust in the hearts of men quite like the massive denizen of the deep known as the sperm whale. Inspiration for great works of literature like Melville’s *Moby-Dick* and epic whaling voyages that circled the globe, these majestic animals fueled our lamps — and our imaginations — for more than two centuries. In the early 1700s, New England whalers began hunting the sperm whale for its valuable spermaceti, a waxy substance found in the whale’s head that was used in everything from cosmetics to industrial lubricant. By the 1800s, the demand for sperm oil was so great that whaling ships sailed thousands of miles across the ocean to hunt their

quarry for years at a time. This tireless pursuit spread America’s culture and economic power, but it also killed off an estimated two-thirds of the global sperm whale population, which has slowly begun to recover since large-scale whaling was banned in 1980.

SCIENTIFIC NAME: *Physeter macrocephalus*
DISTRIBUTION: Open ocean; worldwide
MAX. LENGTH: 60 feet
MAX. WEIGHT: 45 tons
DIET: Squid, fish
STATUS: Endangered

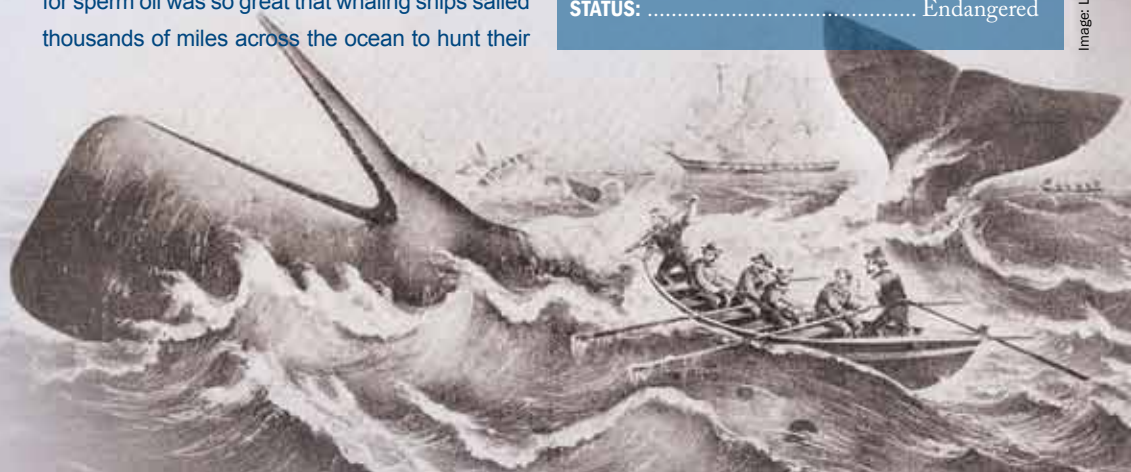


Image: Library of Congress



Photo: Vera Viditz-Ward

Photo: Vera Viditz-Ward



Photo: UGAMI



Photo: SICARS

From left to right: Hicks Walker weaving a cast net; Sam Gray collecting samples; Miss Hattie Walker (left) with Cornelia Walker Bailey.

A HISTORY PRESERVED

Living Maritime Culture on Sapelo Island

By Cathy J. Sakas & Matt Dozier

Cicadas buzzed to a deafening crescendo as Hicks Walker stood on the porch of his modest green cabin, the hot, humid air hanging over the tight-knit community of Hog Hammock like Spanish moss draped on the branches of a live oak. The 6-foot-5-inch mountain of a man held a length of strong cotton twine and a small wooden weaving shuttle, its surface worn smooth from decades of use.

Methodically, Hicks tied one end of the twine to a tree branch and began to knot tiny loops, one after another, at precise intervals along its length. His massive hands worked the shuttle back and forth with the nimble grace of a lifetime of practice, and the loops gradually resolved into the fine mesh of a flawlessly crafted cast net used to catch mullet and shrimp.

The residents of Sapelo Island, a 25-square-mile barrier island nestled along the Georgia coast, have been casting these hand-woven nets into the water since their ancestors arrived from Western Africa as slaves nearly two centuries ago. Transported across the Atlantic in the early 1800s and forced to work the island's plantations of cotton, sugar cane and indigo, they brought with them a maritime culture — known as “Geechee” — that remains at the core of the island's identity today.

After the Civil War, many freed slaves bought land on Sapelo. They settled in communities with names like Hog Hammock and Raccoon Bluff and supported themselves by fishing the coastal waters and growing what they could on the island. Using traditional skills like net making and oyster farming — skills that dated back to their ancestors an ocean away in Sierra Leone — these Geechee communities lived almost entirely isolated from the mainland for nearly two centuries.

Things began to change in the 1960s, when mainstream attitudes toward African-Americans grew more tolerant. As the world around Sapelo changed, so did the island's culture. Many Hog Hammock

residents soon abandoned their nets and plows to seek new opportunities for employment and education on the mainland.

In 1961, a biologist named Milton B. “Sam” Gray came to Sapelo Island with the goal of studying the vibrant reefs off Georgia's coast. He hired George Walker, Hicks Walker's nephew, to work on his research vessel. Aided by the Geechee man's extensive knowledge of the local waters, Gray's expedition discovered a treasure trove of marine life at what would become known as Gray's Reef. His research led Congress to designate the reef and surrounding waters as Gray's Reef National Marine Sanctuary in 1981.

The close ties between Sapelo Island and Gray's Reef National Marine Sanctuary that began 50 years ago with Gray and George Walker's partnership remain today. Sapelo is the closest land to Gray's Reef, and part of the island is now managed by NOAA's Sapelo Island National Estuarine Research Reserve, which collaborates with the sanctuary to understand and protect the marine ecosystems that island residents still rely on today.

Sapelo Island may no longer be as isolated as it once was, but the maritime culture and traditions that have sustained its residents for generations are still present. Fishing remains a staple of the island diet. Net making, basket weaving and other Geechee skills continue to be practiced today, preserved and passed down by Hog Hammock residents like Cornelia Walker Bailey, Hicks Walker's youngest daughter and a best-selling author. Hicks, who passed away in 2003, just shy of his 100th birthday, continued weaving his high-quality handmade cast nets until the year he died.

Maritime cultures like Sapelo Island's are an integral part of our nation's character, from the Georgia coast to the Great Lakes to the Hawaiian Islands. The Office of National Marine Sanctuaries works to preserve and celebrate these unique sets of traditions and knowledge, recognizing that they are critical components of a better understanding of our relationship to the ocean — and to one another. 🌊



DR. JAMES P. DELGADO

Maritime Heritage Director,
NOAA Office of National Marine Sanctuaries

Maritime Heritage Director Dives into Our Seafaring Past

In this issue, we sat down with Dr. James Delgado to discuss shipwrecks, culture, and the lessons of our maritime past.

I also think that maritime heritage is pertinent and important for us because we as a nation are hungry and want to understand where we came from, not only as a nation, but as individuals and as families. Maritime history links us to that — powerfully.

How do marine sanctuaries help preserve these stories of our history and connect people with them?

The national marine sanctuaries, all 14 of them, have strong links to the past as well as the important natural resources and the scenic, recreational and economic opportunities they provide. Along with the waters of the National Park System, they are the greatest museum America has. Sitting down there beneath those waters are the remains of prehistoric settlements, of the areas where the first people moved and walked. Consider this: for hundreds of miles off our coast, what now is wet was once dry land, where people actively worked and settled 10,000 years ago.

That's part of the importance of marine sanctuaries: they give us a tangible link to the past, and at the same time they provide us with a modern opportunity in our own time to connect to that past. Whether we visit it as divers, see it on film, learn about it in a maritime museum, or read about it on the web, the National Marine Sanctuary System connects Americans with their heritage that is relevant, exciting, important, and literally right off our doorstep in these great treasures known as sanctuaries.

James Delgado is an accomplished writer, archaeologist and historian. He has authored or edited more than 32 books and participated in undersea explorations around the world, including the mapping of the RMS Titanic.

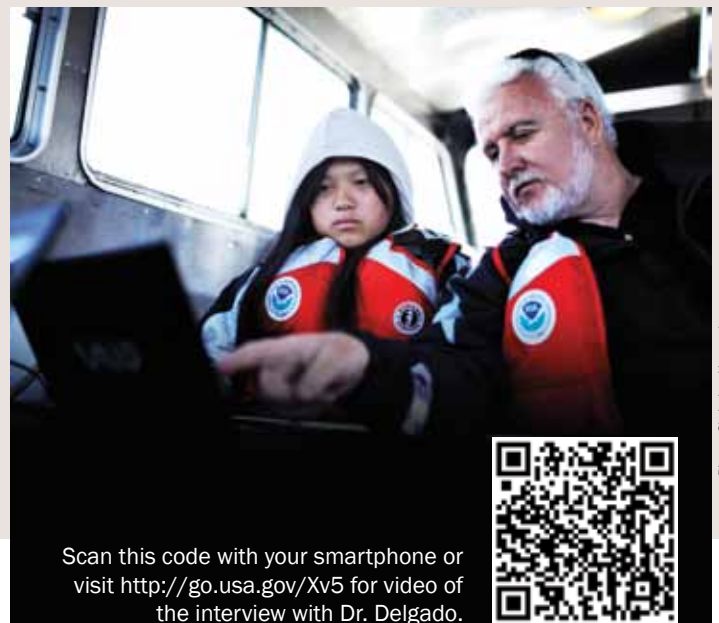


Photo: Christian Kazowyk

Scan this code with your smartphone or visit <http://go.usa.gov/Xv5> for video of the interview with Dr. Delgado.



What exactly is maritime heritage?

Maritime heritage, simply stated, is every bit of evidence from the past about how we as human beings have interacted with the water, from lakes and rivers to the ocean, maritime landscapes, lifesaving stations, life boats, historical fishing grounds, maritime graveyards, maritime cities and towns, and shipwrecks. All of those together, as well as everything ever written and documented, whether it's a painting or a great book like *Moby-Dick* — that's all part of our maritime heritage.

How significant has the ocean been in shaping America as we know it today?

I think that in the fabric of American history, one the strongest threads — maybe the strongest — is our relationship to the sea. Think about it: From prehistoric times, people settled this continent not only by walking over land, but largely by taking boats and moving along the edges of ice and land that was being revealed as the Ice Age ended.

Imagine American history without ships, like those that landed in Jamestown, or the *Mayflower*. Think as well of all those ships that carried goods and commodities from one part of the country to another, or around the world. The Great Lakes were a great economic artery that helped build the United States, with ships moving up and down the coast and through the lakes, creating cities like Detroit and Chicago. Even now in the 21st century, 90 percent of the goods that we consume or ship abroad as Americans comes by water.

What can a better understanding of our maritime heritage teach us for the future?

I think it's always important, when you look forward, to look back. In the case of marine resources, some of the wrecks I've worked on really speak volumes about choices made and choices that should not be followed now.

Take for instance a wreck in Panama that was a submarine built during the American Civil War to fight, but instead was sent south to harvest pearls. What it did was it wiped out the pearl beds to the point where they've never recovered. The owners went bankrupt and the company folded, and their expensive submarine ended up abandoned on a beach where now, more than a century and a half after it was built, it remains a rusting relic of a bad business plan, as well as our devastation of the marine environment.

STORIES *of Our*



This photograph, titled "Silver Harvest," depicts fishermen pouring sardines into a purse seiner hold.

Photo: J. B. Phillips collection, Courtesy of the Monterey History & Art Association

TITANIC Legacy of a Disaster

In the early morning hours of April 15, 1912, the RMS *Titanic* — the largest and most luxurious ship of its time — met a devastating end, striking an iceberg and sinking to the bottom of the North Atlantic. More than 1,500 people perished in its disastrous loss.

Discovered in 1985, the shipwreck now lies more than 12,400 feet below the surface on the edge of Canada's continental shelf. The British-registered, American-owned *Titanic* represents a tangible link to United States maritime history and has inspired the creative genius of historians, filmmakers and ocean enthusiasts around the world. It has provided a storyline for countless books, articles, films and documentaries, including the Academy Award-winning James Cameron megahit *Titanic*.

However, the significance of the ship's status as a pop culture icon is surpassed by its historical significance as a memorial in honor of those lives that were lost in its sinking. Of the 306 American passengers on board the *Titanic*, 119 were never rescued. In 2006, at age 99, Lillian Asplund, the last living American survivor of the *Titanic*, died in Massachusetts. At age five, she lost her father and



SARDINES A Pacific Fishery, Boom to Bust

In the early 1900s, three men from vastly different backgrounds came to Monterey Bay, Calif., lured there by massive schools of sardines. Together, they created an industry that would become the largest fishery in the western hemisphere, catching millions upon millions of sardines over more than two decades until its devastating collapse.

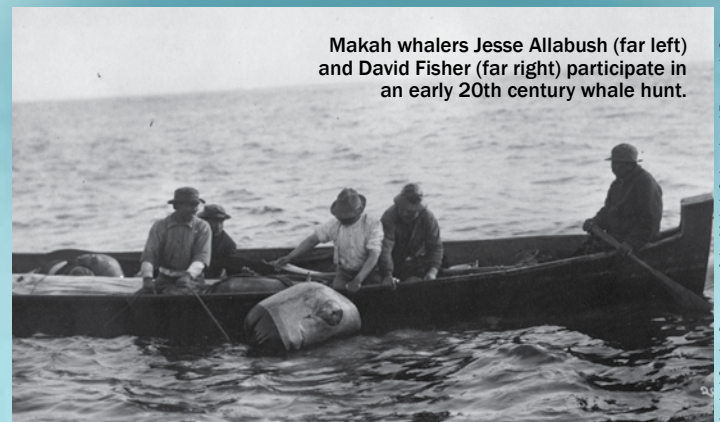
Frank Booth, a salmon cannery owner from Northern California, opened the first sardine cannery in 1902 after witnessing the sheer numbers of fish in the bay. Soon after, a young Norwegian fisheries engineer named Knute Hovden arrived and partnered with Booth to improve canning technology. All that remained was securing a steady supply of fish. Pietro Ferrante, an accomplished fisherman from Sicily, provided the solution, adapting Italian fishing gear and recruiting friends to harvest unprecedented quantities of sardines.

Fueled by the demand for food during World War I, the sardine fishery grew into a juggernaut, with landings from California to British Columbia. By 1945, Monterey alone boasted 19 canneries and 20 reduction plants. San Francisco, San Pedro and San Diego were booming, too. Together, these four cities had a total of more than 100 canneries and reduction plants, employing thousands of workers and a fleet of 376 vessels. At its peak in the 1936-37 season, California's sardine industry landed more than 726,000 tons of fish.

In the late 1940s, sardines suddenly started vanishing, first from the Pacific Northwest and finally from southern California in the late 1950s. The cause of the fishery collapse evoked great debate. Now, after decades of study, most scientists attribute it to a combination of overfishing and a natural fluctuation in the sardine population.

Today, the Pacific sardine fishery has rebounded and is carefully managed by strict catch limits. By studying and understanding the ocean and our past maritime history, we can ensure that valuable ocean resources are protected for the future.

MAKAH 'The Ocean Is Our Land'

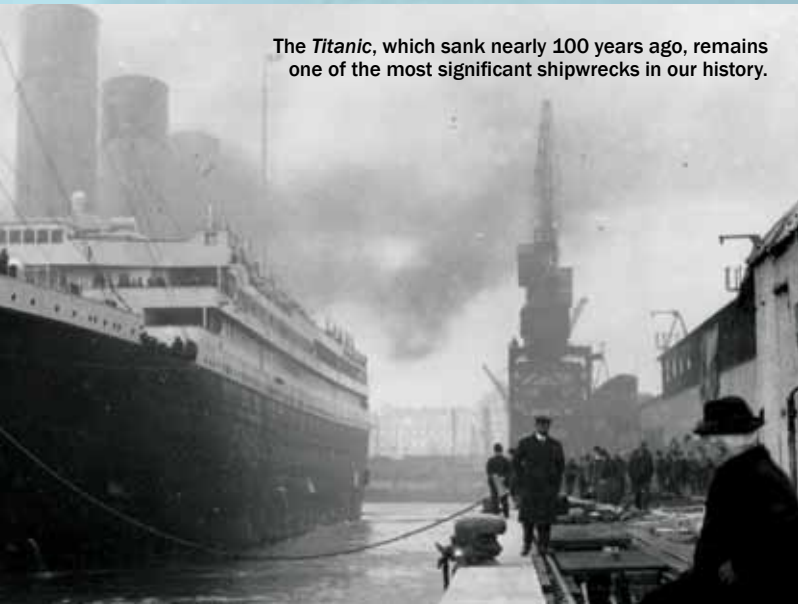


Makah whalers Jesse Allabush (far left) and David Fisher (far right) participate in an early 20th century whale hunt.

Asahel Curtis, Courtesy of the Makah Cultural and Research Center

In 1855, when the United States negotiated the Treaty of Neah Bay with leaders of the Makah people of the Pacific Northwest, tribal negotiators expressed concern over their future access and rights to the ocean — the mainstay for their way of life. "We only

MARITIME HERITAGE



The *Titanic*, which sank nearly 100 years ago, remains one of the most significant shipwrecks in our history.

Photo: L. Library of Congress

three brothers on the *Titanic*. Other passengers onboard the *Titanic* were foreign-born immigrants traveling to the United States full of hope and potential. Many of these individuals did not survive.

With the 100th anniversary of the sinking of the *Titanic* approaching in April 2012, international partners are working on new legislation to ensure the preservation of this iconic piece of our maritime history and culture that holds deep meaning for so many around the world.

need houses to live in, but the ocean is our land,” a spokesman said. Rights to a common share of fish and shellfish, as well as the right to continue whaling, were negotiated into their treaty.

More than 150 years later, the Makah Tribe thrives in its relationship to the ocean, near Cape Flattery, the northwestern-most point in the lower 48 states and partially surrounded by Olympic Coast National Marine Sanctuary. But until 1974, the Makah’s treaty-protected rights to marine resources were bitterly contested. The dispute was settled only after the U.S. Supreme Court ruled that the terms of the 1855 Treaty of Neah Bay were the definitive law of the land.

Today, Makah fishermen continue to harvest salmon, halibut, groundfish, crab and other ocean resources, guided by tribal biologists and policy-makers in collaboration with other treaty tribes, the state of Washington and NOAA under terms of the treaties and the Magnuson-Stevens Act. But the ocean represents more than the Makah “breadbasket.” The ocean is embedded in the tribe’s objects, art, song, dance, story and language. It permeates community and individual identity and embodies the continuity from the past to the future — tradition to tomorrow.

LIGHTHOUSES

Beacons of our Maritime Heritage

Since the earliest days of European settlement in the New World, ships have crashed into the shallow, jagged reefs of the Florida Keys. With nothing to guide them through the treacherous shoals, many vessels ran aground and were left high and dry, while others had their hulls ripped open and sank to the sandy bottom.

After the American Revolutionary War, one of the new nation’s first priorities was to make coastal navigation safer. The ninth act of the first Congress of the United States was the Lighthouse Act of 1789, which placed lighthouses under federal control “to regulate and encourage the trade and commerce of the new nation.” The American economy depended on safe, reliable movement of goods and people along the Eastern Seaboard and Gulf Coast, and these beacons of light provided the solution.

The complexity of architecture, engineering and diversity of lighthouses in the U.S. is greater than that of any other country in the world. Florida boasts more than 30 lighthouses of all shapes and sizes, eight of which are found in the Florida Keys. Several unique lighthouses rise from the turquoise waters of the Keys from four to six miles offshore, warning mariners about the dangerous coral reef just below the surface.

Today, more advanced technology has reduced our dependence on lighthouses for navigational safety, but they remain a part of our nation’s maritime cultural landscape, representing centuries of trade, commerce, innovation and adventure. The Office of the National Marine Sanctuaries recognizes the value of these unique symbols of our maritime heritage and seeks to preserve their stories of American growth, prosperity and exploration along our shores.



Installed at Alligator Reef in 1873, this 136-foot light tower is named after the U.S. Navy schooner *Alligator*, which sank there in 1822.

Photo: Brenda Altmeyer

THE GREATEST ADVENTURE:

PROJECT SHIPHUNT

By Tirrea Billings

In May, Tirrea Billings and four other high school students from Saginaw, Mich., embarked on Project Shiphunt, an expedition to search for shipwrecks in the depths of Thunder Bay National Marine Sanctuary. Through the power of maritime heritage education, the project exposed Tirrea and her classmates to fascinating history, advanced technology and inspirational discoveries, opening up a new world of opportunities in marine science. This is her story.



Photo: Christian Kozowyk

The chilled spring air of Lake Huron blew against my face, and a rush of thrill and wonder flowed within my soul. As we boarded the research vessel *Laurentian* at Thunder Bay in Alpena, Mich., on that foggy, mystic day, my excitement grew.

Many thoughts filled my head. What if we don't find the ship we are looking for? What if we find something different? What if we don't find anything at all? I didn't know what the final outcome of this project was going to be, but I knew that we were in for the most challenging adventure of our young lives.

After a tough application and interview process a month prior to the voyage, I had found out that I was one of the five Arthur Hill High School students selected to participate in Project Shiphunt, an expedition to search for a sunken ship in an area of Lake Huron known as "Shipwreck Alley."

Tiesha, Yer, Cody, James, and I found out that this was more than just a week-long field trip away from school when we arrived at NOAA's Great Lakes Maritime Heritage Center in Alpena. This was going to be a real

challenge: Can five students from Saginaw, Mich., really find a missing sunken ship?

Before heading out on the water, we researched loads of information about our target: a bulk freighter that sank in 1915 known as the *Choctaw*. We were on an investigation to find out where the ship sank, what types of cargo it was carrying, and the route it was taking. We also did research about the ship's structure, the materials it was made from, how and when it sank, and other facts that could lead us to the discovery of the *Choctaw's* location. While the week was long and exhausting, it consisted of the most rewarding work that I have ever done.

Using technology like side-scan sonar and remotely operated vehicles (ROVs), we soon began our search in Lake Huron. Initially, we mapped out a location of where we believed the ship sank about one square mile in area, then used sonar to map the seafloor within the search zone. The readings were conclusive: there was definitely something down there. But, the question was, what?

The moment of truth soon arrived. After dropping the ROVs with built-in cameras into the water, we could see everything that the ROVs could see on video screens aboard the *Laurentian*. After over an hour of searching, we found our first shipwreck — only, it wasn't the *Choctaw*! Instead, we had discovered the *M. F. Merrick*, a 138-foot schooner that was run down by another vessel in heavy fog in 1889.

To our surprise, a few moments later our cameras revealed another wreck

just a few yards from the *Merrick*, this one a bulk freighter named the *Etruria*. The 414-foot *Etruria* sank in 1905, also following a collision with another ship in the dense fog of Shipwreck Alley. While we never did find the *Choctaw*, we were ecstatic to have discovered these other ships.

Discovering these sunken marvels made me realize and understand the importance of maritime history. Protecting treasures such as the *M. F. Merrick*, the *Etruria*, and other sunken ships is a necessity. Shipwrecks help historians, researchers and others uncover and share stories that help us understand our relationship with different bodies of water all over the world.

In the end, Project Shiphunt was an adventure unlike anything I expected. I loved every single moment of the experience, from the long hours of intense research to riding on a boat for the first time. However, the most memorable part was actually finding the ships — at that moment, I imagined them sinking, the fear that the passengers felt, and the sorrow from the lives that were lost.

Project Shiphunt has given me the inspiration to pursue a life of exploration and scientific discovery, and I will always remember it as the greatest adventure any teenager could imagine. 🦋

Scan this code with your smartphone or visit <http://thunderbay.noaa.gov/shiphunt.html> to watch the Project Shiphunt trailer.



Courtesy of Sony

The Project Shiphunt documentary film premiered Aug. 29 at the Temple Theater in Saginaw, Michigan.



CALLUM ROBERTS

Author of *The Unnatural History of the Sea*

Sanctuary Voices is a guest column featuring views and opinions from the national marine sanctuary community.

The north shore of Santa Rosa in California's Channel Islands National Park plunges steeply to the sea. A sparse cactus scrub spreads a faded green wash over parched brown earth. At the

cliff edge, layers of soil slide seawards like a lurching stack of pancakes. To most people, these cliffs and islands are no more than backdrop to fishing, scuba diving or kayaking in Channel Islands National Marine Sanctuary. Few venture inland, and fewer still are aware that these dusty layers conceal the extraordinary remains of America's earliest maritime culture.

Searching these cliffs in 2008, the archaeologists Jon Erlandson of the University of Oregon and Torben Rick of the Smithsonian came across tantalizing signs of early activity. Flakes of stone, beautifully worked spear points, crescent blades and charred bone fragments lay scattered across the crumbling cliffs. After three seasons of careful excavation, they had unearthed thousands of stone artifacts, bones and shell fragments left by the island's first people that give us a window into their world.

The remains make it clear that these people had a remarkably sophisticated maritime culture. At the time, the Ice Age was ending, sea levels were 230 feet lower and the seashore was four miles from the present-day cliffs. The northern Channel Islands were joined together but separated from the mainland by a channel more than five miles wide. To get there, these people must have been good seafarers with sturdy boats. They ate a varied diet rich in marine foods, including abalone, mussels, rockfish, sculpin, seals and sea lions. They were also skilled hunters of geese and rodents, including a now-extinct flightless goose, whose disappearance they doubtless hastened.

Conventional wisdom says that the first colonists made their way across a land bridge from Asia and found their way through an ice-free corridor to verdant southern lands. That view was sustained by the relative scarcity of coastal remains compared to the abundant archaeological record from the interior. The trouble is the scarcity of coastal sites arises not because people did not live by the sea, but because their remains were covered by rising seas following the last glaciation. The few sites that do exist paint a picture of communities whose lives were completely entwined with the sea. Indeed, their seafaring, fishing and hunting techniques were so well-developed that Erlandson and Rick think that the sea might have been the route from Asia to North America. Coastal people followed a rich kelp forest "highway" brimming with seafood as they ventured around the north Pacific.

appreciation of what the oceans have meant to different generations. Sadly, in many places, those interactions have left marine life worse off than it was when California's Channel Islands were first colonized. So it is fitting that they are the setting for a bold experiment to restore some of the abundance of marine life that their earliest settlers would have known.

In 2003, a network of marine reserve zones that covers a quarter of Channel Islands sanctuary waters was closed to fishing. Already, there are welcome signs that life is on the rebound within them. After only five years of protection, abundance of predatory fish was up by 50 to 80 percent. With time, the effects of those reserves should become felt throughout sanctuary waters as life spills beyond the bounds of protected zones. The idea is catching on and reserves are now being established in many other coastal states to help life in their waters proliferate for all to enjoy. Refuges from exploitation are important tools to restore productivity and sustain cultures that depend on the sea. By understanding our past we can manage better for the future.

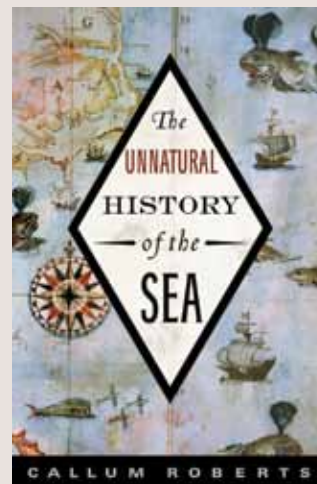
It's a wonderful idea and offers what to my mind is a more plausible route into North America than an ice-free corridor through lands otherwise still gripped by glaciers. We may never know whether it is true, but regardless, these new finds show that North Americans have used the oceans and their resources over a vast span of time. And with use comes change. We are only just beginning to discover the many ways in which people have altered the maritime seascapes on which they depended. Over the long span of history, those changes have deepened and multiplied. Until recently they went unnoticed. For most of us the oceans seemed to be the last wilderness, changeless and beyond harm. We were mistaken.

Culture, commerce, wildlife and seascape have been intimately connected for thousands of years. Understanding those links enriches our

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Callum Roberts is a professor of marine conservation at the University of York, England, and the author of The Unnatural History of the Sea (Island Press), an account of the effects of 1,000 years of fishing and hunting on marine life.



SANCTUARYSNAPSHOT Believe it or not, fish the size of the goliath grouper pictured above were a common catch when this photo was taken by Charles Anderson in the 1950s. But decades of fishing have taken their toll on large predatory species like grouper and sharks, reducing their numbers and removing many of the biggest individual fish. As a result, anglers now catch mostly smaller fish, and smaller species. Today, we are studying historical records to learn more about how fisheries have changed over time. Research like this gives us a new perspective on how the maritime landscape used to look, the ways our activities have affected ocean ecosystems, and steps we can take to protect special places like national marine sanctuaries for the future.