Ecology & Evolution | Nov 13, 2026 | 5 min read | By Bryan White

Humpback Whales Return to the Hudson River as Menhaden Rebound

Ecology & Biosphere * humpback whale * hudson river

For decades, the waters around New York City were treated primarily as an industrial shipping highway rather than a marine feeding ground. Today, however, sightings of humpback whales (Megaptera novaeangliae) lunging near the Verrazzano-Narrows Bridge, Ellis Island, and even inside the lower Hudson River have shifted from rare spectacles into a recurring seasonal pattern. Citizen-science photo-identification led by Gotham Whale has cataloged nearly 500 individual humpback whales across the New York Bight -- the broad coastal indentation stretching from Cape May, New Jersey, to Montauk, New York -- up from just a handful of documented sightings a little over a decade ago.

This urban wildlife comeback is not an accident of straying animals. Instead, ecological monitoring by the Wildlife Conservation Society (WCS) and academic marine biologists shows that juvenile and subadult humpback whales are actively using New York Harbor and the New York Bight apex as a reliable supplemental feeding stopover, drawn into busy city waterways by cleaner water and surging schools of oily forage fish .

Clean Water and the Menhaden Boom

The biological engine behind New York City's whale resurgence is a silver , filter-feeding fish called the Atlantic menhaden (Brevoortia tyrannus), known locally to anglers as bunker. Menhaden swim in dense, shimmering surface schools and pack high concentrations of omega-3 fatty acids and lipids, making them an energy-dense meal for baleen whales, striped bass, bluefish, and ospreys.

Two long-term policy shifts rebuilt this prey base. First, federal Clean Water Act upgrades to municipal wastewater treatment plants dramatically lowered sewage pollution and raised dissolved oxygen levels across the Hudson-Raritan Estuary. Cleaner, oxygen-rich waters allowed plankton blooms and estuarine nursery habitats to stabilize. Second, the Atlantic States Marine Fisheries Commission (ASMFC) introduced coastwide catch caps and later adopted Ecological Reference Points -- fishery rules that leave enough menhaden in the ocean to feed dependent marine predators rather than managing the fish in isolation.

Juvenile Whales and Urban Foraging

Photo-identification surveys analyzed in peer-reviewed research by Danielle Brown and colleagues demonstrate that the whales entering the New York Bight apex -- often within 10 kilometers (6 miles) of shore -- are disproportionately juveniles and subadults. Unlike adult humpbacks that rely heavily on established feeding grounds in the Gulf of Maine or eastern Canada, younger whales appear more flexible in exploring coastal prey hotspots along their migratory corridor.

Once inside the outer harbor or the lower Hudson River estuary, humpbacks switch

from traveling to intensive surface and subsurface lunge feeding. A lunge-feeding whale accelerates toward a tightly packed school of menhaden, opens its pleated throat grooves like a parachute to engulf thousands of liters of water and fish in a single gulp, and then pushes the seawater out through comb-like keratin baleen plates. Field observations by Smith and colleagues in Frontiers in Marine Science documented how whales adapt these lunges to shallow coastal waters -- sometimes feeding within meters of the bottom or right alongside rocky shoreline rip currents. Notable incursions deep into the harbor -- including a juvenile tracked past Manhattan up to the George Washington Bridge in November 2016 and a whale photographed lunge-feeding near Liberty and Ellis Islands in December 2020 -- occur when dense menhaden schools push through tidal channels into the river mouth.

Because each humpback whale carries a unique black-and-white pigment pattern and scalloped trailing edge on the underside of its tail fluke -- much like a human fingerprint -- researchers and trained observers can track individuals across years without tagging every animal. Long-term fluke matching shows that many of the whales visiting the Hudson-Raritan Estuary return across multiple summers and autumns, confirming that the harbor has become a repeatable foraging stopover rather than a one-time navigational mistake.

| Ecological or Risk Factor | | Observed Pattern in New York Harbor & Bight | | Primary Scientific Driver |

| Cataloged Humpbacks | | Nearly 500 unique individuals identified | | Multi-year fluke photo-ID (Gotham Whale) |

| Dominant Age Class | | High proportion of juveniles and subadults | | Coastal exploration of supplemental prey |

| Primary Nearshore Prey | | Atlantic menhaden (Brevoortia tyrannus) | | Clean Water Act recovery & ASMFC catch caps |

| Primary Mortality Hazard | | Vessel strikes & fishing gear entanglement | | Overlap with Port of NY/NJ shipping lanes |

Shipping Lanes and Vessel Strike Risks

While abundant menhaden draw whales into New York's waterways, those same coastal channels carry some of the heaviest maritime traffic in North America. Container ships entering the Port of New York and New Jersey, commuter ferries, tugboats, and recreational pleasure craft cross directly through active whale foraging zones. Research led by WCS scientist Christopher King and colleagues mapped baleen whale behavior against vessel traffic in the New York Bight and found extensive spatial overlap right where whales spend the most time near the surface.

This dangerous overlap sits at the center of an ongoing Atlantic Coast Humpback Whale Unusual Mortality Event (UME) declared by the National Oceanic and Atmospheric Administration (NOAA) retroactive to January 2016. Across the Atlantic seaboard, NOAA and regional stranding networks -- including the Atlantic Marine Conservation Society in New York and the Marine Mammal Stranding Center in New Jersey -- have documented elevated strandings. Among necropsied whales where cause of death could be determined, roughly 45 percent showed evidence of human interaction, primarily blunt-force trauma or propeller wounds from vessel strikes alongside fishing-gear

entanglements.

Coexisting With Urban Baleen Whales

Protecting humpback whales in a working harbor requires real-time monitoring and practical maritime speed management rather than closing ports. Reducing vessel speed to 10 knots (about 18.5 kilometers per hour) or less in high-density whale zones gives mariners more time to spot surfacing blows and sharply lowers the probability that a collision will be fatal. Acoustic buoys deployed by WCS and Woods Hole Oceanographic Institution also listen continuously for whale calls, sending near-real-time alerts to ship captains and port operators.

For New York residents and boaters, the return of humpback whales to the Hudson River estuary is both a conservation milestone and a reminder of shared habitat. Keeping recreational vessels at least 100 yards (91 meters) away, avoiding chasing or encircling feeding whales, and reporting sightings to local marine networks help ensure that the harbor's cleaner waters remain a safe refuge rather than an ecological trap .

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