

UNIT 1, LESSON 2

EXCERPTS & IMAGES

EXCERPTS & IMAGES: Hudson River

Use the images and excerpts from page
2-5 to tell the story of the **Hudson River**

Image 1: Hudson River, pre-colonialism, New York on the Right Side



Excerpt 1: More than Humans and Biodiversity in Mannahatta

Mannahatta had more ecological communities per acre than Yellowstone, more native plant species per acre than Yosemite, and more birds than the Great Smoky Mountains National Park. Mannahatta housed wolves, black bears, mountain lions, beavers, mink, and river otters; whales, porpoises, seals, and the occasional sea turtle visited its harbor. Millions of birds of more than a hundred and fifty different species flew over the island annually on transcontinental migratory pathways; millions of fish—shad, herring, trout, sturgeon, and eel—swam past the island up the Hudson River and in its streams during annual rites of spring. Sphagnum moss from the North and magnolia from the South met in New York City, in forests with over seventy kinds of trees, and wetlands with over two hundred kinds of plants. Thirty varieties of orchids once grew on Mannahatta. Oysters, clams, and mussels in the billions filtered the local water; the river and the sea exchanged their tonics in tidal runs and freshets fueled by a generous climate; and the entire scheme was powered by the moon and the sun, in ecosystems that reused and retained water, soil, and energy, in cycles established over millions of years.

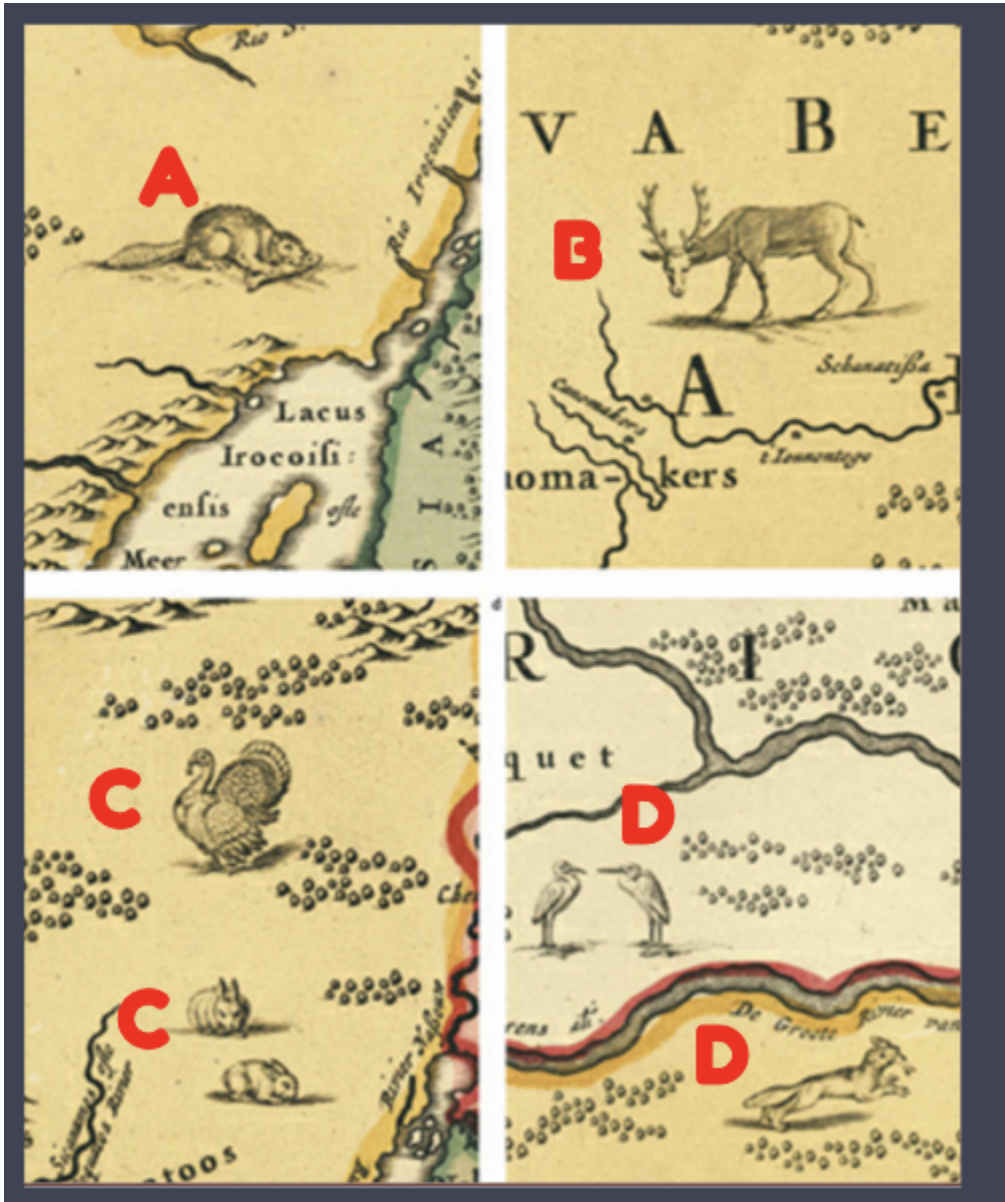
Excerpt 2: Biodiversity in New York/ New Jersey Bioregion

Adrian van der Donck, the Jonkheer who gave his name to Yonkers, New York, came to New Netherland in 1641, stayed, and became wealthy; wrote a lengthy Narrative describing the Muhheakantuck bio-region

Describing the land as “naturally fruitful and capable of supporting a large population, if it were judiciously allotted according to location. . . . [It] is adapted to the production of all kinds of winter and summer fruits, and with less trouble and tilling than in the Netherlands. . . . The air is pleasant here, and more temperate. . . .” Many others agreed, describing not only the “sweetness of the air” (Daniel Denton, 1670), but also the “wonderful size of the trees” (Johann de Laet, 1633), “all sorts of fowls, such as cranes, bitterns, swans, geese, ducks, widgeons, wild geese, etc.” (Nicholas van Wassenaer, 1630), and “great quantities of harts and hinds . . .; foxes in abundance, multitudes of wolves, wild cats, squirrels—black as pitch, and gray, also flying squirrels—beavers in great numbers, minks, otters, polecats, bears, and many kinds of fur-bearing animals, which I cannot name or think of” (David Pietersz de Vries, 1633). Van Wassenaer complained, “[B]irds fill the woods so that men can scarcely go through them for the whistling, the noise and the chattering.” Peter Kalm had a problem with the noisy frogs (writing in 1748). Walking out of town, he noted, “[T]ree frogs, Dr. Linnaeus’s *Rana arborea*, are so loud it is difficult for a man to make himself heard.”

Sanderson, Eric W.. *Mannahatta: A Natural History of New York City* (pp. 52-53). ABRAMS, Inc. (Ignition). Kindle Edition.

Image 2



Within the bioregion there were

(A) beavers (note, though, that beavers are herbivores and do not eat fish as depicted),

(B) white-tailed deer or elk

(C) turkey and cottontail rabbits

(D) a red or gray fox and cranes, as shown in these details from the Visscher Map.

Excerpt 3: The Hudson River

On the Hudson River side, the tidal dynamics are themselves complicated and enriched by the seasonal influx of freshwater. The Hudson River's watershed covers 13,000 square miles in New York, New Jersey, Connecticut, Massachusetts, and Vermont; some of its water has already flowed 460 miles before it reaches the Battery. In the spring the river discharges over 400,000 gallons of water per second to the sea, enough to create an ocean current of its own that extends along the Jersey Shore for 150 miles. Along the way, the freshwaters of the upland mix with the old, salty waters coming up the tidal river from the sea. The location of the "salt front" varies with the time of year, but it is generally north of Manhattan; Manhattan is always bathed in undrinkable undrinkable brine. The majestic Hudson River transports not only water but also sediment into the estuary—between 400,000 and 1.4 million metric tons of it per year; in turn, the sea brings back between 139,000 and 734,000 metric tons of sediment into the harbor annually. By comparison, when the World Trade Center was constructed, engineers removed 1.5 million metric tons of sediment—approximately the same amount as the Hudson River carries in one year. These sediments are mainly soil (in the form of mud) and sand. Sands are what previously formed and maintained the beaches on Manhattan's western shore.

Excerpt 4: The Atlantic Oyster New York/ New Jersey Bioregion***Why is the oyster important?***

The Atlantic oyster (*Crassostrea virginica*) is the keystone species that allowed the Hudson River estuary to develop into one of the richest ecosystems on earth, and symbolically it encompasses the full history of the metropolis that exists in the bio-region today. The massive oyster beds of New York Bay developed on the *end moraine*, a vast belt of sand and gravel that marks the terminus of the Wisconsin Glacier from 20,000 years ago. As the glacier receded and sea levels stabilized, the oysters proliferated abundantly in the diverse and bountiful ecosystem. The countless rings on the large oyster shells speak to this deep, geological time.

EXCERPTS & IMAGES: Passaic River

Use the images and excerpts from page
7-10 to tell to the story of the **Passaic
River**

Image 3

What information from the image below should the team use to add to the story of the Passaic river?

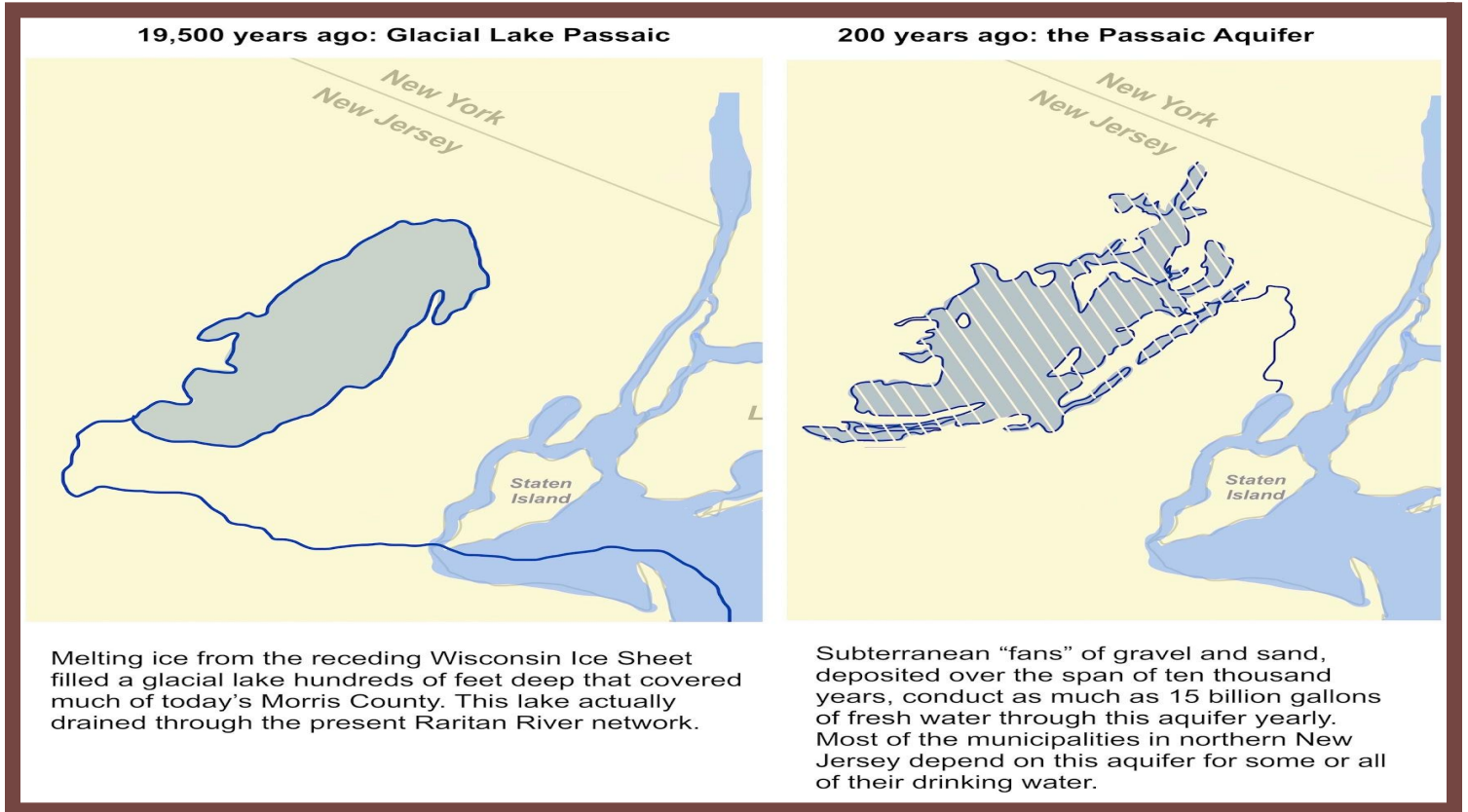


Image 3



Excerpt 5: The Passaic River

The Passaic River formed as a result of drainage from a massive proglacial lake that formed in Northern New Jersey at the end of the last ice age, approximately 13,000 years ago. That prehistoric lake is now known as Glacial Lake Passaic and was centered in the present lowland swamps of Morris County, forming because of a blockage of the normal drainage path. Eventually, the lake level rose high enough that the water flowed out of a new outlet. The Passaic River found a new path to the ocean via the Millington Gorge and the Paterson Falls as the glacier that covered the area retreated northward and the lake drained. As a result, the river as we now know it was born.

https://en.wikipedia.org/wiki/Passaic_River

Excerpt 6: Historical and Current Ecology of the Lower Passaic River

Historical fish and shellfish harvests in the lower Passaic River included striped bass (*Morone saxatilis*), rainbow smelt (*Osmerus mordax*), American shad (*Alosa sapidissima*), sturgeon (*Acipenser* species), perch (family Percidae), and a number of freshwater fish species, as well as American oysters (*Crassostrea virginiana*) and various clams, shrimp, and crabs (Iannuzzi et al., 2002).

https://urbanhabitats.org/v02n01/passaicriver_full.html

Excerpt 7: Account from Pehr Lindstrom describing the Trees and animals in New Jersey

“The trees which "exist in great abundance" are "oak of white, red, yellow and brown color...walnut trees, chestnut trees, fish trees ^probably the gum tree, which smell like raw fish and do not burn well and can not be split...mulberry trees, plum trees, sassafras trees, crab-apples, bullace trees linden, birches, spruces, juniper, alder...The abundant animal life in the landscape was well inventoried...Whale in the bay and up the river...Wild turkeys, beavers..."The River aboundeth with beavers, otters, and other meaner Furrs”

“ The Country is very well replenished, with deere and in some places store of Elkes. The low grounds of which there is great quantities excellent for meadows and full of Beaver and Otter. The quantity of fowle is so great as can hardly be believed, wee tooke at one time 48 partriches together, as they crossed the river, chased by wild hawkes. I myself

sprang in two hours 5 or 6 covies in walking of a mile. There are infinite number of wild pigeons, black birds, Turkeyes, Swans, wild geese, ducks, Teales, widgins, brants, herons, cranes, etc. of which there is so great abundance, as that the Rivers and creeks are covered with them in winter. Of fish here is plenty, but especially sturgeon all the summertime....

Lindestrom presents an extensive listing of animals present in the area in 1654; bears, wild hogs, wolves, lynxes, polecats, wild cats, elks, raccoons, minks, beavers, otters, red deer, foxes, hares, squirrels, rattlesnakes, eagles, vultures, hawks, herons, quails, wild geese, wild turkeys, pigeons, sturgeon, shad, shrimps, lobsters, sea turtles, crabs, oysters, and catfish”

Trindell, Roger Thomas, "Historical Geography of Southern New Jersey as Related to Its Colonial Ports." (1966). LSU Historical Dissertations and Theses. 1228. https://digitalcommons.lsu.edu/gradschool_disstheses/1228