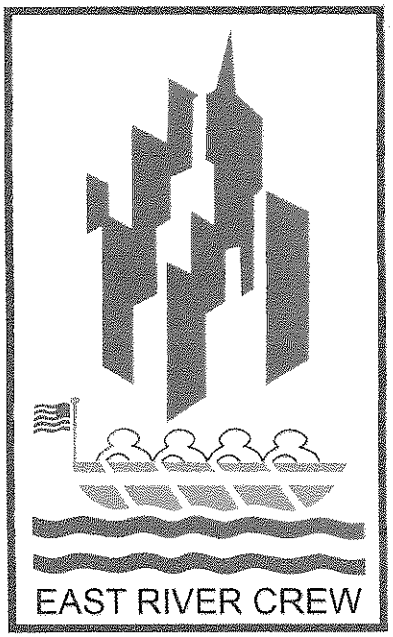
East River Community Recreation & Education on the Water- Estuary Guide Coloring Book



With thanks to our interns, Javier Carrillo and Fitzgerald Robinson, James McCullough, and the interns of the River Project: Mayra Alvarracin, Chastity Bowman, Rebecca Dinhofer, Jonathan Lopez, Christopher Lorient, Ramses Sanchez, Laura Singleton, Jennifer Soto, Cecily van Buren-Freedman, Alex Wainger. With thanks also to the Saint David's students for their plankton drawings: Davis Colley, Harry Craig, Axel Heineman, Colin McVeigh, Joni Otto-Bernstein, Eric Wu

There is so much that could be said about each organism, due to space limitations the editors selected the three most interesting facts they found about each.

Contact tgilbert@eastrivercrew.org for the Estuary guide and to participate in contributing to future editions of the accompanying coloring book.

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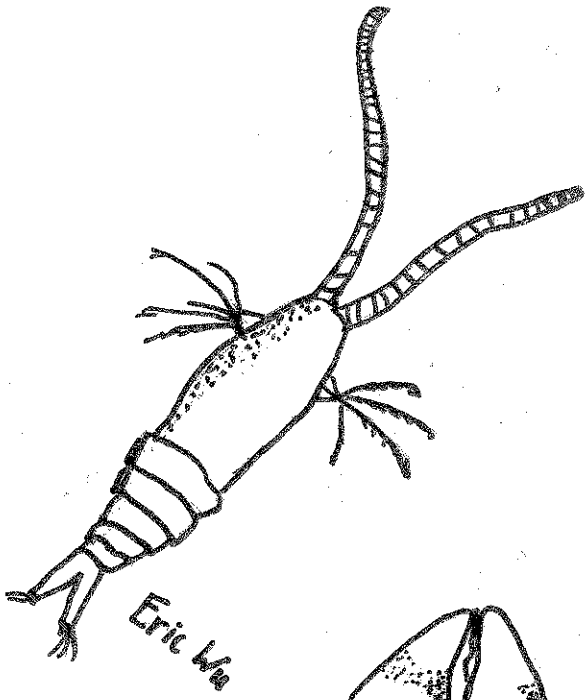
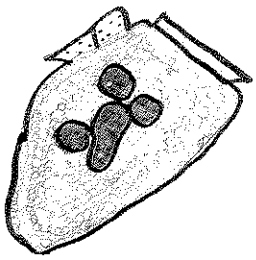
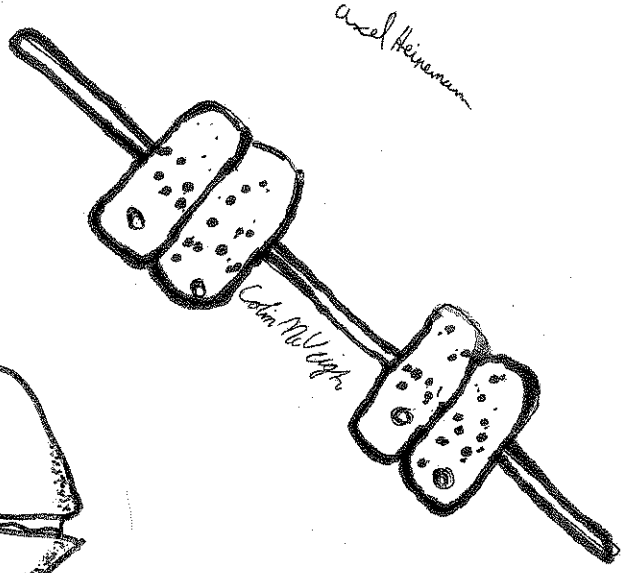
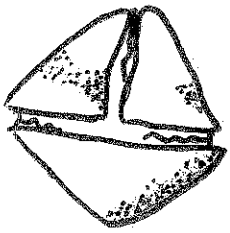
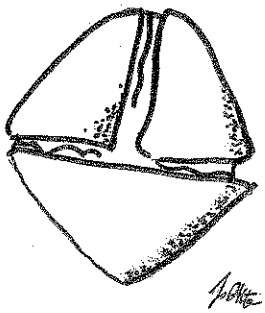
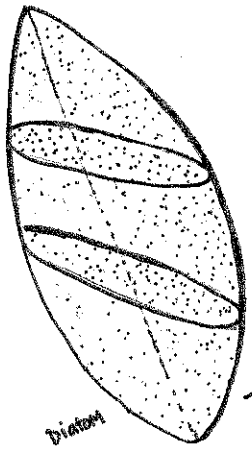


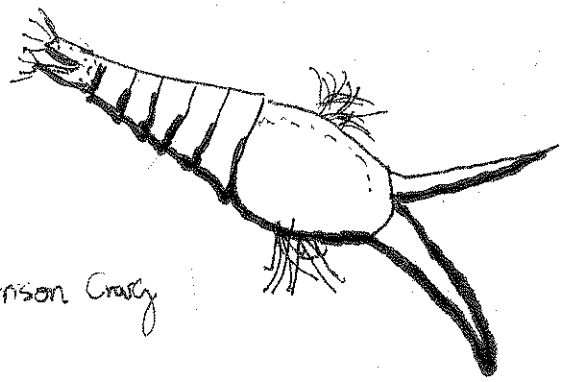






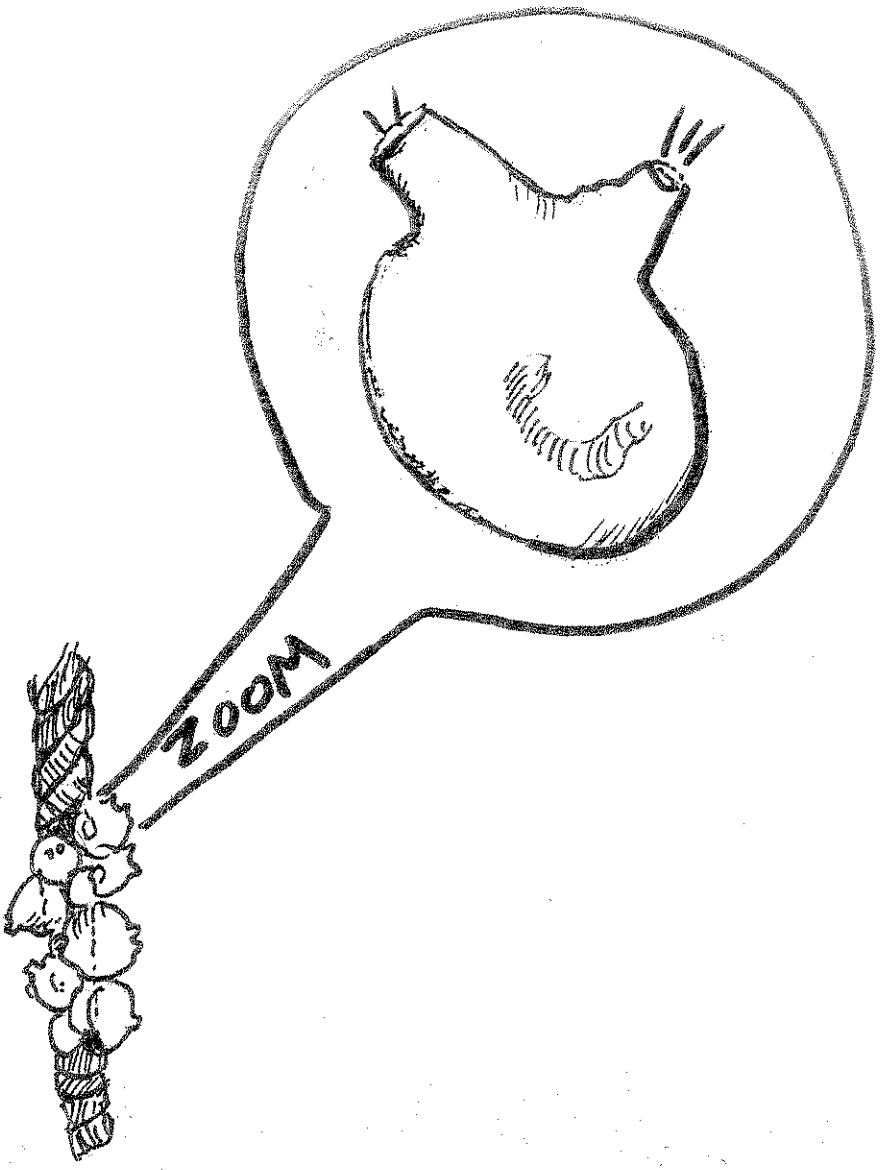






Plankton:

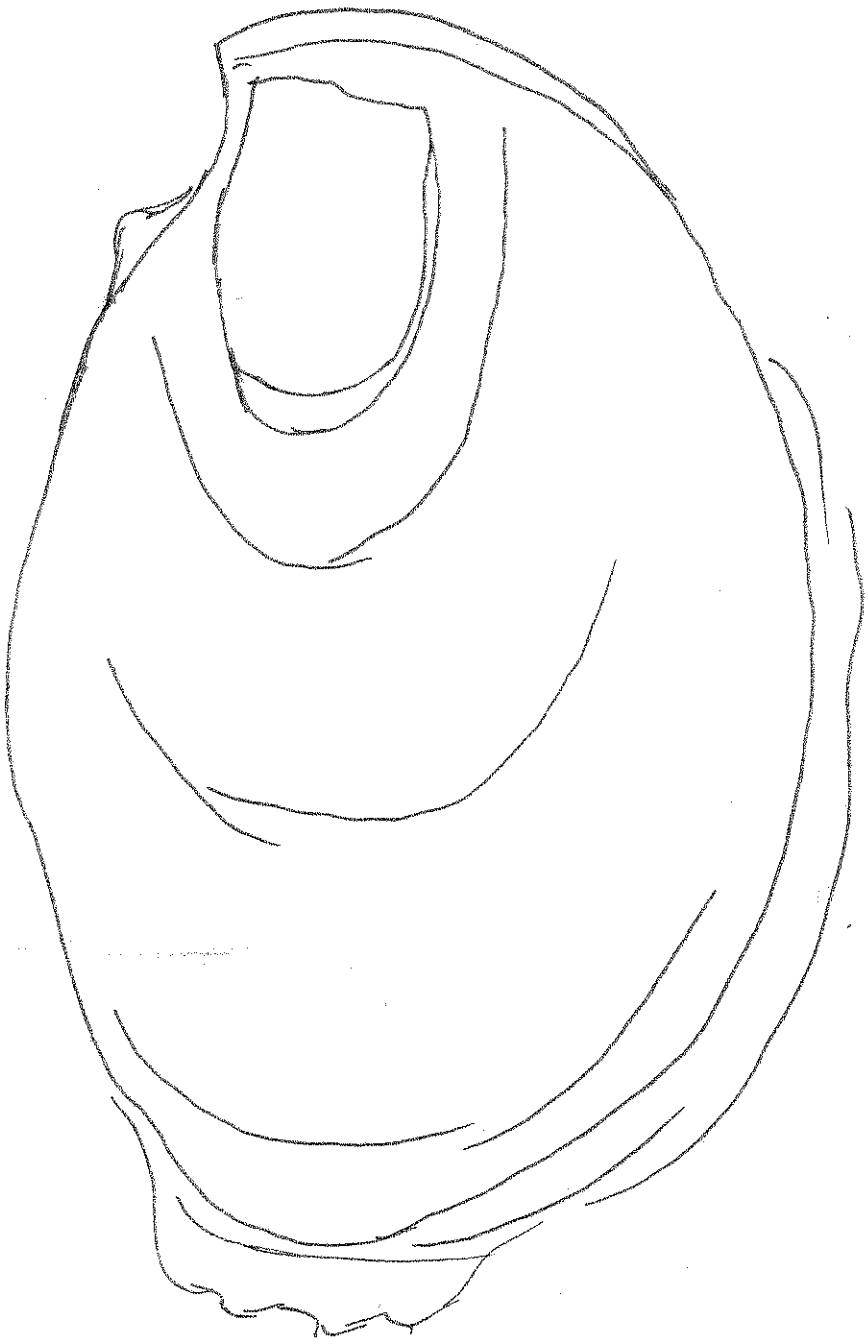
- Diatoms have glass or silica-based skeletons and make their food through photosynthesis like plants.
- Diatoms are producers for many of the estuary food chains.
- Dinoflagellates are also at the bottom of the food chain if they are photosynthetic, some clear ones are predators of single cell organisms.
- Copepods are tiny shrimp like crustaceans that feed on diatoms. They are the main component of zooplankton worldwide.
- Copepods are sometimes found in unfiltered, freshwater supplies, like NYC's.
- Copepods feed mainly at night near the surface and sink lower during the day to avoid predators- with this process they help to remove carbon from the air.



Christopher Lorient

Sea Squirt (Tunicate)

- Sea squirts start off life as little tadpole-like creatures, but then they attach themselves to ropes or other surfaces and stay in one place. Animals that do this are known as "*sessile*".
- They have very primitive spinal chords known as "notochord".
- They are filter feeders, straining out their food from the water that flows through them.

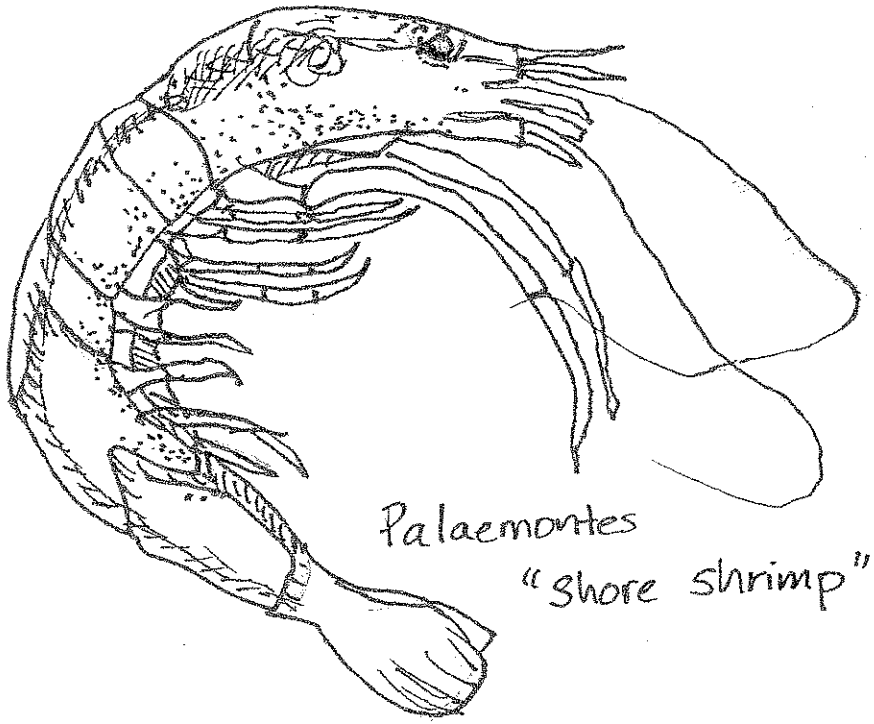


Oyster

- They are filter feeders and clear the water—if a pieces of grit gets stuck inside they coat it with shiny slime called nacre that hardens into a pearl.
- They taste delicious, but don't eat the ones from the NY-NJ Estuary, they are still working on getting it clean.
- Oysters start out life as males and change to females.

Cecily van Buren-Freedman

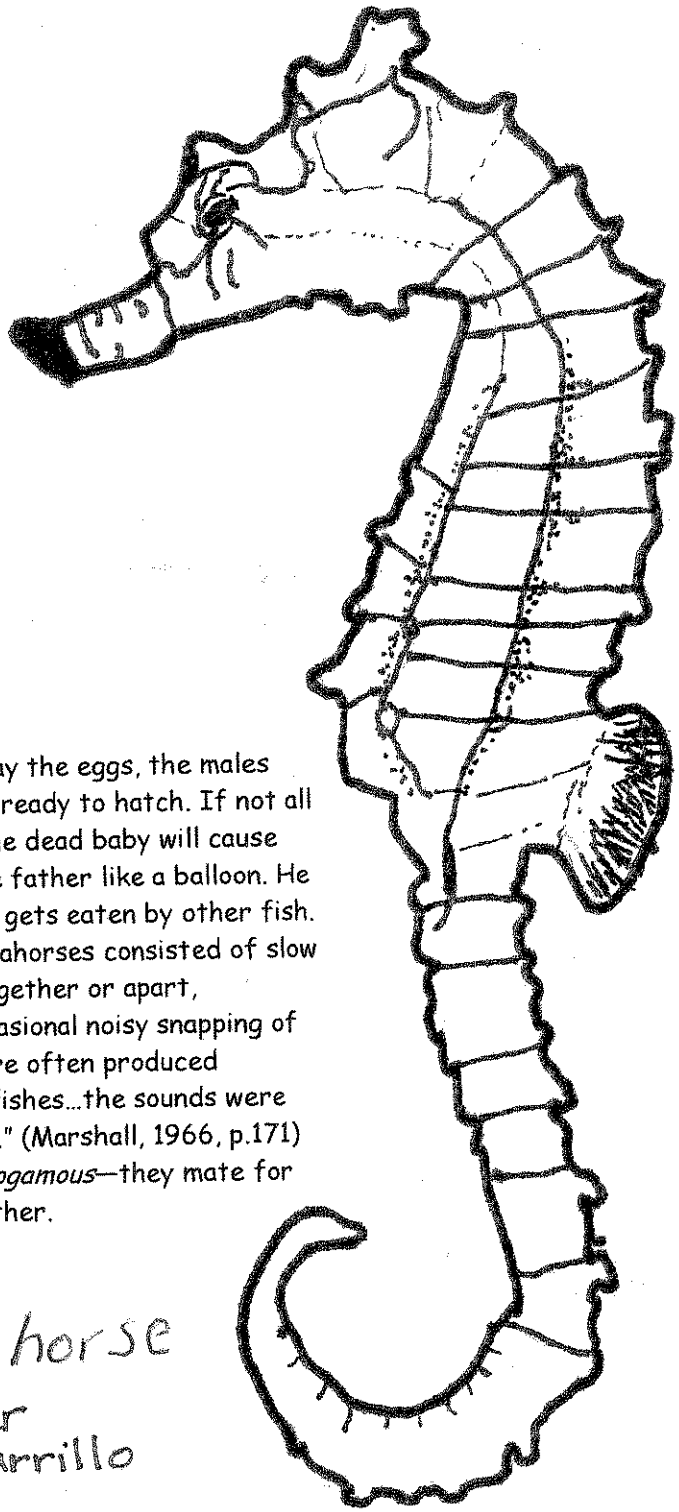
Shrimp



Shore Shrimp (Palaemontes)

- The most common shrimp found in New England coastal waters
- They will eat anything- they are omnivores
- They have color cells (chromatophores) that allow shrimp to change coloration easily.

Chastity Bowman

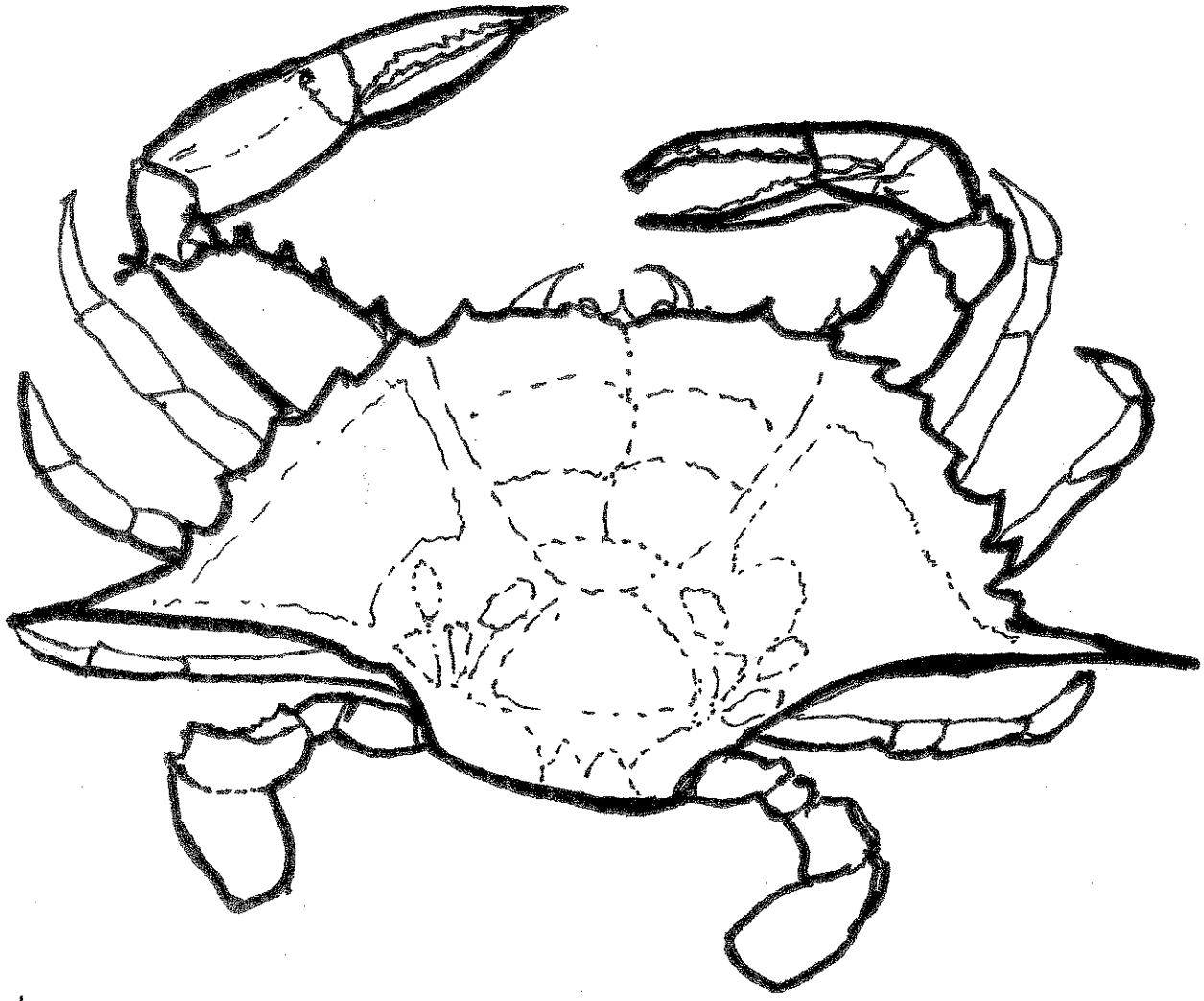


Seahorse

- While the females lay the eggs, the males carry the eggs until ready to hatch. If not all the babies hatch, the dead baby will cause gases that make the father like a balloon. He rises to the top and gets eaten by other fish.
- "A mating pair of seahorses consisted of slow swimming, either together or apart, accompanied by occasional noisy snapping of the head. Clicks were often produced alternately by the fishes...the sounds were loud and continuous." (Marshall, 1966, p.171)
- Seahorses are *monogamous*—they mate for life with only one other.

Seahorse

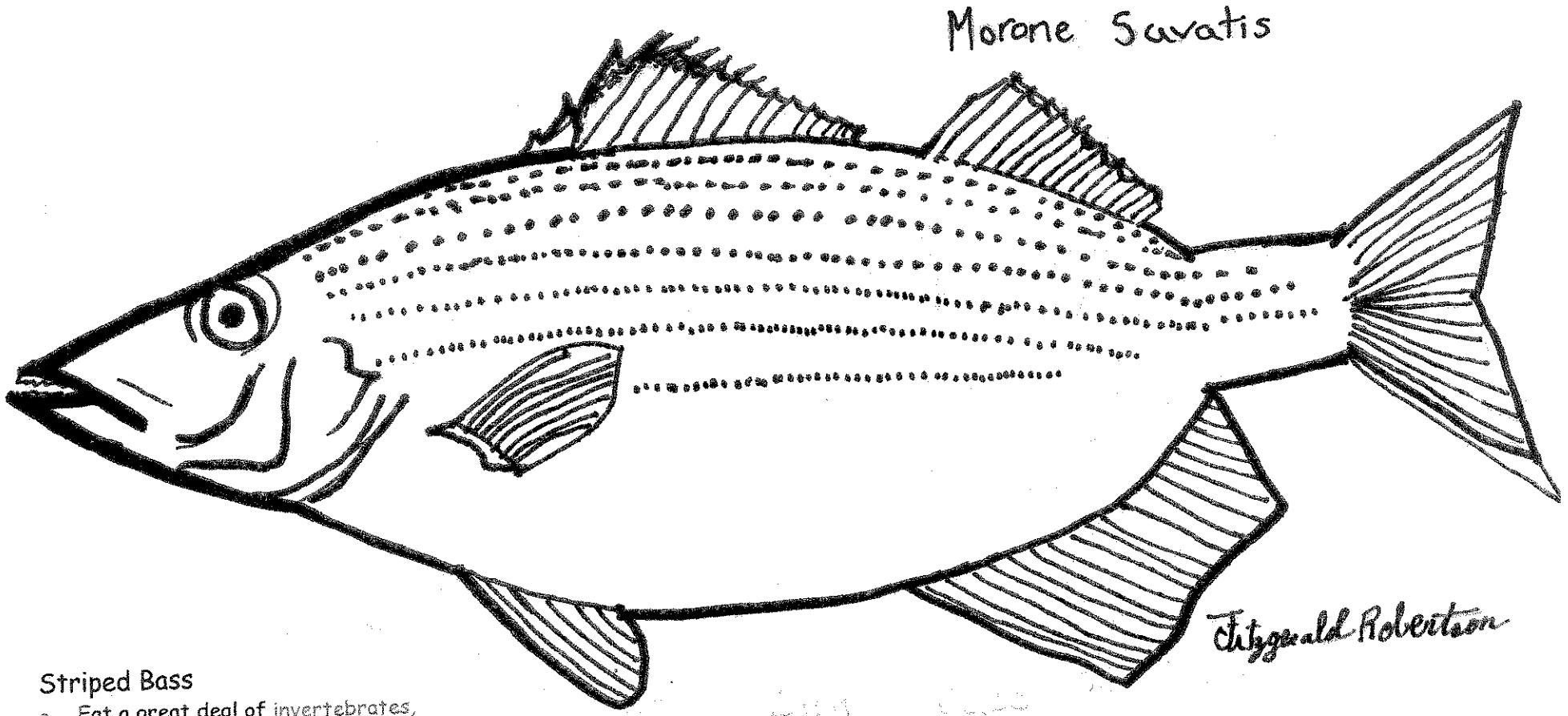
Javier Carrillo



Blue Crab

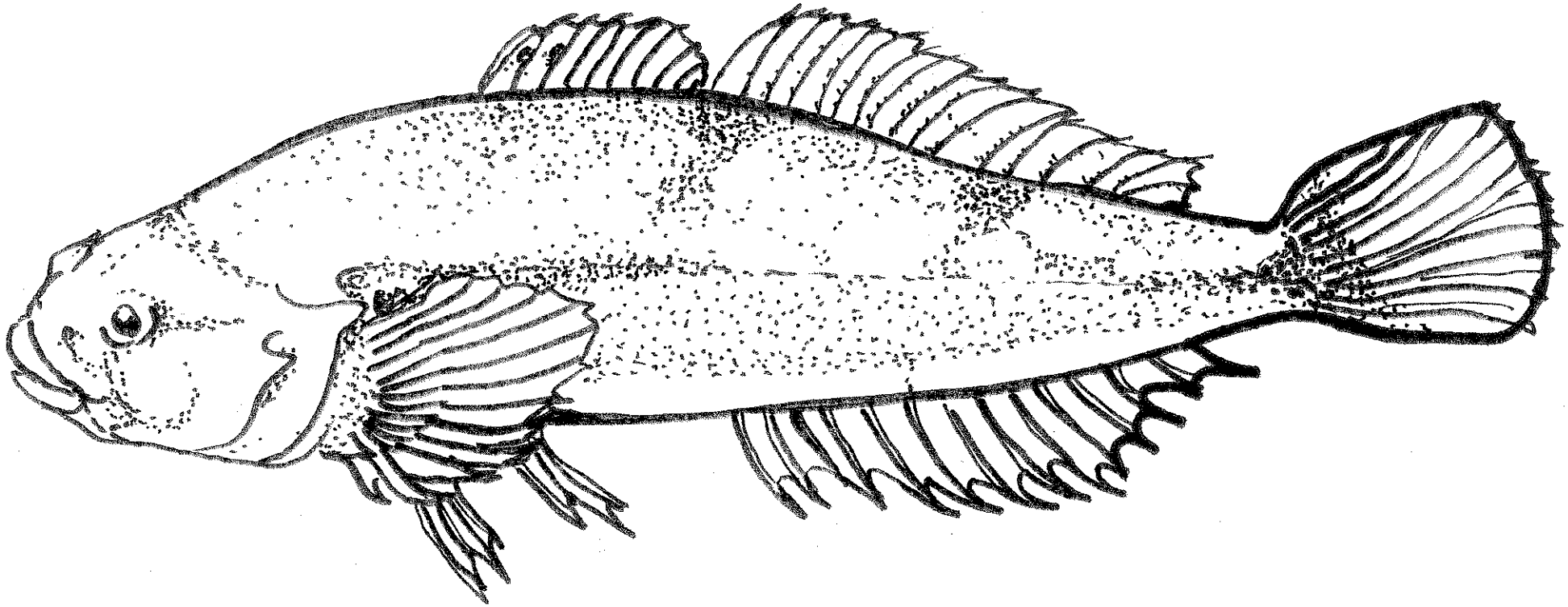
- To get bigger, crabs must shed their outer layer or *exoskeleton.*
- "Sallys" or female crabs have red tipped claws. "Jimmys" or males' claws are all blue.
- If the crab is carrying what looks like a "sponge" on the bottom—those are her eggs. It is illegal to catch this kind of crab. It may take 2 weeks for the eggs to ripen.

Jonathan Lopez



Striped Bass

- Eat a great deal of invertebrates, including worms, squid, menhaden, anchovies and crustaceans.
- They are light olive green to blue with stripes along their sides that give them the nickname. "Stripers"
- They come into the rivers and coastline to reproduce and move out to the ocean and bay when grown into adulthood.

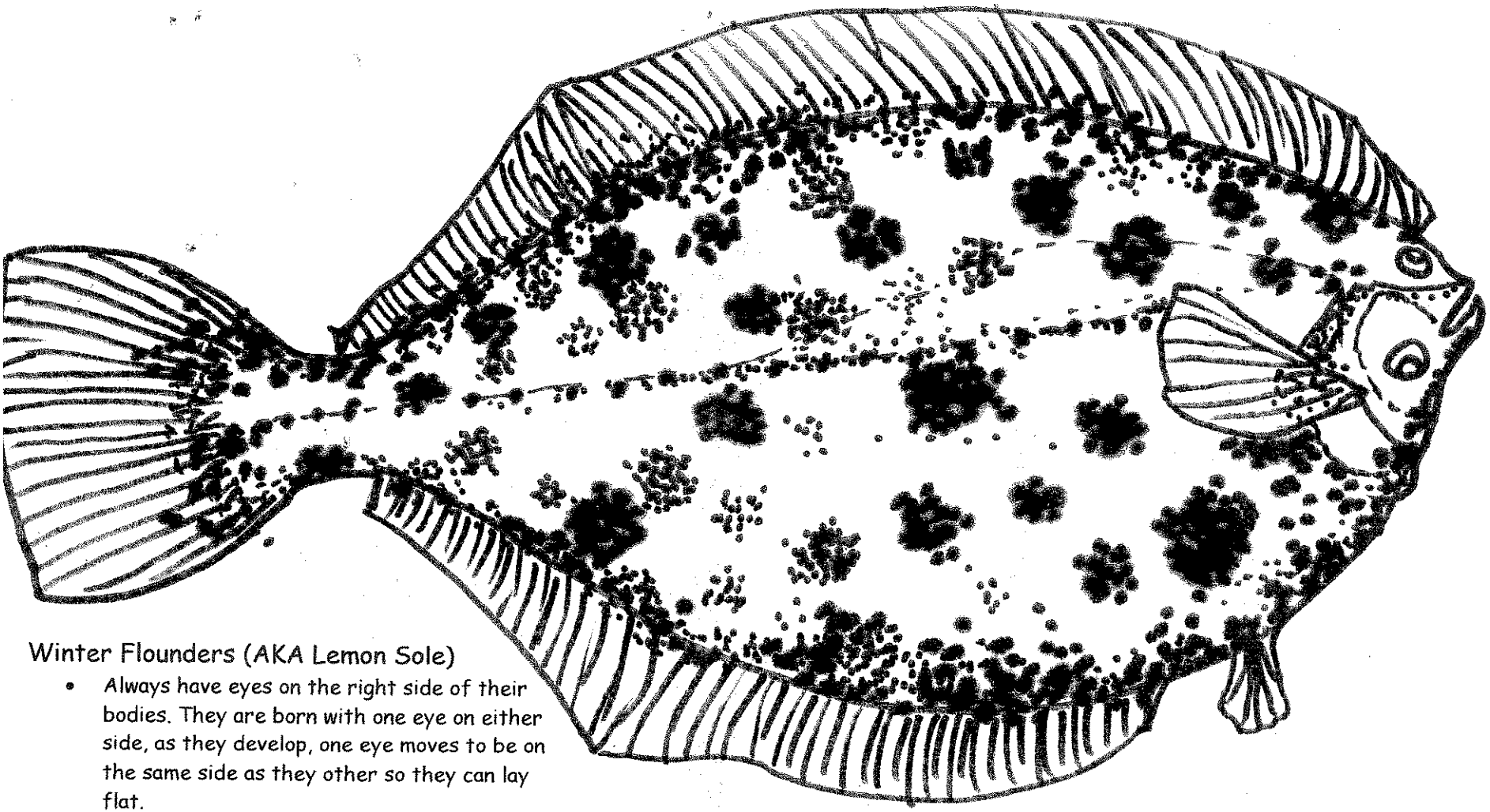


Grubby/ Sculpin

- This red to brownish fish eats octopus, worms, crab, squid, fish, and shrimp
- It always goes back to its own pool after hunting in other areas.
- It can survive for hours out of the water if it is in a moist area.

Alex Wainger

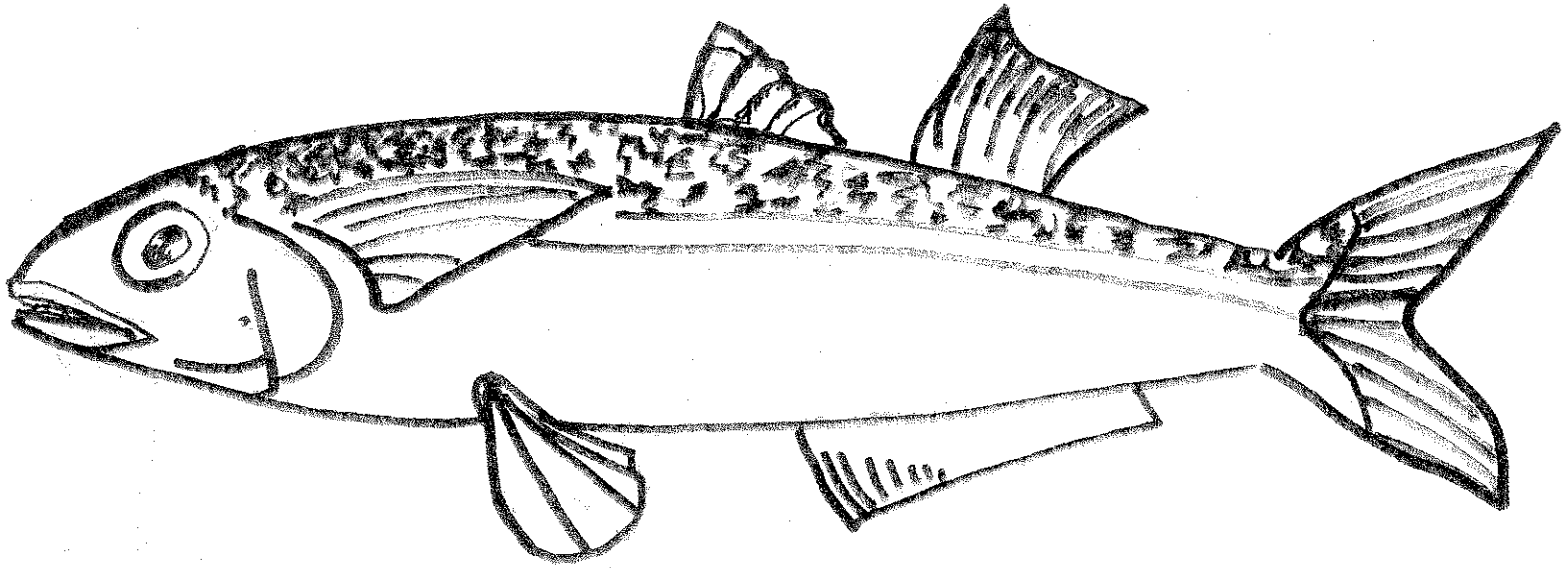
Jennifer Soto



Winter Flounders (AKA Lemon Sole)

- Always have eyes on the right side of their bodies. They are born with one eye on either side, as they develop, one eye moves to be on the same side as they other so they can lay flat.
- They have no teeth and small mouths—and can only eat shrimp, clams, worms and other animals found in the sand.
- A gene from the flounder's body was used to make a new kind of tomato that is less likely to freeze.

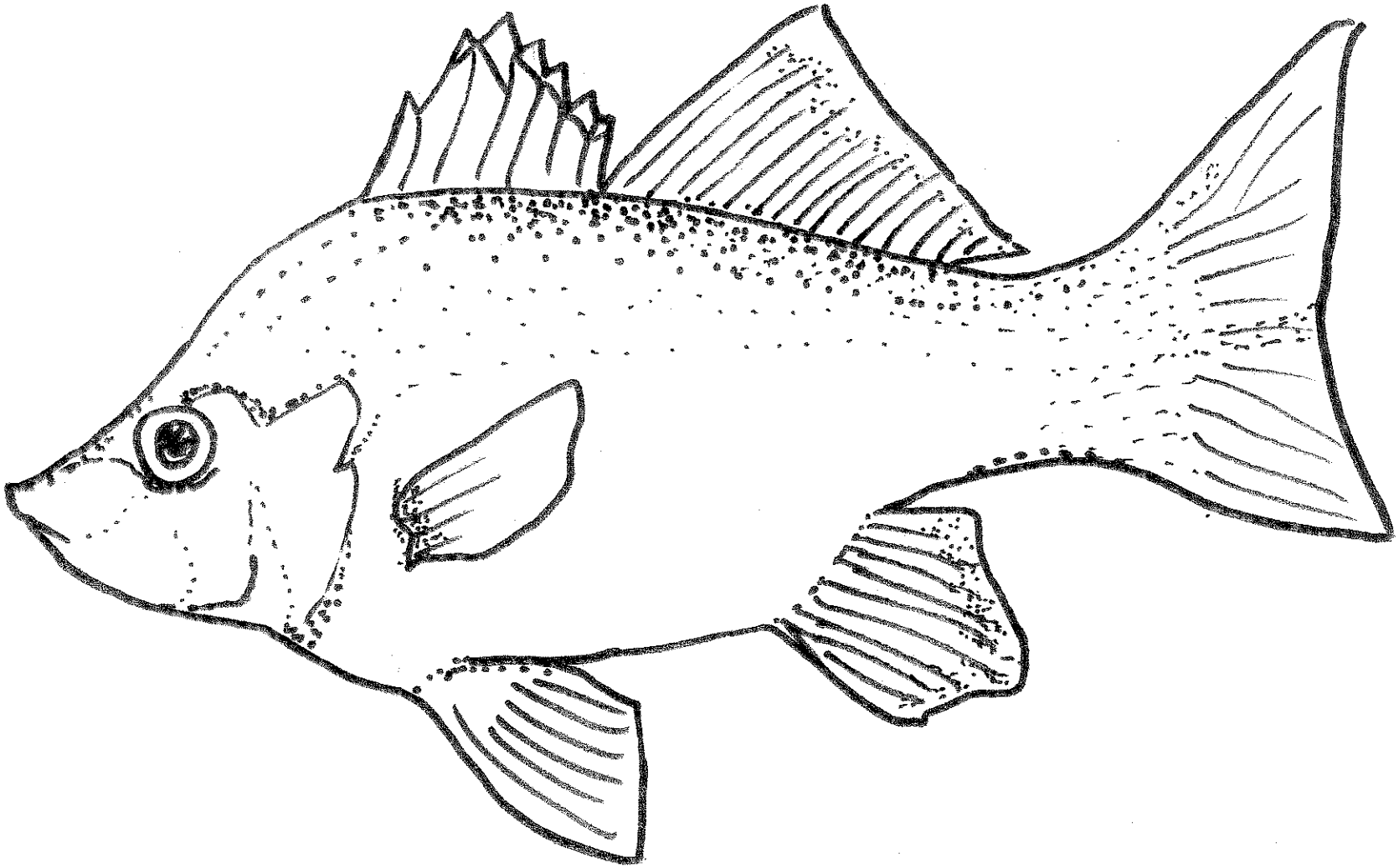
Atlantic Silverside



Atlantic Silverside

- Important food source for Bluefish & striped bass, egrets, cormorants, blue crabs and mummichogs that eat their eggs & larvae
- When chased it makes little leaps out of the water that attract gulls
- Main defense is to stay hidden or move as a school so predator can't pick just one out

Ramses Sanchez

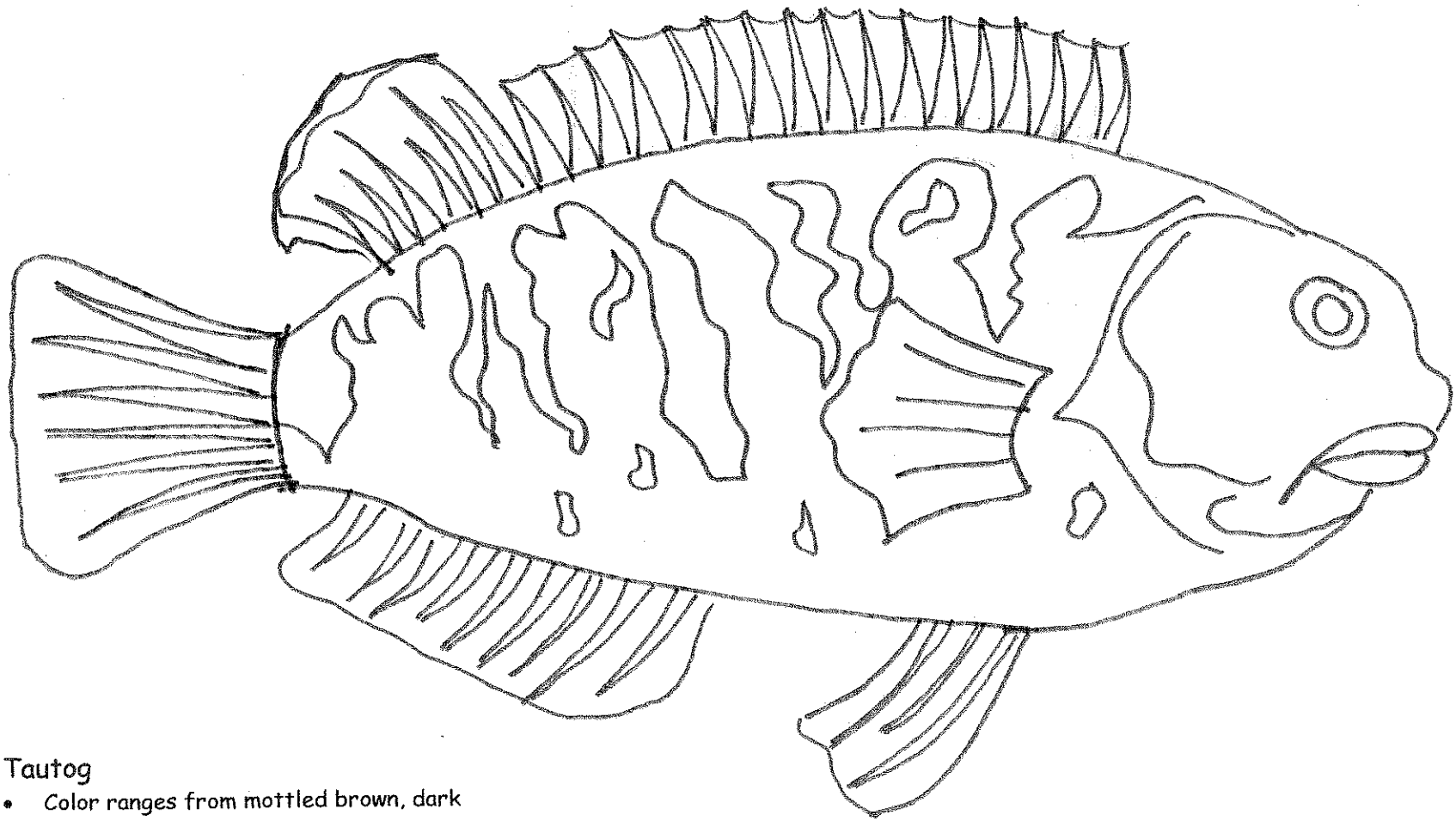


White Perch

- Are considered a nuisance species because they eat the prey of more valuable fish.
- Close relative of striped bass.
- Can live in salty and fresh waters.

Mayra Alvarracin

Tautog



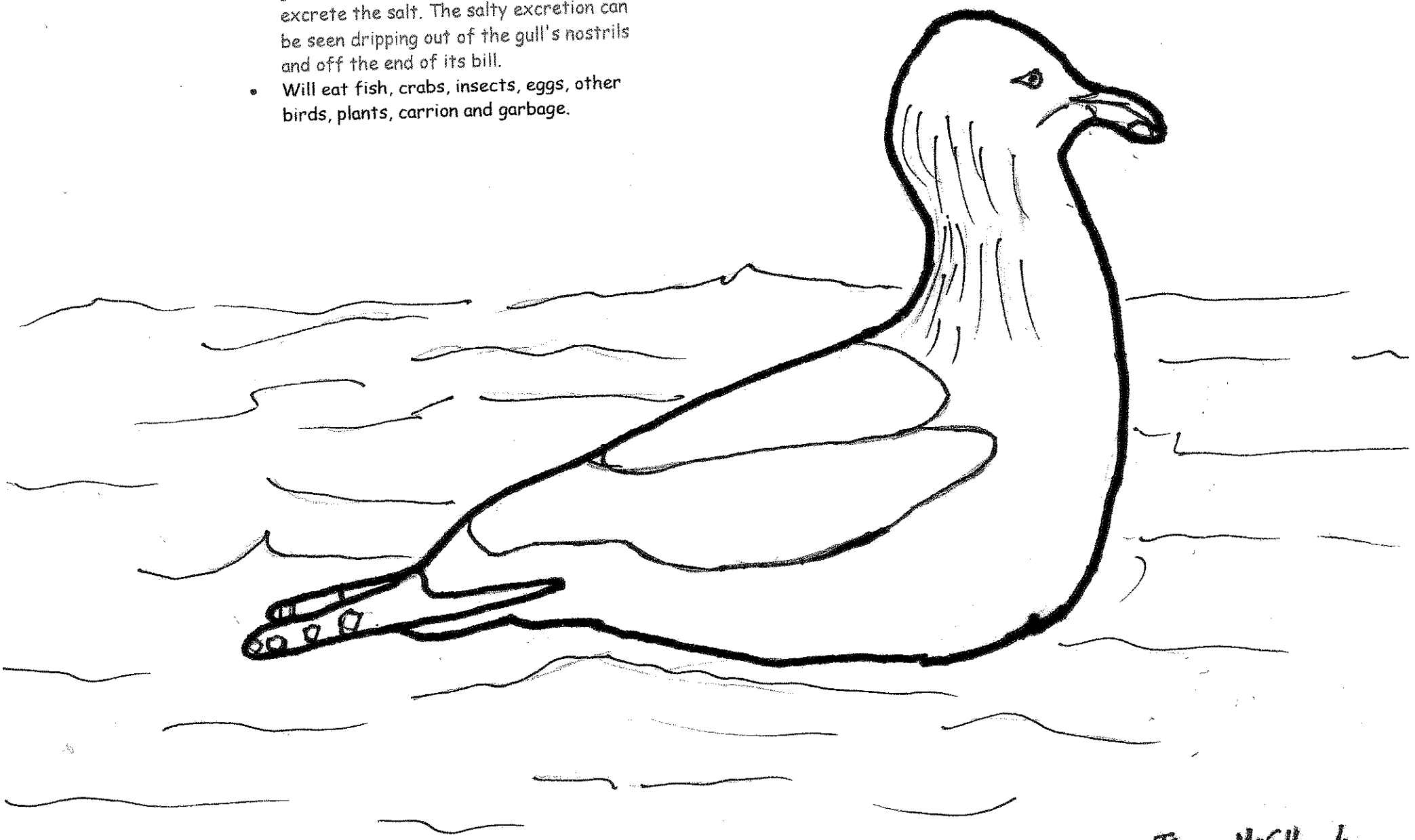
Tautog

- Color ranges from mottled brown, dark green, burgundy to black.
- Often found around rocks, pilings, wrecks and reefs where at night they lay on their sides so calmly divers can catch with their bare hands.
- They crush clams, mussels, barnacles and crabs with strong teeth.

Rebecca Dinhofer

Herring Gull (no black ring on its beak)

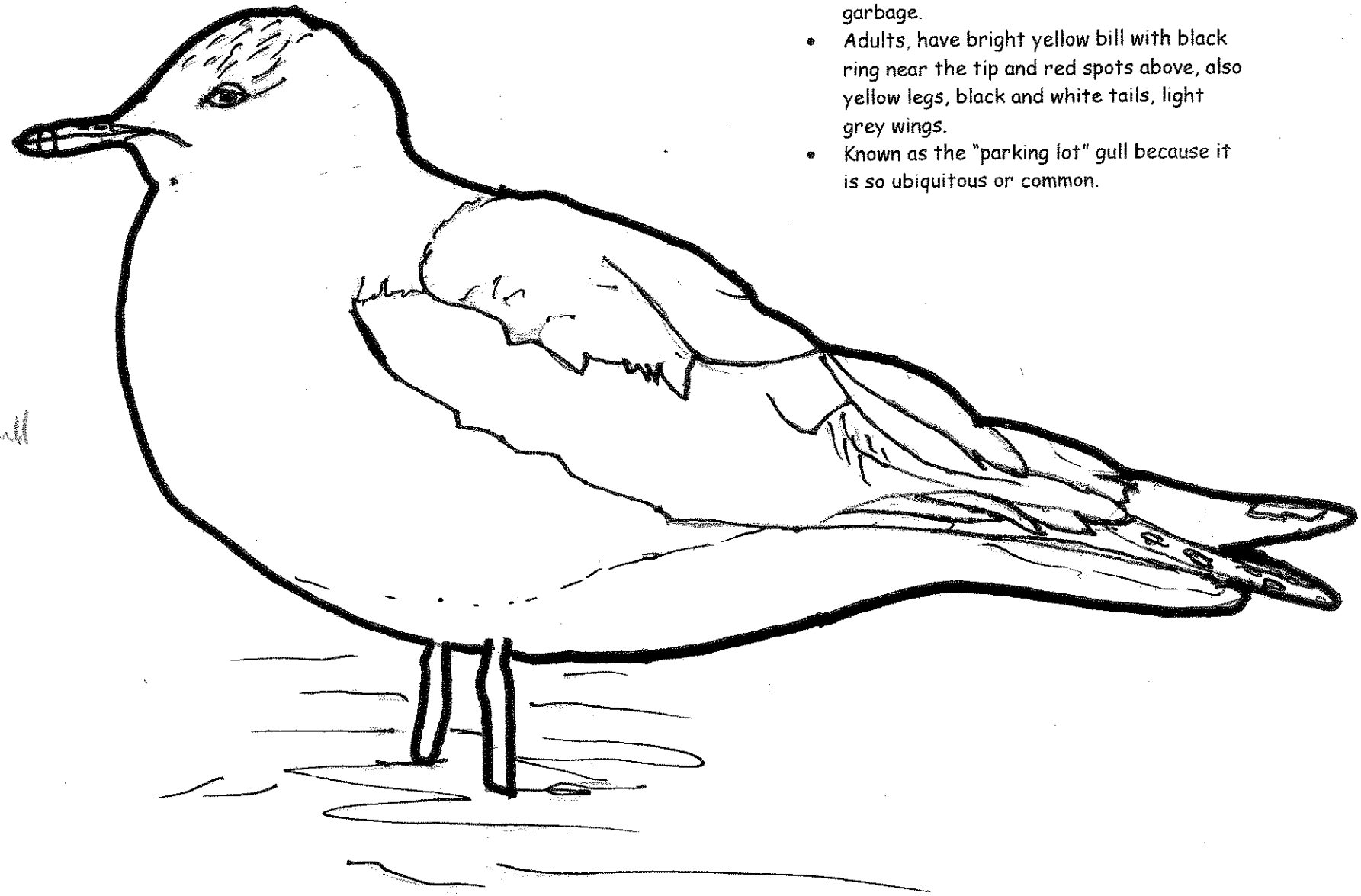
- Many will return to the same nesting site every year
- Drinks fresh water when it is available. If not, the gull will drink seawater. Special glands located over its eyes allow it to excrete the salt. The salty excretion can be seen dripping out of the gull's nostrils and off the end of its bill.
- Will eat fish, crabs, insects, eggs, other birds, plants, carrion and garbage.



James McCullough

Ringed Gull

- Will eat almost anything, including garbage.
- Adults, have bright yellow bill with black ring near the tip and red spots above, also yellow legs, black and white tails, light grey wings.
- Known as the "parking lot" gull because it is so ubiquitous or common.

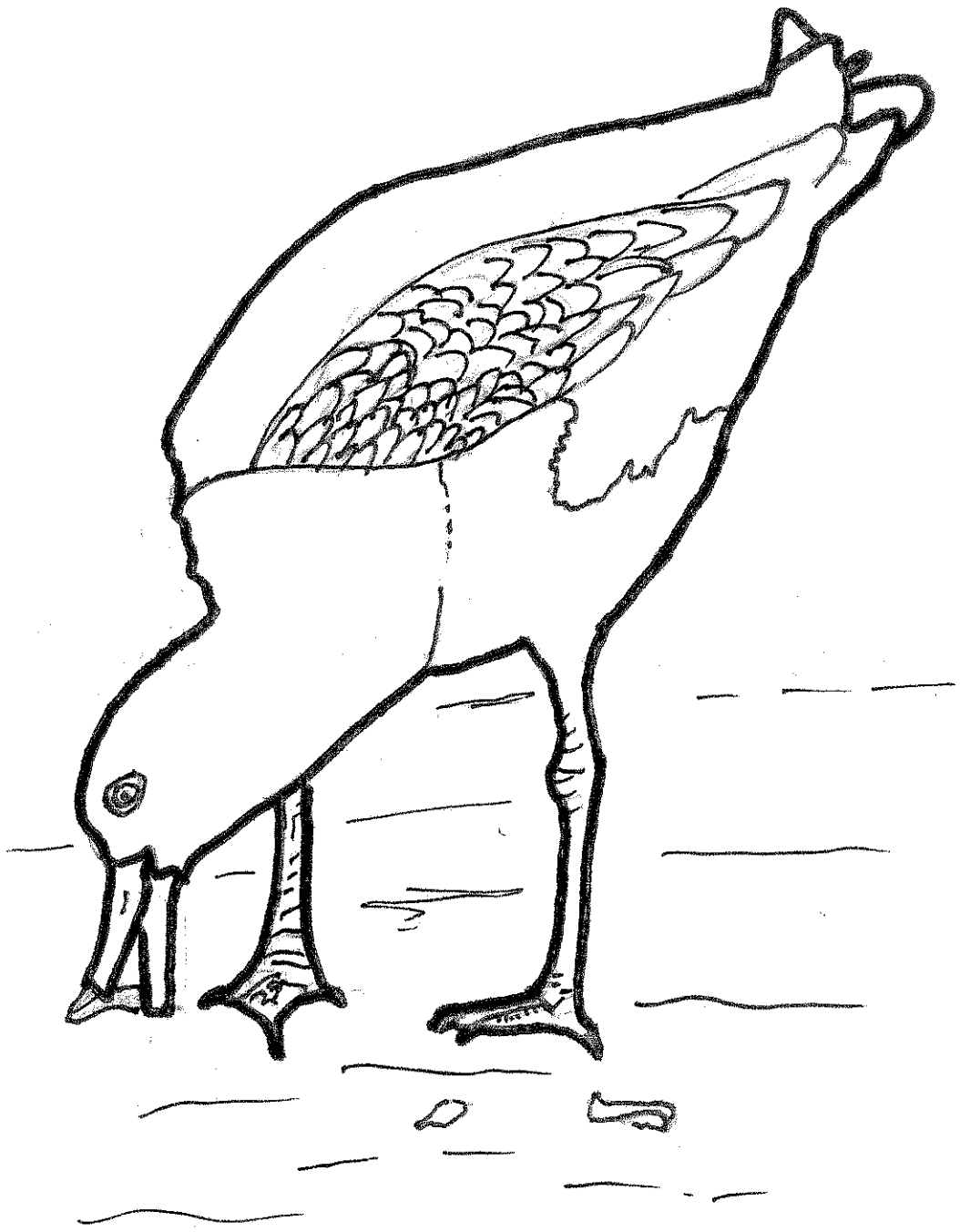


Ring-billed Gull

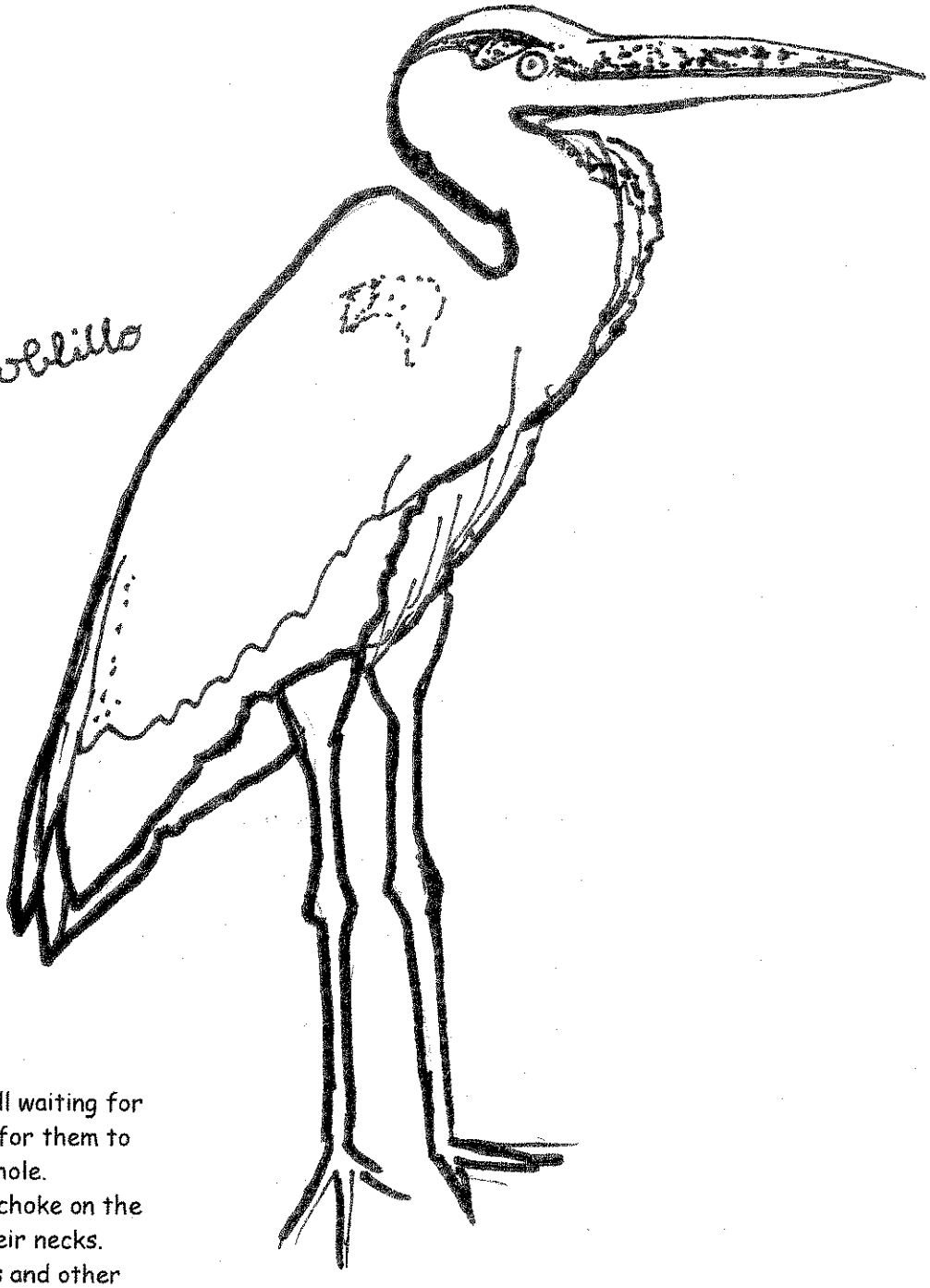
James McCullough

American Oystercatcher

- Lines its nest with rocks and bits of shell
- Eats clams, mussels as well as oysters
- It has yellow eyes, a red bill, pink legs, white belly, brown back, and black head.



James McCollough

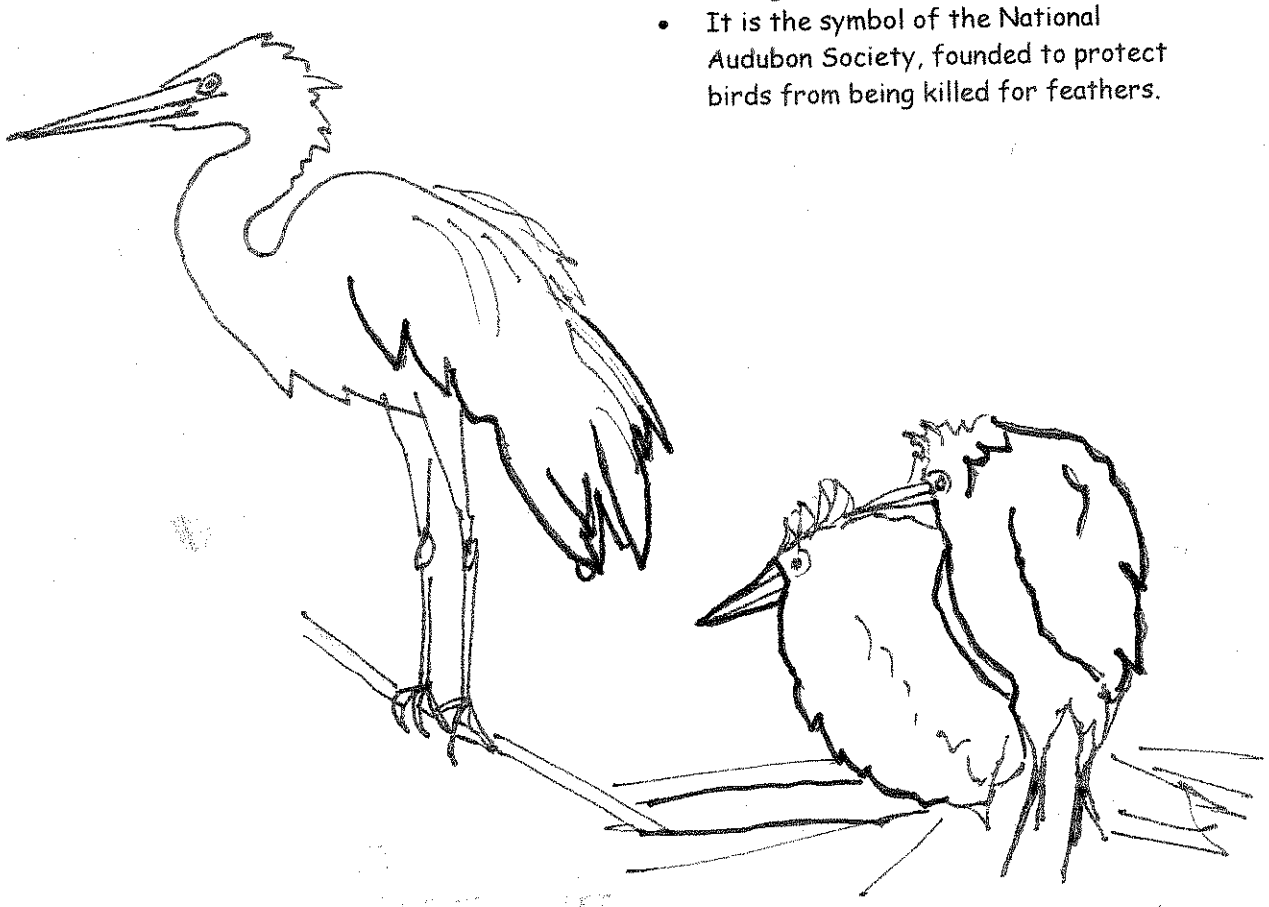


Great Blue Heron

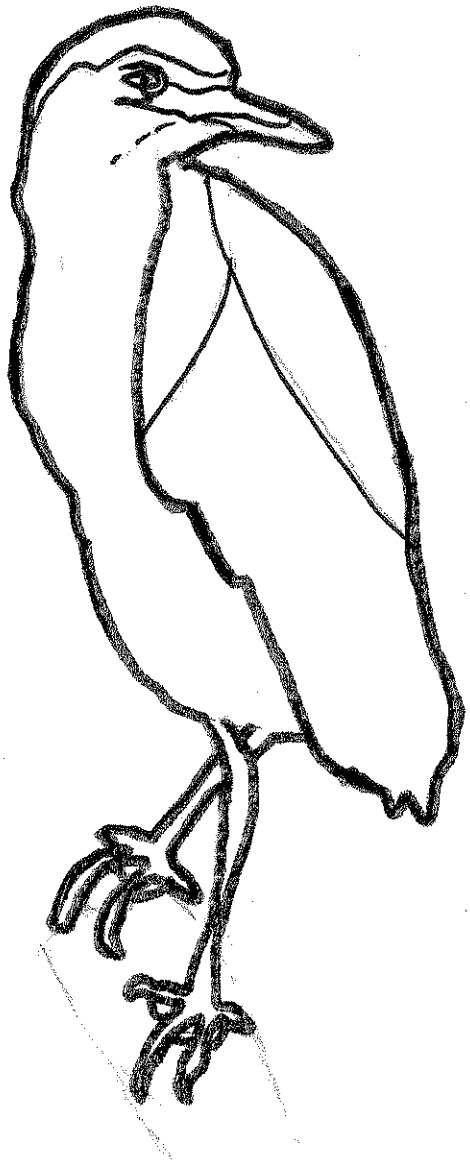
- Herons wade and stand still waiting for fish to come close enough for them to spear, and then, swallow whole.
- It is possible for birds to choke on the fish if it is too long for their necks.
- They also eat mice, insects and other small creatures.

Great Egret

- This white version of the Heron stabs its prey with its bill.
- Larger chicks frequently kill their siblings.
- It is the symbol of the National Audubon Society, founded to protect birds from being killed for feathers.



Javier Carrillo



Black crowned Night Heron

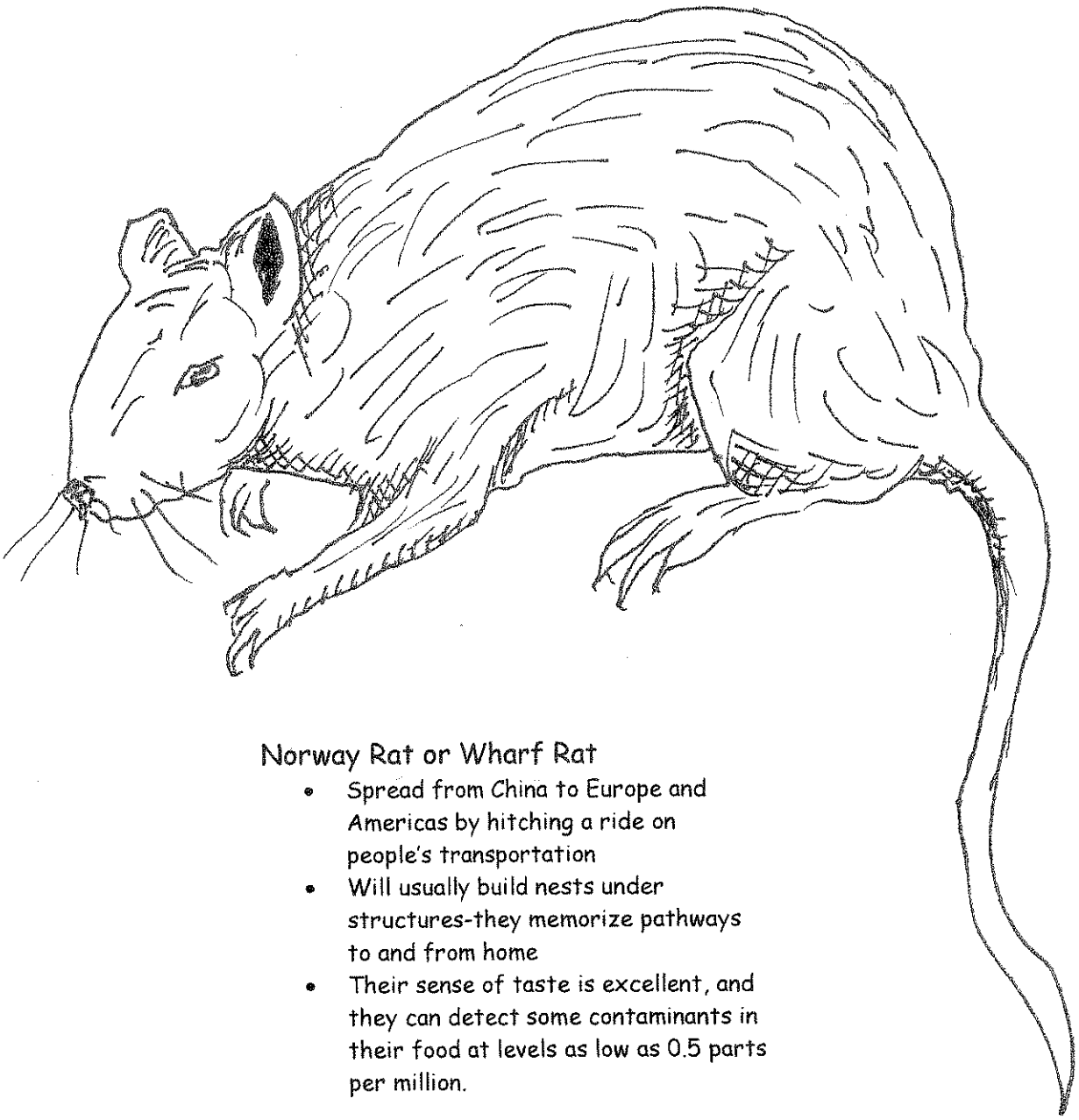
- Will vomit or disgorge when disturbed
- They feed at night and care for any chick in their nests, even if not their own.
- Their legs are yellow, eyes are red, front is white, back and top bill are grey green. Its eggs have green shells.

James McCollough

Laura Singleton

Cormorant

- Does *not* have waterproofing oil like other seabirds so they spend much of their time air drying their wings
- Collect debris including pebbles which they some time treat as eggs for their nests.
- In breeding colonies, young cormorants hang out in groups and only go back to their own nests for meal times



Norway Rat or Wharf Rat

- Spread from China to Europe and Americas by hitching a ride on people's transportation
- Will usually build nests under structures-they memorize pathways to and from home
- Their sense of taste is excellent, and they can detect some contaminants in their food at levels as low as 0.5 parts per million.

Jc

Information gathered from various internet resources including:

http://www.njmsc.org/Education/Lesson_Plans/Key
http://www.allaboutbirds.org/guide/Great_Egret/lifehistory

http://www.chesapeakebay.net
http://library.thinkquest.org/
http://www.squidoo.com
www.wikipedia.com
http://www.mbl.edu/marine_org/index.html
http://www.crittercontrol.com/facts/animals/norwayrats.html
http://www.gmri.org/index.asp

If you want to learn more about these kinds of animals or the East River estuary read

Heartbeats in the Muck by John Waldham
The Big Oyster- Mark Kurlansky
The Founding Fish - John McPhee
Rats- Robert Sullivan
Mannahatta - Eric Sanderson

Organisms still needed include:

American Eel
Bluefish
Mud Crab
Mummichog
Northern Sea Robin
Summer Flounder/Fluke
Weakfish

You may also research what lives in the East River and submit your own idea.
To submit send an email with your contact information and idea to tgilbert@eastrivercrew.org. She will reply with the information you need to complete your submission.