FISH PRINTING, the Art of Gyotaku

Before the invention of cameras, Japanese anglers recorded large or unusual specimens by making ink block reproductions of their catch, a practice called Gyotaku. Now your students can create Gyotaku without having to use real fish. All you need is block ink, a brayer, newspaper, art paper, and fish replicas. For dramatic prints, ink a replica with multiple colors.

Fish printing is a perfect way to combine science, art, mathematics, reading, and writing. Study fish diversity and anatomy, create beautiful prints, measure fins and count fin rays, and read and write stories about fish.

FISH PRINTING DIRECTIONS:

1. Cover your work area with newspaper.
2. Squeeze a small amount of block ink onto a paper or plastic plate.
3. Roll a brayer (roller) over the ink and then over the replica.
4. Provide even coverage to the entire replica surface, not too thick or thin. You may need to experiment to get just the right amount of ink on the fish. You can also color the scales with different colors of ink for dramatic effects.
5. To avoid smudges, lift the model and remove a layer of newspaper. Return the fish to the clean newspaper.
6. Either lay your Gyotaku printing paper over the top of the fish and gently press down, or turn the fish upside down and press it onto the paper.
7. In either case, do not slide or move the position of the paper until you are finished.
8. Gently lift your paper off the fish (or your fish off of the paper, depending on the technique you use) and place it on a clean surface to dry. Drying time varies depending on weather and room conditions.
9. To clean the replica, simply wash it with warm soapy water and dry it with a paper towel.

Acorn Naturalists offers block inks that clean up easily with just soap and water, as well as sturdy replicas and rubber brayers (ink rollers). For fish printing t-shirts, permanent fabric dyes are available at most craft stores.

FISH DESCRIPTIONS:

BLUEGILL. A large member of the sunfish family, bluegill can grow to several pounds and reach a length of 9-13 inches. Bluegill feed on small fish, insects, crustaceans, and worms. They tend to be very territorial, especially during breeding season when they lay thousands of eggs. Young bluegill are consumed by bass and other fish, as well as snakes, birds, and mammals. Native to North America, this species has been introduced widely throughout the world where it is often used as both a game and food fish.

CARP. Found in freshwater environments, carp range in size from inches to giants weighing up to 100 pounds. Omnivorous feeders, they consume plants, algae, snails, worms, insect larvae,

shrimp, mussels, and many other organisms. The common goldfish is a carp, as is koi which have been bred and kept as pets for centuries. Records show that carp were farmed for food in Asia as early as 400 B.C. E., and to this day serve as an important source of food in many countries. Carp grow slowly over time and have been known to live for over 100 years. Those found in North America are introduced and considered an invasive species.

DRUM. Found throughout North America in lakes and rivers, the drum is named from the drumming sound males make with their air bladders and surrounding muscle tissue. This sound often puzzles lake and river divers when they hear it for the first time. Drums can reach up to 25 pounds, with most averaging several pounds. Although thought of as a freshwater fish, drums occasionally move through estuaries into marine environments.

FLOUNDER. Found throughout the world's oceans, flounder are members of the flatfish family that contains over 500 different species. When young, all flatfish swim about in a normal fashion. Later, as they mature, they spend more time on the bottom; eventually their bodies become asymmetrical. The submerged eye literally migrates to the exposed side so that both eyes face up on one side of their body! Flounder blend into their surroundings, lying motionless on the sand until a small fish or crustacean comes by. They then move with amazing speed. Flounder are commonly found near the mouths of estuaries where they prey on small fish that move in and out with the tides.

GREEN SUNFISH. Green sunfish can grow to over a pound and reach a length of 9-11 inches. Feeding on small fish, insects, crustaceans and worms, they are very territorial, especially during breeding season. Young sunfish are consumed by bass and other fish, as well as snakes, birds and mammals. Green sunfish are native to North America east of the Rocky Mountains and from Canada's Hudson Bay Basin to the Gulf Coast of the United States and northern Mexico.

GROUPER. With a stout body, grouper are not built for long-distance swimming in open water. Rather, they lie in wait near rocky ledges, their mouth and gills forming a powerful sucking system that pulls prey in from a distance. They swallow their prey whole—the menu includes fish, octopus, crab, and lobster.

HOGFISH. Hogfish feed on small fish, shellfish, and crustaceans, and are often found in and around reef environments. Some of the larger varieties are occasionally caught on fish lines, but are generally released since most species are not considered "good eating."

JACK. Members of this group of fish are found in both tropical and temperate waters of North America and Mexico. Jacks show diverse morphology, from streamlined, fast-swimming bodies to laterally compressed, slow-moving bodies. This particular replica is of a small yellow jack. Yellow jack are found from New England to Florida and south to the Bahamas, Caribbean Sea, and Brazil. Young jack are sometimes found foraging in sandy shallows near reefs, either as solitary fish or members of a small school.

LARGEMOUTH BASS. A members of the sunfish family, largemouth bass are common in freshwater lakes throughout North America. They feed largely on fish, crayfish, and insect larvae, but their aggressive behavior causes them to strike at anything. Largemouth bass have even been known to eat young ducklings. If one includes all gear used to fish for bass, anglers

spend more money on largemouth bass fishing every year than all the money spent on golf and tennis combined!

NORTHERN PIKE. This voracious predator occurs in brackish and freshwater systems in North America. Its alternate name, water wolf, relates to its very aggressive hunting style. When introduced into lakes where it is not native, this fish can literally exterminate local fish populations, hence recent efforts to prevent unwanted introductions. Pike can reach 3-4 feet and weigh up to 55 pounds.

OPALEYE PERCH. Opaleye are heavy-bodied saltwater perch, olive green or gray-green in color with two light spots at the base of the dorsal fin. Averaging under a foot in length, these fish typically spend their first two years in tidepools before venturing out to subtidal reefs and kelp beds in Pacific waters off California and Mexico. Opaleye feed on small invertebrates, jellies, and even algae.

PERCH (Lake). One of the most common species of fish found throughout North America, yellow perch live in freshwater lakes and rivers. They feed on insects, small fish, and crustaceans. Averaging a foot in length and weighing several pounds, they are commonly found in fish markets. Lake perch also serve as an important food source for larger fish.

SALMON. Beginning their life in freshwater streams and rivers, salmon migrate to the sea to mature and eventually return to their birthplace to spawn. Known for their voracious appetites, they feed on smaller fish, as well as squid and other invertebrates. Salmon have been used extensively as a food source by humans for thousands of years. Habitat loss (destruction of spawning streams), overharvesting, and interbreeding with hatchery stock have all contributed to the decline of wild salmon populations.

SEA STAR (STARFISH). Sea stars come in a variety of sizes and shapes—from webbed bat stars to "stringy" brittle stars. Some stars are very small, while others exceed a diameter of several feet. A majority prey on shellfish, such as mussels and oysters whose shells are pried open with the sea star's suction-like tube feet. The sea star literally turns its stomach inside out and digests the food from within the shell, absorbing nutrients and then sucking its stomach back inside before moving on to its next meal. The textured surface of this animal makes for a beautiful and bizarre print.

SKATE. A member of the ray family, skates inhabit shallow to deep bottom waters throughout the world and can reach a length of six feet. Their empty egg cases often wash up on beaches—their shape earning them the nickname of "mermaid's purse." Skates are opportunistic feeders, consuming both live and dead fish, crustaceans, and mollusks. In certain countries they are consumed for food, although they are not fished commercially in North American waters.

SQUIRRELFISH. Named for their large squirrel-like eyes, squirrelfish are ray-finned fish. Multiple sharp, spiny rays appear before their dorsal fins, as well as in their pelvic fins. These brightly colored fish are nocturnal, hiding in crevices during the day and foraging for invertebrates and small fish along reefs during the night. They are found in tropical parts of the Indian, Pacific and Atlantic Oceans, with the greatest species diversity concentrated near reefs in the Indo-Pacific.

TROUT. Trout are probably one of the best-known North American freshwater fish. They live in cool, clean streams, although several species live in the ocean and spawn in freshwater environments, like salmon. The largest trout grow to over 50 pounds, and all species are predatory on smaller fish and insects. With the increasing popularity of catch and release trout fishing, many streams once again have large breeding specimens that spawn to help replenish local trout populations.

WALLEYE. Found throughout North America, this species is named for its large glassy eyes which glow at night in the light, much like cat eyes do. The walleye is the largest species of North American perch, reaching a weight of 25 pounds. Prized by anglers, this species is highly aggressive, streamlined, and fast. It makes a beautiful, well-defined print.

NOTE: All of these species have been specifically selected for fish printing purposes. Made from durable, flexible, washable material, these replicas are available from Acorn Naturalists. We also offer brayers and washable block inks in a rainbow of colors.

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