

# EIGHT WAYS TO NAME A FISH: A NATIVE FISH ENTHUSIAST'S GUIDE TO ZOOLOGICAL NOMENCLATURE

Christopher Scharpf

The ETYFish Project

I've been fascinated with the Latin (or scientific) names of fishes ever since picking up a copy of William T. Innes' *Exotic Aquarium Fishes* when I was a kid in the early 1970s.

My father dabbled in keeping tropical fishes, as did my oldest brother, who eventually tried his hand at saltwater aquaria when that hobby was still in its infancy. I enjoyed watching the fishes, but I also enjoyed thumbing through the pages of my father's one and only aquarium hobby book, a 1950s edition of Innes' classic reference.

The clarity of Innes' prose and the quality of the printing amaze me to this day. I love the book's dark green leatherette cover featuring an image of three *Rasbora* (now *Trigonostigma*) *heteromorpha* stamped in gold (Figure 1). I love the glossy pages and delicate typography. I love Innes' photography, austere black-and-white plates for most species, and hand-painted photos for many of the more-colorful ones. And I love the fact that the book introduced me to interesting aquarium fishes from right here in the USA, including the Everglades Pygmy Sunfish *Elassoma evergladei*.

Perhaps most of all I loved the fact that Innes provided name etymologies for the species he included. This was my introduction to zoological nomenclature. Not only did I learn (at a very early age) that each and every fish had a unique Latin or latinized name, but also that these names had meanings, that they told us something about the fish or the scientist who named it.

Fast-forward three decades. From 2005–2009, I published the five-part "Annotated Checklist of North American Freshwater Fishes" for *American Currents*. In addition to distribution, conservation status and other data, I also sought to indulge my fascination with fish names by including the name etymology of every included genus and species. That's when I noticed that while North America has arguably the most-studied, best-documented fish fauna in the world, the meanings of the names of these fishes were, in many cases, poorly or incorrectly known. This was especially prevalent in the names of fishes described in the 18th, 19th and early 20th centuries.

Take, for example, the specific name of the Bluegill *Lepomis macrochirus*, described by the French naturalist Constantine Samuel Rafinesque (1783–1840) in 1819. Using Greek and Latin dictionaries, it's easy to discern that the specific epithet is a com-

bination of two words: *macros*, latinized from the Greek μακρός, meaning long or large, and *chirus*, latinized from the Greek χείρως, meaning hand. In other words, "large hand." According to *The Fishes of Tennessee* by Etnier and Starnes (1994), the name is "probably in reference to the body shape." While the Bluegill can be said to be superficially hand-shaped, that is not a definitive explanation. Consulting another excellent fish book, *Fishes of Alabama* by Boschung and Mayden (2000), one gets a different but still inconclusive explanation: "apparently alluding to its long opercular flap, its long pectoral fin, or the outline shape of its body."



Figure 1. The book that introduced me to zoological nomenclature: my father's copy of *Exotic Aquarium Fishes* by William T. Innes. (I don't know the exact date or edition; the copyright pages fell out a long time ago.)

This article is adapted from "Adventures in Etymology," Christopher Scharpf's presentation at the 2023 NANFA Convention in Columbia, South Carolina, and his essay "A Fish-centric Guide to Zoological Nomenclature," available at The ETYFish Project website, [etyfish.org](http://etyfish.org).

I was surprised that one of the most common and widely distributed fishes in North America had a scientific name whose meaning at which professional ichthyologists could only guess.

Certain that Rafinesque had a specific meaning in mind when he coined the name, I consulted the original paper in which it was proposed. Thanks to the Internet, I quickly located a digitized copy of volume 88 of *Journal de Physique, de Chimie et d'Histoire Naturelle* from January 1819. There, on page 420, Rafinesque wrote (in French) that *Lepomis macrochirus* differed from the Green Sunfish *Lepomis cyanellus* in having longer pectoral fins that reach the anal fin. In ichthyological parlance, a “hand” is homologous to the pectoral fin.

I had learned a valuable lesson when it comes to understanding the scientific names of fishes. Do not rely on secondary sources, such as regional “Fishes of ...” books, no matter how good they are. Instead, *always begin with the original publication in which the name was proposed.*

### THE ETYFISH PROJECT IS BORN

When I “retired” from editing *American Currents* in 2009, I started to dig around the etymologies of names of fishes from other parts of the world. Were they as poorly known as North America’s? The answer was a resounding “Yes!”

Nowadays, clearly stating the etymology of a name is a standard part of new-taxa descriptions, but that was seldom the case for plants and animals described in the 18th, 19th and early 20th centuries. I am not sure why. Most biologists back then were classically trained in Latin and Greek, so maybe they thought it unnecessary to translate the names they coined. But even when you know the literal meaning of the name (e.g., “large hand”), how it applies to the fish is still often enigmatic. This intrigued me. A taxonomist devoted time and thought into describing a fish and assigning it a name, so the name must have a meaning. I wanted to pin that meaning down, like an insect to a mounting board. And not just North American fishes. All fishes (excluding fossils). In every class, order, and family. From every sea, river, brook, bay, billabong, continent, and country.

A new research project quickly took shape, one that no one else in the world had worked on or even attempted to work on, at least on such a large scale. I started with hagfishes and lampreys, worked my way through the sharks and rays, and on through the Order Cypriniformes (carps, minnows, suckers, loaches, etc.). Roughly 9,500 names. Ken Lazara, a prominent killifish hobbyist, Research Associate at the American Museum of Natural History, and fellow fish-name enthusiast helped me in the early stages until his health took a debilitating turn for the worse. (Ken passed away in 2020.)

In October 2013, I posted online the etymologies I had completed so far and officially announced The ETYfish Project (etyfish.org). Also, at that time, I started writing and posting at the site and on Facebook the “Name of the Week,” a short essay documenting my “adventures in etymology.” In September 2021, I completed my first pass through all the fishes. As of this writing, the ETYfish Project website covers 608 families, 5,256 genera, 342 subgenera, 35,760 species, and 488 subspecies. If you were to print all the PDFs I’ve posted online, you’d need a lot of paper: 2,365 pages.

Why am I doing this? Because I enjoy it. Because no one else has done it before. Because in my own small way I am contribut-

ing to ichthyological history. And, if I may borrow the famous answer English mountaineer George Mallory gave when asked why he wanted to climb Mount Everest, “Because it’s there.”

### THE ETYMOLOGY OF ETYMOLOGY

Before I delivered the presentation version of this article at the 2023 NANFA Convention, I rehearsed it in front of my wife Stephanie. Her first comment was, “You need to add a slide that explains the term ‘etymology.’ Not everybody is a word geek like you.” And so I did.

Etymology is the study of the origin of words and how their meanings have changed throughout history. It’s a combination of the Greek word *etymon* (ἔτυμον), meaning “true sense or original meaning,” and the Greek suffix *-logia* (-λογία), “a branch of learning.”

### ANATOMY OF A SCIENTIFIC NAME

Scientific names are sometimes referred to as “Latin” names. Since Latin was the language of scholarship in 18th-century Europe, scientific names were originally written in Latin or in latinized Greek.

A scientific name must always be shown in *italics*, underlined (now rare but common in typewriter days), or else set apart in some fashion so that you know it’s a scientific name. The generic name (the genus) always starts with a capital letter; the specific or trivial name (the species) is always lower case. Sometimes the generic and specific names are the exact same words, e.g., *Catostomus catostomus* (Forster 1773), the Longnose Sucker. These names are called tautonyms. Interestingly, tautonyms are prohibited in botanical nomenclature.

Often you will see scientific names with the author’s name and the date of authorship following it. An author is the person (or persons) who first officially proposed the name in a publication. Often the author’s name is given in parentheses (as in the Forster example in the paragraph above). This means that the species has been assigned to a genus other than the one in which it was originally described. (Forster originally named the sucker *Cyprinus catostomus* thinking it was a type of *Cyprinus*, or carp.)

When a species is divided into two or more subspecies, a third word is added to its name. The third name of the nominate, or original, form of the species repeats the specific name, as in *Esox americanus americanus* Gmelin 1789, the Redfin Pickerel. Any subsequently described subspecies are assigned a third name that’s different, as in the Grass Pickerel, *Esox americanus vermiculatus* Lesueur 1846.

### FORMING NAMES: A FEW SIMPLE RULES

The rules for coining or forming a scientific name, as codified by the International Commission on Zoological Nomenclature (ICZN), are actually quite simple.

1. The name must be written in the Latin alphabet (as opposed to Arabic, Chinese, and other languages that employ a different lettering system).
2. The name must be at least two letters long. Numbers and diacritical marks are not allowed. (But hyphens are okay; e.g., the North American minnow *Erimystax x-punctatus*, named for its x-shaped spots.)

3. The name must be pronounceable. *Tahuantinsuyo* *macantzatza* (a cichlid from Peru) may be a tongue-twister, but that's okay. Naming a fish "dpjlyzpyk" is not.
4. The name must be non-offensive. No profanities and no racial, ethnic, sexual, political, and religious slurs or connotations. Naming a fish after someone who harbors racist or other offensive views (as many animals were in 19th- and early 20th-century America, when such views were the norm among educated elites) is acceptable (begrudgingly, in my opinion) as long as the description does not explicitly honor the person for such views.
5. The name is unique among animals. No two genera of animals can have the same genus name, and no two species within the same genus can share the same trivial epithet. For example, let's say you wanted to name a new species of darter in honor of 2023 Convention organizer Dustin Smith, "*Etheostoma smithi*." Well, you can't, because there already is an *Etheostoma smithi*, the Slabrock Darter, described by Page & Braasch in 1976. In order to honor Dustin, you'd have to be a bit more creative. "*Etheostoma dustinsmithi*," perhaps.

That's it, really. Coining a name for a new genus or species isn't all that complicated. Knowing and proving you have a genus or species that *warrants* a new name, however, is another matter entirely.

#### EIGHT WAYS TO NAME A FISH

An ichthyologist sits in her lab examining a fish that represents a new genus, a new species, or perhaps both. What to name it? She considers the fish itself for inspiration. What's the first thing you notice about it? What makes it different from other fishes? Where is it from? How does it spawn? Or maybe she considers something not about the fish but about herself. Who does she love? Who does she admire? Who nurtured her interest in ichthyology? What were the circumstances, personal or professional, that led to *this* fish ending up in *her* lab awaiting its formal inclusion in the grand registry of Life on Earth?

Whatever name she decides upon, it will likely fall into one of these eight broadly defined categories: Descriptive. Biological. Systematic. Anthropocentric. Commemorative. Toponymic. Vernacular. And a miscellaneous category called Nonsensical. These are informal categories of my own invention based on my analysis of over 42,800 currently valid genus- and species-level fish names. There is a lot of variation within these categories, and some names borrow elements from more than one. My objective in delineating these categories is simply to illustrate—and in so doing take pleasure in—the many ways ichthyologists have named the fishes of the world.

Below are examples that illustrate the eight types of names. Since this is NANFA, examples (except for two) are from the fresh waters of North America.

##### 1. DESCRIPTIVE NAMES

Descriptive names are those that refer in some way to a physical characteristic possessed by the genus or species in question. This could be color, color pattern, size (Figure 2), shape, anatomy, proportion, peculiarity, general appearance, and more.

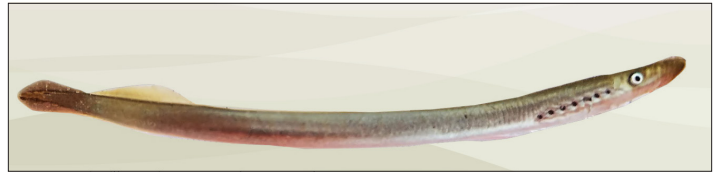


Figure 2. Some descriptive names refer to a fish's size. The specific epithet of the Miller Lake Lamprey *Entosphenus minimus* (Bond & Kan 1973) is the Latin word for "least." Up to 15.4 cm, it's the smallest known parasitic lamprey in the world. (Photo by Benjamin Clemens, Oregon Department of Fish and Wildlife, used with permission)

Most zoological epithets are descriptive in nature. That's what "describing" a species is all about. While many such names indicate a diagnostic character that helps to distinguish a taxon from its nearest relatives, this is not a requirement. If spots are the most noticeable feature of a fish, but all of its closest relatives are spotted as well, there's no rule against naming it *maculatus* or *punctatus* (both Latin adjectives meaning spotted)—assuming, of course, those names have not already been used in the genus.

Some descriptive names are easy to understand. The Black Bullhead *Ameiurus melas* (Rafinesque 1820) is named *melas* (Latinized from the Greek μέλας) because it is black. But others require a little more work. The common name of the Rainbow Darter *Etheostoma caeruleum* Storer 1845 may refer to its delightful combination of colors, but its specific epithet, Latin for sky blue (or blue in general), refers to one color in particular: the blue on the cheeks and sides of breeding males.

Many descriptive names refer to a particular aspect of a fish's anatomy. Rafinesque (he of the Bluegill mentioned above) proposed the hogchoker genus *Trinectes* in 1832. Numerous books and websites will tell you that *Trinectes* is a combination of *tri-*, the Latin prefix for "three," and the Greek *néktēs* (νήκτης), meaning "swimmer." What most references fail to explain is what "three swimmer" actually means. (Does the fish swim in groups of three?) The answer lies in Rafinesque's one-sentence description: "... it has only three fins, dorsal, anal and caudal." Clearly, Rafinesque referred to the fact that the specimen he examined (now known as *T. maculatus*) lacked pectoral fins (although present but rudimentary on some specimens) and, therefore, had only three fins with which to swim.

Some descriptive names are subjective in nature, reflecting the author's opinion of the appearance of the fish rather than any measurable, quantifiable character. The specific name of the Gilt Darter *Percina evides* (Jordan & Copeland 1877) is Latin for "pretty." The authors called it "one of the most beautiful of all the darters." I agree.

Many fishes are named for their similarity to other fishes. Many (but not all) such names include the Latinized Greek suffix *-oides*, meaning like, resembling, or having the form of. Here are three examples. The specific epithet of the Goldeye *Hiodon alosoides* (Rafinesque 1819) means that the fish resembles the shad genus *Alosa*. The Blackbanded Sunfish *Enneacanthus chaetodon* (Baird 1855) is named for its resemblance (superficial, in my opinion) to the marine butterflyfish genus *Chaetodon*. The Trout-perch genus *Percopsis* Agassiz 1849 is a combination of



Figure 3. The Greek word for bull or ox (*boús*, βούς) is often metaphorically used to mean “big.” The Bigeye Shiner *Minielus boops* (Gilbert 1884) is named for its large *óps* (ὄψ), or eye. The name is pronounced boo-ops and not boops (as in Betty Boop). (Photo by Uland Thomas)

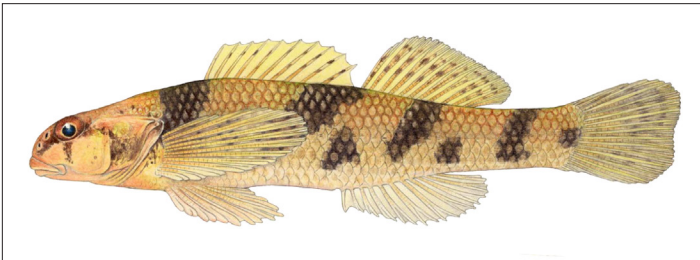


Figure 4. The specific epithet of the presumed-extinct Maryland Darter *Etheostoma sellare* (Radcliffe & Welsh 1913) is Latin for “saddled,” referring to its four dorsal saddles. (Illustration by David Neely)

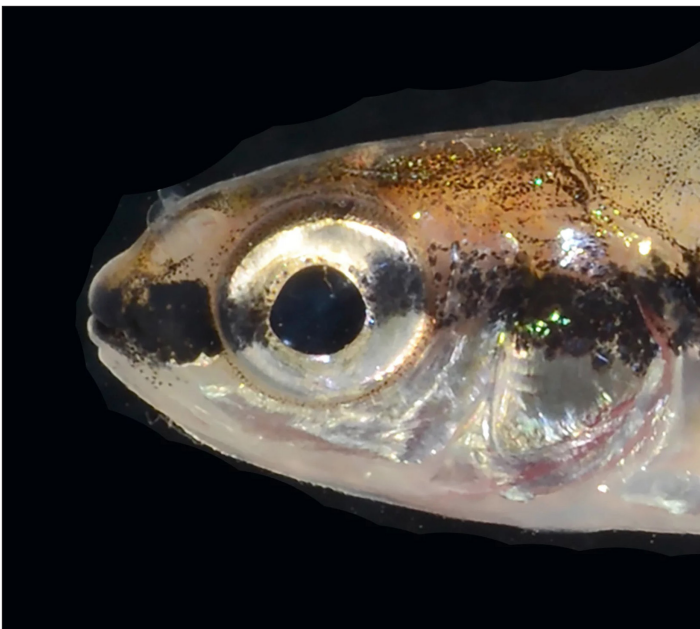


Figure 5. The Bridle Shiner *Notropis bifrenatus* (Cope 1867) is named (*bi-*, two; *frenatus*, bridled) for the black bridle-like preocular bars that unite across the snout. But why two instead of just one? Cope also described an orange band above the black one, so maybe that was bridle #2. (Photo by Fritz Rohde)

the Latin *perca* (originally from the Greek *pérkē*, πέρκη), meaning “perch,” and the Greek *ópsis* (ὄψις), meaning “appearance,” i.e., perch-like, with the adipose fin of a salmon and the jaws and ctenoid scales of a perch.

Fishes may also be named for non-fish animals (Figure 3).

This practice is found in virtually every language and dates to the ancient Greeks, indicating that it was common to name unfamiliar fishes based on their resemblance to familiar animals that live on land, including dogs (*canis*), cats (*felis*), pigs (*porcus*), horses (*equinus*), zebras (*zebrina* and *quagga*), weasels (*mustelinus*), hedgehogs (*erinaceus*), eagles (*aquila*), guinea fowl (*meleagris*), parrots (*psittacus*), snakes (*ophis*, *serpens* and *viper*), frogs (*batrachus*), butterflies (*papilio*), and many others. No one as far as I know has named a land animal after a fish.

Names that compare fishes to everyday objects are also common. Zoological nomenclature began in the day when horses were the primary mode of transportation, which may explain why saddles (Latin, *sella*) and bridles (Latin, *frenum*) are often evoked in fish names proposed in the 18th and 19th centuries. Among all the fishes of the world, I count at least eight named for the saddle-like markings on their backs (Figure 4) and 18 for the bridle-like markings on the sides of their heads (Figure 5). Other items common in these times are also well-represented, including knives (*culter*), swords (*xiphos*), saws (*serra*), plowshares (*vomer*), and wool cards (*carminifer*, i.e., bearing a wool card). Do you think any contemporary ichthyologists will name a fish after a gadget that’s in vogue today? Earbuds, maybe? A webcam? A wireless gaming mouse?

## 2. BIOLOGICAL NAMES

Many fishes are named for some aspect of their biology: how they eat, what they eat (and what eats them), how long they live, how they swim, which habitat they prefer, if and when they migrate, and so on. Biological names presuppose that the describer has observed the fish in life (in an aquarium or ideally in the wild), but this isn’t always the case. Inferring behaviors from dead specimens in jars has led to at least one unfortunate name. (This example is not from North America but it’s too good to pass up.) In 1897 German-Dutch zoologist Max Weber (1852–1937) named an African minnow *Barbus* (now *Enteromius*) *viviparus*, believing it represented the first documented instance of viviparity (giving birth to live young) amongst an otherwise oviparous (egg-laying) group of fishes. In 1943, South African zoologist Keppel Harcourt Barnard (1887–1964) set the record straight when he discovered that fry with yolk sacs from a mouth-brooding cichlid, presumably collected at the same time, had been preserved in the same tube as the minnow! Although a misnomer, the name remains nomenclaturally valid. (See below for more misnomers.)

Unlike *Enteromius viviparus*, these five examples of specific epithets based on behavior or life history are all biologically accurate:

- Pit-Klamath Brook Lamprey *Entosphenus lethophagus* (Hubbs 1971); *lêthē* (Gr. λήθη), forgetfulness, and *phagus*, latinized from *phagein* (Gr. φαγεῖν), to eat, i.e., not eating, referring to non-parasitic adults, which do not eat before they spawn and die
- Blueback Herring *Alosa aestivalis* (Mitchill 1814); *aestivalis* = Latin for “of the summer,” presumably referring to its later spawning run compared with the spring spawning run of *A. pseudoharengus* (Mitchill called it the “Summer Herring”)

- Freshwater Drum *Aplodinotus grunniens* Rafinesque 1819; *grunniens* = Latin for “grunting,” referring to the drum-like sounds that resonate from its swim bladder
- Blackstripe Livebearer *Poeciliopsis prolifica* Miller 1960; *prolifica* = Latin for “prolific,” referring to its production of frequent broods (as many as six per month)
- Guardian Darter *Etheostoma oophylax* Ceas & Page 1992; *ōn* (Gr. ὄν), egg, and *phylax* (Gr. φύλαξ), guard, referring to the tenacious egg-guarding behavior of breeding males.

North America is teeming with fishes named for their habitat. Here are five examples from among many:

- Sea Lamprey *Petromyzon marinus* Linnaeus 1758; *marinus* = Latin for “of the sea,” referring to its marine habitat (as a non-breeding adult)
- Longnose Dace *Rhinichthys cataractae* (Valenciennes 1842); *cataractae* = Latin for “of a cataract or cascade,” i.e., waterfall, described from a specimen collected near Niagara Falls
- Torrent Sucker *Thoburnia rhotioeca* (Thoburn 1896); *rhóthos* (Gr. ῥόθος), rushing, and *eco-*, from *oikos* (Gr. οἶκος), house or home, referring to its preference for swift water
- Brook Trout *Salvelinus fontinalis* (Mitchill 1814); *fontinalis* = of or belonging to a *fontana* (Latin), spring or fountain, referring to its fondness for cold, spring-fed water
- Bear Lake Whitefish *Prosopium abyssicola* (Snyder 1919); *abyssus* (Latin), bottomless pit or abyss, from *ábyssos* (Gr. ἄβυσσος), the deep sea, and *-cola* (Latin), dweller or inhabitant, referring to its occurrence near the bottom in the deeper waters of Bear Lake at the Utah-Idaho border.

A handful of biological names refer to a fish’s abundance or scarcity in the wild. The specific name of the Rio Grande Sucker *Pantosteus plebeius* (Baird & Girard 1854) is Latin for “common-place,” referring to its abundance in the 1850s (it is far less abundant today). The La Trinidad Pupfish *Cyprinodon inmemoriam* Lozano-Vilano & Contreras-Balderas 1993 vanished from existence shortly after its discovery in 1983. It occurred in Ojo de La Trinidad, an isolated desert spring in Nuevo León, Mexico. The spring was already drying up, so the authors collected only a single specimen to minimize impact, intending to collect additional specimens later. Upon their return in 1986, the spring was dry due to water extraction, and the species was gone. “*Inmemoriam*” is Latin for “in memory.”

### 3. SYSTEMATIC NAMES

Systematics is the science of naming and classifying organisms based on their common ancestry (i.e., evolutionary relatedness). I define systematic names as those dealing in some way with how the taxon in question was identified, described, named, classified, or placed in a phylogenetic “tree” or diagram. There aren’t many examples from the freshwater fishes of North America, but these two will suffice:

The Corrugated Darter *Etheostoma basilare* Page, Hardman & Near 2003 occurs in the Caney Fork system of the Cumberland River drainage of Tennessee. Its specific epithet is Latin for “at the

base,” referring to its relatively basal phylogenetic position in the Barcheek Darter species group. (A basal clade is the earliest clade to branch in a larger clade; it appears at the base of a cladogram.)

The Middle American killifish genus *Profundulus* was proposed by Carl Hubbs (1894–1979) in 1924. Several online references (e.g., FishBase) tell you that name is derived from the Latin *profundus*, meaning “deep.” They are wrong. If the authors of these references had consulted Hubbs’ original description, they would have discovered that the name is a combination of the Latin prefix *pro-*, meaning “in front of or before,” and the name of the topminnow genus *Fundulus*. When combined with an established generic name, the prefix *pro-* often connotes a taxon that is believed to be “ancestral” compared with related genera (e.g., *Proeutropiichthys*, *Propimelodus*). Such is the case here. While Hubbs did not explicitly explain the etymology of the name, he did say “it seems not improbable that *Profundulus*, of all American genera, diverges least from a general ancestral cyprinodont type.” While *Profundulus* and *Fundulus* are now placed in separate families (Profundulidae and Fundulidae), they were considered confamilials in 1924. It seems pretty clear that Hubbs named *Profundulus* because he believed it was an older, ancestral genus, figuratively “in front of” or “before” *Fundulus*.

### 4. ANTHROPOCENTRIC NAMES

Anthropocentric (human-centered) names are those that refer in some way to a fish’s importance to humans. Is it good to eat? Is it recreationally or commercially important? Does it pose a danger to human health or safety (Figure 6)? Not many names fall into this category, but here are three:

Pickled, smoked, salted, canned, or planked (broiled over a charcoal fire), the American Shad *Alosa sapidissima* (Wilson 1811) of the Atlantic Coast of North America (and introduced elsewhere) lives up to its name: *sapidissima* is Latin for “most delicious,” the very two words Wilson used to describe its palatability. The name of the closely related Hickory Shad *Alosa mediocris*



Figure 6. You don’t need to be a Latin scholar to understand that the name of the Carolina Madtom *Noturus furiosus* Jordan & Meek 1889 means “furious” or “mad.” The name may be a nod to its “madtom” vernacular, but more likely refers to the authors’ belief that the “poison of its axillary gland is more virulent” than that of other madtom species. (I assume they scientifically tested this hypothesis by pricking themselves?) (Photo by D. Biggins, US Fish and Wildlife Service)

(Mitchill 1814) is Latin for “mediocre,” referring to its taste or food value as compared with *A. sapidissima*.

The Pond Smelt *Hypomesus olidus* (Pallas 1814) has a limited distribution in North America, being restricted to the west coast of Alaska and the lower Mackenzie River drainage of the Northwest Territories. Many references tell you that *olidus* means “oily.” It does not. It means “smelly.” (*Oleaceus* means oily.) And while the Pond Smelt does indeed have oily flesh, Pallas did not mention this fact in his description. In fact, he made a point of saying, “Totus male olet.” Translation: “Smells very bad.” The Pond Smelt, like most members of the smelt family, smell like cucumbers. Some people like the smell. Pallas apparently did not.

It’s easy to see why so many people believe *olidus* means smelly. After all, the fish is called a smelt! But as fitting as it seems, “smelt” is not derived from “smell” or “smelly.” Instead, it appears to be derived from the Old Dutch *smalt*, meaning grease or melted butter, referring to how the fish’s oily flesh gives it a “melt in your mouth” texture.

To summarize: While “smelt” in general means oily not smelly, the Pond Smelt’s specific name means smelly not oily.

## 5. COMMEMORATIVE NAMES

A diverse but controversial category of animal names is that which honors or commemorates people. A taxonomist is free to name a genus or species after anyone she desires: colleague, collector, mentor, benefactor, philanthropist, helper, spouse, lover, parent, sibling, offspring, mythical or fictional character, favorite writer, composer, musician, painter, actor, politician, the list goes on and on. Such names are called eponyms (or matronyms for women and patronyms for men).

Some zoologists dislike eponyms. They believe the Earth’s biodiversity is part of a global heritage that should not be trivialized by association with any single human individual, whatever their perceived worth. Others believe such names do not reveal useful information about the taxon being described. Instead, eponyms reveal information about the describer, as if the taxon *belongs* to the person who decided it needed a name. Other zoologists take a middle ground. They don’t mind taxa being named after someone who has a legitimate connection with the new species or the taxonomic group to which it belongs: a goby expert, perhaps, for a new species of goby, or an intrepid explorer who risked life, limb and dengue fever to bring an unknown jungle catfish back to the lab. What they do find irritating are eponyms they consider irrelevant. Yes, John Lennon was a great singer-songwriter. And yes, his murder in 1980 was tragic and pointless. But what does any of this have to do with the Chacamero Splitfin *Ilyodon lennoni* of Guerrero, Mexico, named for Lennon by Meyer & Förster in 1983?

Whatever your opinion of eponyms, they are usually structured in one of three ways, as illustrated in this hypothetical example, a freshwater eel named after the American marine biologist, author and conservationist Rachel Carson (1907–1964): “*Anguilla carsonae*” (a noun in the genitive case: “Carson’s eel”), “*Anguilla carson*” (a noun in apposition: “the eel Carson”) or “*Anguilla carsoniana*” (adjective: “the Carsonian eel”). Note that the genitive noun has the feminine case ending “-ae.” If an eel were named after Carson’s fellow biologist-author-con-

servationist Aldo Leopold (1887–1948), the masculine case ending “-i” would apply: “*Anguilla leopoldi*.” Eponyms named after multiple people receive a plural case ending: *-orum* for two or more men, *-arum* for two or more women, and *-orum* for men and women. These rules are set forth in the International Code of Zoological Nomenclature, but not all taxonomists follow them, either through ignorance, carelessness, or choice. (There are specialized exceptions to these rules, but explaining them would cure insomnia.)

I could easily fill this issue of *American Currents* with the stories of interesting people who’ve been honored in the names of North America’s fishes. Here are three that make me smile:

- Arroyo Chub *Gila orcutti* (Eigenmann & Eigenmann 1890), in honor of naturalist Charles Russell Orcutt (1864–1929), who collected the holotype using a *blanket* as a seine!
- Dixie Chub *Semotilus thoreauianus* Jordan 1877, in honor of author-philosopher Henry David Thoreau (1817–1862), for penning this wonderful passage in 1842: “I am the wiser in respect to all knowledge, and the better qualified for all fortunes, for knowing that there is a minnow in the brook” (from the essay “Natural History of Massachusetts”).
- Palomas Pupfish *Cyprinodon pisteri* Miller & Minckley 2002, in honor of fisheries biologist Edwin Philip (“Phil”) Pister (1929–2023); the authors wrote: “For almost four decades, Phil Pister has unerringly and effectively performed the daunting task of preserving the integrity of natural aquatic habitats and biotas in North American deserts, along the way teaching others to do the same. His infectious and tireless persistence, enthusiasm, optimistic outlook, and unique capability to redirect conflicting views toward common goals have led to significant and enviable successes in equating science and a strong environmental ethic with political reality.”

Sometimes the author conceals the commemoration. For over 130 years, the specific name of the Yellow Bullhead *Ameiurus natalis* Lesueur 1819 was believed to mean “having large nates or buttocks.” Unfortunately, this explanation is based on the incorrect assumption that *natalis* is the adjectival form of *natis*, a Latin noun for rump or buttocks. A careful examination of Lesueur’s original description, however, reveals that *natalis* is a Latin adjective meaning “of or belonging to birth,” often used in association with the Christian holiday of Christmas (Noel in French). By naming this catfish *natalis*, Lesueur was in fact honoring his fellow Frenchman and colleague, fisheries inspector Simon-Barthélemy-Joseph Noël de La Morinière (1765–1822). See my article in the Spring 2020 *American Currents* for the complete story behind this long-misunderstood name.

Commemorative names are not limited to individuals. They can honor cultures or groups of people as well. One of my favorite names is that of the Umpqua Chub *Oregonichthys kalawatseti* Markle, Pearsons & Bills 1999, endemic to the Umpqua River drainage of Oregon. I like the name’s evocative touch of poetry, history, and even justice. Say its describers, “Oregon once had a remarkable diversity of native peoples with more native languages than all of Europe. The Kalawatset, a tidewater Umpqua people best known for attacking Jedidiah H. Smith in 1828, were part of

this lost human diversity and serve to forewarn of a parallel decline in diversity of Oregon's native freshwater fishes.”

In addition to people, commemorative names can also honor expeditions, ships, schools, museums, organizations, or any other institution or event that the describer deems worthy of recognition. Acronyms figure prominently in institutional names. The Australian rainbowfish *Melanotaenia angfa* Allen 1990 is named for NANFA's sister organization down under, ANGFA, the Australia New Guinea Fishes Association.

I think it's high time NANFA has a species named in its honor. Don't you?

## 6. TOPONYMIC NAMES

Many fishes are named for where they occur, not their habitats or biomes, but where they are distributed across the regions and localities of the Earth. In other words, where they are found on a map. Often these names refer to a specific (e.g., creek, village, island) or general (e.g., ocean, river system, state) area where the fish was first collected (the type locality), although it should be noted that the fish may occur elsewhere. Such names are called toponyms, from the Greek *tópos* (τόπος) place, and *ónoma* (ὄνομα) name.

Toponyms usually end with one of three adjectival suffixes whose terminal spellings vary depending on the gender of the genus (masculine, feminine, or neuter): *-anus*, *-ana*, *-anum*; *-icus*, *-ica*, *-icum*; and the most commonly used toponymic suffix, *-ensis* or *-ense* (*-ensis* is both masculine and feminine). There are subtle differences between the forms but no rules dictating how they're to be used. Toponyms ending in *-anus* and *-icus* (Latin for “belonging to”) tend to refer to larger geographic areas or political entities. For example, the Redfin Pickerel *Esox americanus* Gmelin 1789 is named for America in order to distinguish it from the circumpolar Northern Pike *Esox lucius* Linnaeus 1758, the only other pike known at the time. Compare this with *-ensis*-style toponyms (from a Latin suffix meaning “from”), which tend to refer to more specific locations. The Waccamaw Killifish *Fundulus waccamensis* Hubbs & Raney 1946 is named for Lake Waccamaw, North Carolina, the only place it occurs.

Taxonomists may choose to dispense with adjectives in favor of nouns in apposition. The Topeka Shiner *Miniellus topeka* (Gilbert 1884) is named for Topeka, Kansas, its type locality.

Some toponyms do not refer to a place but to a direction. Examples include *borealis* and *septentrionalis* (northern), *orientalis* (eastern), *australis* and *meridionalis* (southern), and *occidentalis* (western). Such names are usually given when describing a fish's distribution relative to one or more congeners. The Southeastern Blue Sucker *Cycleptus meridionalis* Burr & Mayden 1999 is named for its restricted geographic range in the southeastern US relative to its more-broadly and northerly distributed congener, Blue Sucker *Cycleptus elongatus* (Lesueur 1817).

## 7. VERNACULAR NAMES

Many fishes are named after what they are called, or were called at the time they were described, by the general populations in their countries of origin. Some vernacular names date to ancient times (e.g., *Anguilla* is Latin for eel). Others reflect local or indigenous



**Figure 7.** The Atlantic Tomcod was described from 18th-century New York, where locals called it “tomcod.” Its “Latin” or scientific name is *Microgadus tomcod* (Walbaum 1792). Walbaum made no attempt to Latinize the name, e.g., “*tomcodus*.” (Photo by Dave Neely)

names. Several Pacific salmon of the genus *Oncorhynchus*, which occur in both Russian and American waters, have distinctly Russian names—*gorbuscha*, *keta*, *kisutch* (pronounced *keez-utch*), *nerka*, and *tshawytscha* (pronounced *cha-vee-cha* or *cho-wee-cha*)—based on what locals called them in the Kamchatka Peninsula in the 16th century.

Non-Latin vernacular names do not need to be “latinized” in order to be valid “Latin” or scientific names (Figure 7). Some ichthyologists disagree. John C. Bruner (University of British Columbia) published an article in the June 2021 issue of *Fisheries* magazine arguing that the Walleye and Sauger genus *Sander* Oken 1817 should be changed to *Stizostedion* Rafinesque 1820 for a number of perceived technical violations, the most significant being the fact that “sander” is a common name for a related species, the European Zander *S. lucioperca* (Linnaeus 1758), used in Latvia. Collaborating with German ichthyologist Ronald Fricke (Staatliches Museum für Naturkunde), I penned a rebuttal to Bruner's article (*Fisheries*, April 2022), detailing the flaws in Bruner's argument and demonstrating that countless currently valid fish genera have names that mirror, letter for letter, their common names somewhere in the world. The Burbot, for example, known scientifically as *Lota lota* (Linnaeus 1758), is based on “lota,” a common name for cod that dates to the Renaissance. Send me an email and I'll send you both articles. Judge for yourself.

## 8. NONSENSICAL NAMES

Sometimes taxonomists abandon their Greek and Latin dictionaries for names of their own devising, or borrow words or names from other sources without any significance to the taxon being described. Such nonsensical names are common among mega-diverse taxa (e.g., insects) but occur in fishes as well.

My go-to example of nonsensical naming belongs to French-American ichthyologist Charles Girard (1822–1895). In 1856, he named several North American fish genera after Native American words (*Agosia*, *Algansea*, *Codoma*, *Dionda*, *Lucania*, *Nocomis*, *Tiaroga*) because he liked the sound of them, and because he believed that all the good Greek names had already been taken. Some have suggested that the name of the river chub genus *Nocomis* was inspired by Longfellow's 1855 epic poem “The Song of Hiawatha,” in which a major female character named Nokomis falls from the moon. My guess is that both Girard and Longfellow independently repurposed “*Nookomis*,” the name of a grandmother in traditional stories

among the indigenous Ojibwe people of northeastern North America.

### SPECIAL CASES #1: COMBO NAMES

Sometimes a taxonomist will coin a name that combines two of the categories as defined above. (I cannot recall a fish name that combines three or more categories, but don't quote me on that.) The monotypic Alabama Cavefish genus *Speoplatyrhinus* Cooper & Kuehne 1974 is a combination of three Greek words: *spéos* (σπέος), meaning cave, referring to its habitat (a biological name), plus *platýs* (πλατύς), flat, and *rhinos* (ρίνός), snout, referring to its flattened snout (a descriptive name).

This combo name defies easy categorization: Proserpine Shiner *Cyprinella proserpina* (Girard 1856). Its name is a Latinization of Persephone, queen of the infernal regions, so that would make it a commemorative name. But the reason Girard chose this “infernal” allusion is because the fish was described from the Devils River of Texas, which would make it a toponymic name.

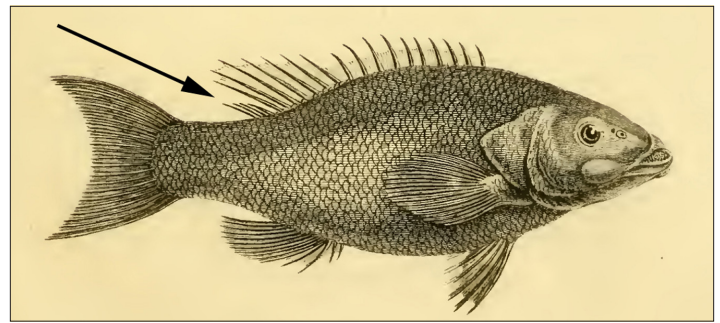
### SPECIAL CASES #2: ENIGMATIC NAMES

Some names are headscratchers. I've spent hours trying to figure out what they mean and either fail, or come up with an explanation that's so strained, or so far-fetched, that it can't possibly be what the author had in mind. Ichthyologists have long puzzled over the meaning of the name of the temperate bass genus *Morone* Mitchill 1814. I suggested the name derived from an archaic word meaning “maroon,” referring to the reddish or ruddy colors in the specimens Mitchill examined. I'm not convinced that's what the name means, but at least I was able to connect a definition of the word with characters mentioned in Mitchill's text, however tenuous that connection may be. See my article in the Winter 2019 *American Currents* for a detailed analysis of the name.

Among American ichthyologists, the unquestioned master of the enigmatic name was Edward Drinker Cope (1840–1897), who seemed to take a perverse delight in coining names with elusive meanings known only to him (see Figure 5). In 1872, Cope described the Rio Grande Chub *Clinostomus* (now *Gila*) *pandora* from Sangre de Cristo Pass, a tributary to Rio Grande River, in Costilla County, Colorado, in the middle of the state near its southern border. It was one of many vertebrates he described during his work as a prospector with the United States Geological Survey. In Greek mythology, Pandora was the first female human created by the deities. These deities gave her unique gifts (such as the secret of fire). But instead of sharing these gifts, Pandora opened a jar (mistranslated as a box), which released plagues and other evils upon humanity, leaving only hope inside once she closed it again. Today the phrase “to open Pandora's box” means to perform an action that may seem small or innocent but turns out to have severe and far-reaching consequences.

What does any of this have to do with a dusky, chub-shaped minnow of the American West? Your guess is as good as mine.

I return to enigmatic names every now and again, like a homicide detective giving a cold case a fresh look. A few years back a tantalizing clue emerged. I read that Cope owned silver mines in New Mexico, so I began looking for the names of mines in Colorado, from where the minnow was described. Sure enough,



**Figure 8.** Illustration accompanying Lacepède's description of *Micropterus* and *M. dolomieu*. Arrow points to the “second” small fin for which the genus is named. From: Lacepède, B. G. E. 1802. *Histoire naturelle des poissons*. Vol. 4: i–xliv + 1–728, Pl. 1–16.

there was a Pandora mine (tungsten and silver) and subsequent Pandora mining town (circa 1875) just east of Telluride. I got very excited, thinking I had cracked the case, but came back down to earth when, upon checking a map, I saw that Pandora is 140 miles away from Sangre de Cristo Pass.

“Pandora's case” remains open.

### SPECIAL CASES #3: MISNOMERS

One of the quirks of zoological nomenclature is that a name need not be biologically accurate in order to be nomenclaturally valid. In other words, a name can *misrepresent* the fish that's being described. Once a name is affixed to a species, it's stuck with it for eternity. (There are rare exceptions, usually technical in nature.) Misnomers are usually honest mistakes on the author's part. In 1802, French naturalist Bernard Germain de Lacepède (1756–1825) established the black bass genus *Micropterus* for the Smallmouth Bass *M. dolomieu*. Lacepède was intrigued by his specimen's small second dorsal fin, so he named the genus *mikrós* (μικρός), meaning small, and *pterus*, from *ptéron* (Gr. πτερόν) or *ptéryx* (πτερυξ), meaning fin. Trouble is, the Smallmouth Bass—indeed all black bass species—have only one dorsal fin. Lacepède's specimen was damaged. Its posterior dorsal-fin rays were detached from the rest of the fin, which Lacepède mistakenly thought was a separate fin (Figure 8).

Lacepède's misnomer has a reasonable explanation. This next misnomer, however, is laughably bad and immediately misleading. Ask anyone where the Razorback Sucker *Xyrauchen texanus* comes from based on its name and they will probably guess Texas. And they would be wrong.

The Razorback Sucker was described as *Catostomus texanus* in 1860 by Charles C. Abbott (1843–1919), an American Civil War surgeon, archaeologist, and naturalist. He based his description on a dried specimen at the Academy of Natural Sciences of Philadelphia. This specimen was collected or acquired by entomologist John L. LeConte (1825–1883), responsible for naming and describing approximately half of the insect taxa known in the United States during his lifetime. From 1849 to 1851, LeConte explored California and the Colorado River of Arizona. He apparently acquired the holotype of *X. texanus* during this trip. His field notes indicate that the sucker came from the “Colorado and New” rivers. The Colorado River, of course, is a major river of the American Southwest, beginning in Colorado, flowing through Utah and



Arizona, then crossing the border into Mexico, where it now runs dry before reaching the Gulf of California. The New River is a tributary of the Gila River, itself a tributary of the Colorado, in central Arizona.

So how did a fish from Arizona get named for Texas? Well, it seems that Abbott mistook the Colorado River of Arizona for a different river of the same name, the Colorado River of Texas, which flows southeast for 1,387 km from Dawson County, through Austin, into the Gulf of Mexico. In addition, some have speculated that Abbott mistook the New River of Arizona for the Nueces River of Texas.

No one seemed to have noticed for nearly 70 years, because Abbott's description was overlooked by his colleagues. When Eigenmann & Kirsch proposed the genus *Xyrauchen* (*xyrón*, ξυρόν, razor; *auchén*, αὐχὴν, nape, referring to its sharp dorsal keel) in 1889, they named it for *Quassilabia cypho*, described by Lockington in 1879. Even the authoritative *Fishes of North and Middle America* (1896–1900) failed to notice Abbott's paper. Henry Weed Fowler, curator of fishes at the museum where LeConte's dried specimen was housed, was the first to note the oversight, reported by John Otterbein Snyder in 1915. It wasn't until 1930 when American ichthyologists dropped *X. cypho* and started using *X. texanus* instead.

John LeConte lived in Philadelphia. Charles Abbott lived across the Delaware River in nearby New Jersey and no doubt frequented the Academy of Natural Sciences. One can help but wonder if LeConte ever pulled Abbott to the side and said, "Dude, regarding the name of that fish I collected? You got the location wrong."

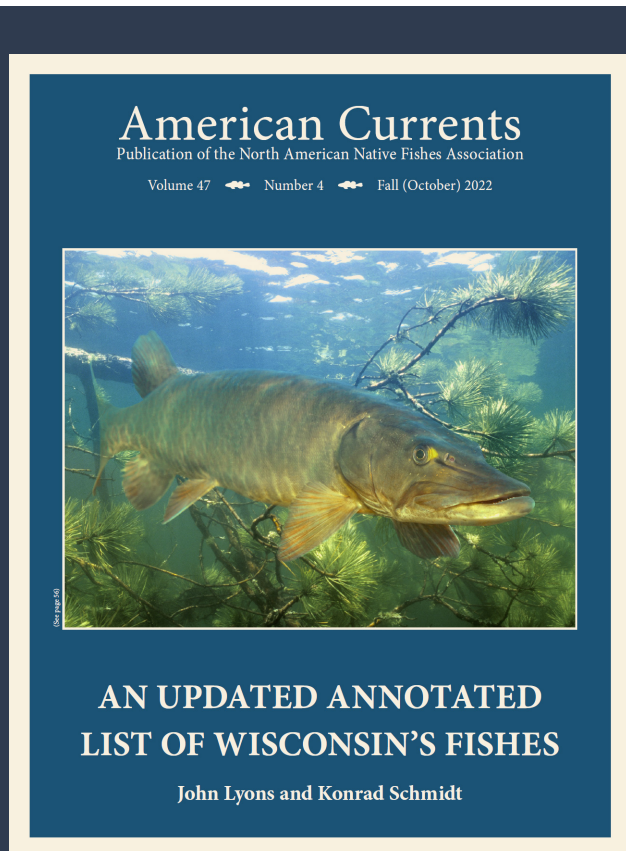
## THE JOY OF "ETYFISHING"

One of the things I find most interesting about fish names—and this goes for the scientific name of any plant and animal—is that naming and classifying organisms is a strictly human activity. When an ichthyologist describes a new species of fish, the work is supposed to be clinical and objective. Counting fin rays. Counting scales. Describing the shape and arrangement of the teeth. Measuring body proportions. Recording its color in life. Noting its color in alcohol. Sequencing its genome. Explaining how the fish is different from related species. And so on. Descriptive taxonomy is based on observation, measurement, and analysis. It's objective, clinical, and impersonal, what science is supposed to be.

But when a taxonomist assigns a name to a species—the name by which the species will always be known—this is the one time the scientist can be creative, personal, poetic, whimsical, and sometimes enigmatic or mysterious. I'm fascinated by that. I'm fascinated by the intersection of science and creative self-expression that biological nomenclature often represents.

What's more, knowing the correct derivation and meaning of any plant or animal name adds to our knowledge of the taxon, the intention of its author(s), and the historical setting in which it was described. Likewise, an incorrect explanation detracts from that knowledge.

We can explore and celebrate the diversity of fishes by exploring and celebrating the diversity of their names.



Members received their copies of this special issue of *American Currents* in December 2023, but a limited number are available. Nearly double the usual length, it covers 164 species, with a complete checklist, species profiles, the latest science, current distribution data, name changes, an extensive bibliography, and more.

\$25 (free shipping)



<http://www.nanfa.org/cart.shtml#WISC>