

BETWEEN THE SPECIES

Netting Nemo: A Moral Ontology for the Scaled and Slimy

ABSTRACT

Here I develop an ontology of aquarium fish that articulates the relationships that many fishkeepers hold with their fish and considers how these relationships generate moral responsibilities. The investigation explores the norms already regulating hobbyist discourse and practice, charting the values that are cited to justify recommendations and restrictions and demonstrating how morally responsible fishkeeping participates in a particular moral ontology. Principally I aim to show that the subject of moral consideration in fishkeeping is rarely the individual fish and only sometimes the fish species, but paradigmatically the “community tank.” In getting fish, one has responsibilities to pair compatible species and create a community. From that point onward, having fish is a matter of caring for that community, keeping fish a matter of sustaining the ecological relations that bind the community.

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Introduction¹

In 2003, the popularity of tropical fishkeeping surged. The recently released *Finding Nemo* led to a wave of enthusiasm for keeping clownfish and blue tang (or “Dories” as any small child viewing in awe at their local Petco would have exclaimed). Conservationists trusted that fish breeders could keep up with the demand for clownfish, a species first bred in captivity around 1973; those breeding efforts significantly reduced the pressure of the global fish trade on wild populations. But blue tang weren’t successfully bred in captivity until 2016—National Geographic reported that year, “‘Dory’ Bred in Captivity for First Time”—and so any found at your nearby pet shop in 2003 were captured in the wild from coral reefs across the Indo-Pacific (Talbot 2016). These collectors often squirted cyanide into habitats as revered as the Great Barrier Reef, scooping up the stunned fish and shipping them across the world, some making it to a home (or doctor’s office or Chinese restaurant), but up to 73% dying in transit (Stevens et al. 2017). And while blue tang are considered of “least concern” by conservationists, many species popularly kept in the hobby are threatened or endangered in their native ranges. The IUCN supports a subgroup on Home Aquarium Fish that lists species critically endangered or extinct in the wild, including the iconic red-tailed and bala sharks ubiquitous in the pet trade (2015).

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Fishkeepers and conservationists have reflected on the ethics of aquarium keeping, with these reflections keying on concerns like those raised above: When is it ethical to collect species from the wild? How should they be collected? What is our obligation to breed these fish in captivity? Much of the ethics of fishkeeping can be distilled to such questions about sourcing, but even here the ethics are complicated. Often, poor communities in the Global South depend on collecting and selling ornamental fish, and do so responsibly, whereas captive breeding in places such as Florida may alleviate pressure on native populations, yet risk introducing these exotics to waterways already overflowing with non-native gourami and sucker-mouth catfish (Evers, Pinnegar, and Taylor 2018). Setting aside sourcing questions, the challenges of keeping fish healthy in the aquarium generate their own ethical questions, many stemming from how foreign we find the existence of these aquatic creatures. As Kathy Squadrito (1987, 131) put it when surveying hobbyist sensibilities more than thirty years ago, “most people are simply not sensitive to the needs of fish.” We continue to debate whether fish feel pain—they quite clearly do—so working out a conception of fish flourishing is an even murkier endeavor (Meijboom and Bovenkerk 2013). Such questions about benthic being lack the contact zones in which we’d ordinarily negotiate co-existence.

Here I develop an ontology of aquarium fish that articulates the relationships that many fishkeepers hold with their fish and considers how these relationships generate moral responsibilities. It thus follows Erin McKenna in a feminist pragmatist approach to animal ethics that attends to the relationships we sustain with non-human organisms in light of the natural and developmental histories of cohabitation (2018). Methodologically, the inquiry explores the norms already regulating hob-

byist discourse and practice, charting the values that are cited to justify recommendations and restrictions and demonstrating how morally responsible fishkeeping participates in a particular moral ontology. Principally I aim to show that the subject of moral consideration in fishkeeping is rarely the individual fish and only sometimes the fish species, but paradigmatically the “community tank.” This is to say that, if anything is to count as a “pet” in fishkeeping, it is the aquarium and not its inhabitants.

Becoming Companions

Philosophers have not had much to say about our ethical obligations to fish, and what they have said usually answers a separate question: can we eat them? Predictably this discourse cleaves to animal rights or animal welfarist positions more generally (Engel 2019). The rights theorist observes that fish display a teleological center of life, warranting moral consideration. The welfarist has been surprisingly preoccupied with that aforementioned question of whether fish feel pain, which as usual admits of no more satisfying conclusion than that pain behavior *is* the criterion for pain, in fish as it is in humans (Elder 2014, Meijboom and Bovenkerk 2013). The upshot of these discussions is that, if we should eat fish, we could be a lot more responsible in how we raise them. *Those* responsibilities pick up from various places. Carolyn Merchant (1997) rejects traditional formulations of anthropocentrism and ecocentrism to call for better partnerships between species in sustaining interdependent communities. Erin McKenna (2018) interrogates the metaphysical assumptions of salmon farmers in the Pacific Northwest, and while their motivations smell a bit fishy, her engagement with (of all things) shellfish farmers hints at the possibilities of conceptualizing flourishing for the clammiest among us.

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Perhaps more germane are investigations of the ethics of zoos and aquaria, which have struggled to reconcile the societal good that these institutions can do with the questionable practices that precede captivity (Bennett 2019). Environmental pragmatists Ben Minteer and James Collins (2013) have asked whether the benefits of ex situ conservation research, including the popularization of this research with the public, can compensate for the loss in freedom and occasional suffering of captive animals. In the context of climate change and global declines in biodiversity, they conclude that the ex situ research is increasingly needed and could be supported through research-conducive exhibits. They take this to mean that exhibits should closely approximate the natural habitats where in situ observation would be logistically impossible, and these more natural exhibits are expected to support natural behavior and prevent physiological and psychological stress. A public aquarium is closer to the 10-gallon fish tank than the fish farms of the Pacific Northwest, but relevant here is that few keep fish in the name of conservation research, and few keep fish purely as a source of entertainment. Fish are *pets*, we fishkeepers think.

Are they, though? For an account of petness I look to Erin McKenna's discussion from *Pets, People, and Pragmatism*, where she uses the term "pet" to "describe the intimate and mutually transformative relationships experienced by many human and other animal beings" (2013, 17). To say that these relationships are transformative is to say that the ways we experience ourselves in the world is fundamentally shaped by our relationships with other beings, and so if we begin to relate to different beings, or if the character of these relationships change, then our sense of ourselves in the world, our identity, changes too. Though McKenna concedes that the terminology of "pets" and associated practices are problematic, her focus

on the inherited legacy of domestication grounds an attempt to disambiguate the respectful relationships from the exploitative. Ordinarily, this involves a recognition of the particularities of organisms like Australian Shepherds and Arabian horses, who share with us histories of cohabitation that give rise to specific needs for both human and nonhuman inhabitants. These histories of living in companionship with dogs, horses, cats, and birds can help us to understand and recognize what it means for these creatures to lead rich and meaningful lives. Fish though are largely absent from this discussion, and when referenced, fall within the category of livestock that McKenna goes on to analyze in subsequent projects. Among companion animals, the nearest category in which fish would fall may be her “exotic pets,” about which she urges “great caution in keeping as pets any non-domesticated animal beings” (2013, 227). Domestication involves generations of selective breeding through which animal natures are brought into symbiosis with human needs and preferences (important to note is that the co-evolution goes both ways). She notes that reptiles and many birds may be docile, but often their needs and preferences are opaque to us, and so keeping them in captivity can deny them the enrichment that gives them joy and direction. More often than not, exotic pets are wrested from the wild, muddying the water with moral concerns over their sourcing as well as their keeping.

Most fish, however, don't quite fit this category of exotic pet, since if we count time in generations, many species in the hobby do bear the mark of domestication. Breeders tend to count generations up till two from wild-caught specimen—wild caught, F1, F2—but by the time these species make their way into the standard pet shop, that heritage is largely lost. Ordinarily, breeders select for ornamental traits, so if domestication requires selecting for “domesticity”—traits that facilitate animal

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husbandry and ease the keeping of these organisms—then each generation's increased tolerance for suboptimal environmental conditions is only incidental. If this is domestication, then the domestic fish is typically able to endure a wider range of chemical parameters, and sometimes able to boast vibrant colors or delicate (if dysfunctional) tails and fins. In any event, it would not follow from their domestication that fish are “pets.” The traits for which we select are hardly the sort that would organize fish into functional roles like hunting fish, working fish, and toy fish. Nor is there any history of co-evolution that exerts pressure on becoming *companions*.

My instinct here is to conclude that domestication isn't sufficient for petness but companionship *is* necessary. As such, it would be the rare fish that counts as a pet—even the ubiquitous betta, kept and tended to as an individual, cannot point to a record of domestication that has selected for anything but color and finnage. It is not obvious, then, that our ethical responsibilities to fish can draw on more general accounts of our ethical responsibilities to domesticated animals. What then do we make of the normative practices of fishkeepers? Is their relationship to their fish one that generates ethical responsibilities, beyond those well-theorized in the collection of fish but mostly irrelevant to their subsequent keeping? Here I turn to the discourse and practices of hobbyists themselves to chart the norms and expectations that structure praise and admonishment within the aquarium community. This investigation reveals that fishkeepers have responsibilities when *getting fish*, in *having fish*, and in *keeping fish*, but on all of these fronts, it is not quite the fish itself that is the object of moral consideration, but the community.

Getting Fish

Though the internet has no shortage of listicles about which dog breed is right for me, there is no analogous document for fish. And if one entered their local pet shop to procure a glass box, no one would stop you. But retreat to the back of the store to pick out your first additions and you are likely to be barraged with questions. Ordinarily they begin: “Oh, you’re thinking about getting an angelfish: What size tank do you have?” Provided that your glass box is big enough, you’ll get no resistance from the storekeeper, though even “big enough” isn’t quite straightforward. The fish has to be able to move freely through the tank, he or she needs enough décor to stay mentally active, and (the kicker for those keeping goldfish) the footprint of the tank must be large enough to harbor sufficient beneficial bacteria to process the fish waste that would otherwise lead to ammonia poisoning. If all one were planning to do was to keep one or two of the same species, keeping them well would mostly boil down to the dimensions of the box.

Such a “species tank”—though admittedly a very real genre—would not be the norm. But return to that pet shop to procure some subsequent additions and now the true interrogation begins: “I have a 20 gallon aquarium”—“What else do you have in there?” This line of questioning could end abruptly if the sheer quantity of fish exceeds the carrying capacity of the tank, but most of the time, it will explore the nuances of fish “compatibility.” A good employee is well-versed in the subtleties of compatibility; where stores rely on less knowledgeable employees, care sheets are usually on hand that review the compatibility needs of each species. Relevant here is whether your fish is likely to eat its new companion, but also: is one so much more active than the other that their incessant shoaling will force a more introverted species into hiding? Conversely,

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is the more introverted only tempted out into the open when more brazen “dither fish” signal that the coast is clear? How many of a species should you keep for the group to engage in normal schooling behavior (too small a school, and the meekest may suffer at the bottom of the pecking order)? Does one species require heavy planting to feel safe and secure, while an herbivorous addition will quickly set to work eating said plants?

At stake is whether a collection of fish will function as a community. The tome of aquarium wisdom, *Dr. Axelrod's Mini-Atlas of Freshwater Aquarium Fishes*, includes in each description the symbol of a heart, for “peaceful community fish,” or the ominous skull-and-crossbones, for “Not recommended for beginners” (Axelrod et al. 1995, 4). Symbols also indicate where in the water column the fish will frequent, but mostly this matters in order to pick out “bottom feeders.” Almost the only advice an employee would give you about what fish you *should* add will pertain to whether your tank has enough bottom feeders. These fish play the important role of eating any fish food that isn't initially consumed at the aquarium's surface. Together with “algae eaters,” bottom feeders complete a sustainable system. Important to note, though, that this ontological framework of algae eaters and bottom feeders has no neat parallel in the world of scientific categorization (Dupre 2002). Biologists may refer to demersal or benthopalegic fish, tracing commonalities in physiological or behavioral traits, while ecologists commonly refer to grazers or filterers even though both functional groups count algae as only part of their diets. So while concepts such as bottom feeder, algae eater, and so on overlap with the frameworks endemic to other practices, they also cut across and run orthogonal. These irreducibilities

mark off a system of concepts most at home in the organization of aquarium fish into well-functioning communities.

Having Fish

If a house guest spots your aquarium and asks how long have you had fish (compare: How long have you had a cat?), the appropriate answer concerns the duration that you've kept that community. To chronicle the purchase and passing of each individual fish is under most circumstances to misunderstand the question. What *is* relevant is how long you've maintained that particular set up—one could answer that they've kept fish since their early teens, but this aquarium was started only three years ago. Even this, though, could be clarified—“*these* fish (though not each individually) have been in my care since 2018; before that the same tank was home to very different fish, which I kept for about five years, *twice* moving them to new residences, one of those times upgrading from a 20 (gallon) to a 55.”

Why *this* chronology? Because again the object to which one relates is the community. One could keep a school of tetras for a decade even if, like Neurath's boat, each member of that school had been replaced at the end of its life with a new plank. The community, though, is not synonymous with the set up—one can move a community from one aquarium to another, though significant enough changes might require some clarification: “These *fish* go back to the aughts, but about five years ago I switched to a planted aquarium.” And one aquarium might have housed different communities during different periods; “at first I kept cichlids, but found them too murderous, and converted to rainbowfish, so I've had *these* for nearly a year.” In a less curated community tank, the answer is continuous with the setup, as the passing of an upside-down catfish can welcome the introduction of a shoal of corydoras.

Venture into keeping species with more restricted compatibilities and that continuity becomes punctuated by the particular communities that found a home together in that setup. Ostensive reference (“these”) can span generations within the same community, but to extend it across communities as different as a Lake Tanganyika tank and a Lake Malawi tank is to do injustice to the particular relationships one would have had to have had with each.

Keeping Fish

Ordinarily the responsible keeping of fish is exhausted by tank maintenance. This tends to be fairly involved in the first weeks after setting up the tank when working to get the aquarium “established” (Whether the tank is “established” is among the few lines of questioning that doesn’t concern compatibility). Early on, maintaining the tank requires replacing about a quarter of its volume with fresh water each week. This functions to dilute the slow accumulation of ammonia from fish waste, but once the tank is “cycled” (shorthand for having established a functioning nitrogen cycle), beneficial bacteria will quickly convert that ammonia into nitrites and, eventually, nitrates.

Nitrates are far less toxic to fish, and in a “beginner’s” tank, maintenance may slowly taper off into the biweekly or monthly water changes that avoid nitrate levels getting too high. Algae eaters exist (in the trade, as a category) because nitrates are unavoidable and invite the growth of aesthetically displeasing algae. But for tropical fishkeeping, one graduates from beginner when one addresses these surplus nitrates more ecologically, with the addition of live plants. This is another rare area where the employee may extend some advice: “Algae is natural and actually indicates that your tank is established, but you might be ready to introduce some live plants.” “Ready” in this case

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isn't exactly suggesting that *everyone* should add live plants at this stage; rather, one has demonstrated some level of responsibility, and can assume the next level. Plants have their own care needs which I won't get into here, as what is relevant is that "the planted tank" begets a nascent moral hierarchy implicit to keeping fish. One is *better* at it when one establishes a ten-gallon or ninety-gallon ecosystem. Importantly, the quality of being better cannot point to some extrinsic goal such as the aesthetic beauty of the aquarium or even the health of the fish; though planted tanks likely (but don't necessarily) improve both, it is not because they improve one thing or another that the keeper of the planted tank is seen as approaching fishkeeping excellence. Tending to Java fern or Amazon sword plants is virtuous because, internal to the practice of keeping fish, one dedicates oneself to establishing ecological processes where organisms function together to achieve resilience.

Like the "species tank," the "planted tank" is a genre of aquarium, involving its own norms and standards for excellence. But most of these genres, as genres, exist side-by-side rather than hierarchically. The exception (which itself admits of exceptions) is the moral significance of moving from a plantless community tank to the planted community tank. It marks the establishment of a more self-contained ecosystem.

Other Language Games, or, Losing Fish

In their 2019, "More than a 'Stupid Fish,'" Clair Linzey and Andrew Linzey reflect on Dan Barry mourning for his daughter's dying goldfish, John Cronin the Fish. The parameters of Barry's story are likely familiar to most aquarists, with the fish refusing to eat, and the fishkeeper struggling to change the fish's mind. The episode reaches its conclusion in the traditional fish funeral, with the family gathering in the lavatory

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to deliver eulogies before the ceremonial flushing. Linzey and Linzey share the account to highlight the strength of this human-animal bond, one that elicits pronounced grief with the passing of a companion animal. That the loss of a goldfish can feel so traumatic testifies to the depth of our relationships with our companion animals, even the ones that we cannot take on walks or welcome to our laps.

Much of what I enunciate above seems incommensurable with these experiences. Tending to John Cronin the Fish finds no analog with maintaining the planks in a school of tetras, or carefully curating an ecosystem comprised of different species performing different ecological functions. The goldfish, alongside the betta or the oscar, exist in their bonds to us as individual companions; we name them, we tend to their particular whims and fancies, and when they die, we mourn their death. It does not seem to matter to me that this is the exception, not the norm, when charting the practices of most hobbyists. There is no incontrovertible reason for why many hobbyists do not name each of their rainbowfish, or each danio or barb—that these can be hard to differentiate could just as plausibly call upon us to hone greater powers of observation. Correspondingly, few are likely to feel Dan Barry’s grief at the passing of a cichlid or a gourami. Here I can mostly trade intuitions—it strikes me that hobbyists don’t discuss “losing fish” enough that it has yet generated norms for how one does so correctly, or gracefully. A common feeling expressed for instance on an aquarium forum is bewilderment when a seemingly healthy fish contracts some disease or ailment, some exasperation about having provided a hospitable habitat, and possibly some soul searching about what one could have done differently to engender good health. Ordinarily, as considered above, that care is directed to the system—it may be because Barry’s care was directed to the

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obstinate cyprinid itself that its eventual inadequacy was met with feelings of grief.

While I trust that we could trace the origins of these different moral psychologies, I want to resist the question of whether we *ought* to relate to fish as individuals or whether we ought to relate to them as communities. Hopefully the methodology of the above investigation hints that I'm unsure whether we can answer such questions with more than, "this is simply what we do." That there is an implicit moral hierarchy in whether one has engineered a more complex and resilient ecological community does not demonstrate that "the community" is the fundamental ontological frame for considering our responsibilities to fish. Nor does the feeling of acceptance when one inexplicably discovers a floating fish show that that fishkeeper is callous or lacking in empathy for a deceased pet. In other words, it is quite apparent that human beings exist in nested and overlapping relationships with their fish, just as we exist in complex relationships with fellow human beings and the communities that we form together. To ask which of these relationships is primary, with aspirations of deducing which of our obligations have priority, is to presuppose that the relationships that generate these obligations are eternal. Rather, we perform the relationships that give rise to norms and expectations, and fish are multifaceted beings that are capable of participating in relationships like Dan Barry's and John Cronin's. My sense is that while animal ethicists have done some justice to the structure of our relationship to individual animals as companions, there are insights to gain in analyzing the structures of our relationships to fish as communities. Count this, then, as a contribution to the second analysis, in the spirit of an ethical pluralism that recommends "both/and" over "either/or" approaches.

While these communities find their paradigm in the tropical fish tank, they also lend intelligibility to quite a bit of saltwater fishkeeping—for instance the reef aquarium—and may hold promise for thinking about how one should keep certain (but not all) amphibians, reptiles, and other exotic pets. In the case of saltwater fish, the knowledgeable store owner will once again ask whether your coral purchase awaits the endless appetite of a parrotfish back home, or conversely, whether your mandarin dragonet will find enough copepods colonizing your live rock. Extensive tables exist that detail the compatibility of the saltwater species most commonly available in the trade. For the most part, though, there is no analogy to the community tank for other “exotics” like reptiles and amphibians. Here the nomenclature typically references “mixed species” arrangements—at best, a keeper of frogs or turtles is hoping that the material conditions of their setup are hospitable to both species, but there is little pretense that the presence of one species enriches the existence of the other. Propose a mixed species arrangement on a reptile forum and one is likely to receive a rebuke; the needs and preferences of each species are so specific, many reply, that finding a compromise between them is to unnecessarily deviate from the ideal conditions for each. Such compromises though are inevitable in the community fish tank, so to conclude on this basis that these exotics cannot or should not form communities is a bit of a leap. Until we countenance the possibility of other types of communities, we are unlikely to appreciate the diverse functions that these exotics may play in their relationships to one another.

Conclusion

In getting fish, one has responsibilities to pair compatible species and create a community. From that point onward, having fish is a matter of caring for that community, keeping fish a

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matter of sustaining the ecological relations that bind the community (principally: adding organic inputs, otherwise known as “feeding the fish”). If part of having a pet is caring for that pet, then the moral ontology of fishkeeping suggests that one’s pet is the community (tank).

But is the community tank your companion? Here our intuitions appear deeply sensitive to the paradigm of “man’s best friend.” On the dog model of companionship, much is invested in the notion of reciprocal responsibilities—sure, we might think, keeping fish is a lot of work, but what do we get out of it? Dogs evoke images of (business) partnerships: the shepherd standing vigil over one’s flock, the bird dog wading out into the wetland, even the terrier protecting one’s reserves from rodents. This image captivates us enough that we feel the need to provide reasons for keeping fish: that the fish are colorful, their tank completes the room, their soothing movements reduce stress (and, studies suggest, improve mental health) (Clements et al. 2019). We do the same for cats, but as any cat owner will confess, the most we can say for our feline friends is that they tolerate our presence in their homes.

The better model of companionship here is the one richly elaborated by philosophers like McKenna (2013) and Donna Haraway (2013): that companionship is mutually co-constitutive, it makes each companion what they are, it is not transactional but transformational. While many begin their forays into fishkeeping as a keeper of individual fish, most come to understand each fish only through the functional roles that they play in an aquatic system, to see each fish as constituted through its participation in critical ecological processes. To be a fishkeeper then is to be someone who cares for the fish but also one who has learned to see at least a piece of the world as a commu-

nity, a community of which one is a part. To sprinkle some fish food is a roundabout way of being a deciduous tree dropping its leaves and setting off the complex chains of a food web. Belonging to this web nurtures and sustains us, not so much as an exchange but because the cadence of these practices anchors us to the responsibilities of a biotic community. Learning to conceive of benthic beings as constituted by ecological relations—reshaping the character of our relationships to them by making it sensitive to the cycles that condition fish flourishing—is then at least one way of undergoing that same transformation ourselves. In a world where we regularly struggle to situate ourselves ecologically, this seems no small transformation. Perhaps having to enclose those ecosystems in small glass boxes, to keep these organisms in captivity and *ex situ*, is only the first stage in environmental stewardship. But the community tank is very much a biotic community, and our companionship to it a starting point for less enclosed biotic citizenship.

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