

Rules and Regulations Affecting Tilapia Aquaculture and Aquaponics in Arizona

January 5, 2016

Introduction: On December 5, 2015, five species of Tilapia and their hybrids were added to Arizona Game and Fish Commission Rules R12-4-406 (R12 [Natural Resources], Chapter 4 [Game and Fish Commission], Article 4 [Live Wildlife], 406 [Restricted Live Wildlife]). As restricted live wildlife, those species of Tilapia and their hybrids (*Oreochromis aureus* [Blue Tilapia or Israeli Tilapia], *O. mossambica* [Mozambique Tilapia]; *O. niloticus* [Nile Tilapia], *O. urolepis hornorum* [Wami Tilapia] and *Tilapia zillii* [Redbelly Tilapia]) may only be imported, purchased, possessed, transported and stocked in Arizona through R12-4-410: Aquatic Wildlife Stocking License. The guidance below is applicable to the following: individuals who want to import, purchase, possess, transport, and/or stock these species in Arizona; individuals who possessed the relevant Tilapia species prior to December 5, 2015; and individuals or businesses that want to sell the Tilapia species for the purposes of use in aquaculture or aquaponics.

- I. Individuals who want to import, purchase, possess, transport, and/or stock these species in Arizona as of December 5, 2015:
 - a. An Aquatic Wildlife Stocking License must be obtained from the Arizona Game and Fish Department. The license is free and is valid for no more than 20 consecutive days. The stocking license provides coverage during the process of importing, purchasing, possessing, transporting, and stocking fish into the individual's facility. Once the stocking action is completed, no license is needed for general possession of the fish that were stocked within the 20 day period. If after the 20 day period new fish are desired to be imported, purchased, possessed, transported and stocked, a new Aquatic Wildlife Stocking License must be obtained. Fish must be from a facility certified to be free of diseases and causative agents, and the certification must be submitted with the license application. <https://azgfdportal.az.gov/license/speciallicense/aquaticstocking/>
 - i. Licenses should be submitted to the Aquatic Program Manager's within the Arizona Game and Fish Department Region where the stocking will occur. For contact information, please visit <https://azgfdportal.az.gov/agency/offices>
 - ii. Disease free certification – Certification is based on a physical examination of the fish farm or pond of origin by a qualified fish health inspector or fish pathologist performed no more than 12 months before the fish are shipped to the Aquatic Wildlife Stocking License holder. Individuals or businesses pursuing certification can contact the Arizona Game and Fish Department's Fish Pathologist, Joe Marcino, for more information jmarcino@azgfd.gov.
- II. Individuals with the relevant Tilapia species used in backyard ponds, aquaponics, or for aquaculture that were in possession prior to December 5, 2015:
 - a. An Aquatic Wildlife Stocking License must be obtained from the Arizona Game and Fish Department. Disease free certification will be waived for the Tilapia

currently in possession, but any future Tilapia that the individual wants to import, purchase, possess, transport, and/or stock must obtain a new Aquatic Wildlife Stocking License with the stipulations described above (I[a][i][ii]).

- III. Aquaculture License – An individual who wishes to sell, trade, display, purchase, export, possess, propagate, culture or rear live Tilapia for profit is required to obtain an aquaculture permit from the Arizona Department of Agriculture; this is not a new requirement. The permit application will require that information regarding the location, water source and water disposal, the responsible (contact) person be provided. The application also must include the species being cultured (\$100 per year). <https://agriculture.az.gov/aquaculture-facility-license-application>
- IV. Transporter License – An individual who wishes to transport live fish to persons who are licensed to resell, possess, or stock live Tilapia in Arizona must have a transporter license from the Arizona Department of Agriculture; this is not a new requirement (\$100 per year). <https://agriculture.az.gov/aquaculture-transporter-license> <https://agriculture.az.gov/category-terms/aquaculture> (for general information for licenses required for individuals or businesses that sell fish for profit in Arizona)

Addition of Five Tilapia Species and their Hybrids to R12-4-406 as Restricted Live Wildlife

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For R12-4-406 Restricted Live Wildlife, the objective of the rule is to establish a list of live wildlife for which a special license is required in order to possess the wildlife and/or to engage in activities that may otherwise be prohibited under A.R.S. § 17-306 and R12-4-402.

Five species of Tilapia, Blue Tilapia (*Oreochromis aureus*), Redbelly Tilapia (*Tilapia zillii*), Mozambique Tilapia (*O. mossambica*), Nile Tilapia (*O. niloticus*), and Wami Tilapia (*O. urolepis hornoru*) are commonly used in backyard aquaculture facilities. They grow quickly, breed rapidly, and their hybrids tolerate varying water conditions; all of which make them popular in aquaculture. Native to Africa, Tilapia were first stocked in Arizona in 1959 (USFWS 2011), and were first allowed as a legal baitfish in 1989 west of Highway 95 and south of Interstate 10 and in the Colorado River from the Palo Verde diversion dam downstream to the southern international Mexican border (La Paz and Yuma counties). Mozambique Tilapia, Blue Tilapia (and Blue Tilapia hybrids) have been established in Arizona since the early 1960s and 1975, respectively (Fuller et al. 1999). Tilapia have been introduced by a variety of sources for several reasons including for use for vegetation control, as a forage fish, improper disposal from the aquaculture trade, and illegal stockings to introduce a new sport fish (Fuller et al. 1999). The Tilapia species listed above are generalist foragers, consuming algae, phytoplankton, zooplankton, fish eggs and larvae, and detritus (IUCN 2013). Once established in the wild, they may compete with native fish for food and habitat, produce changes in the fish community (Fuller et al. 1999), and are known to cause turbidity and water quality problems.

A recent live bait species risk assessment conducted by the Arizona Game and Fish Department determined that Tilapia are a high-level risk live bait species due to its prolific nature and negative effects on sport fish and native aquatic species, as well as impacts on vegetation. Because Tilapia are not currently restricted, there are no built in safeguards that prevent the illegal release of Tilapia into Arizona waters and prevent potential impacts on native and sport fish. Thus, the Tilapia species listed above, as well as their hybrids, were added to the Restricted Live Wildlife (R12-4-406) list in December 2015. The addition of Tilapia species to R12-4-406 also complies with language in the Department Operating Manual I1.5 Cultural and Distribution of Non-native Fishes (effective 2/20/96), which specifies that issuance of Aquatic Wildlife Stocking License shall be restricted according to the specified guidelines described in I1.5. Specifically, it identifies low risk and high risk areas in the state for Tilapia, and would allow the Arizona Game and Fish Department's Regional Aquatic Program Managers to assess the risk of each license application for Tilapia according to the risk area identifications. Applicants must give information about the planned use and disposition of Tilapia, and allow the Department to assess the geographic risk of issuing a permit as well as the ability to educate the

public on the negative impacts of illegally stocking nonnative Tilapia into Arizona's waters. In addition, Tilapia must be purchased from a facility certified to be free of diseases and causative agents.

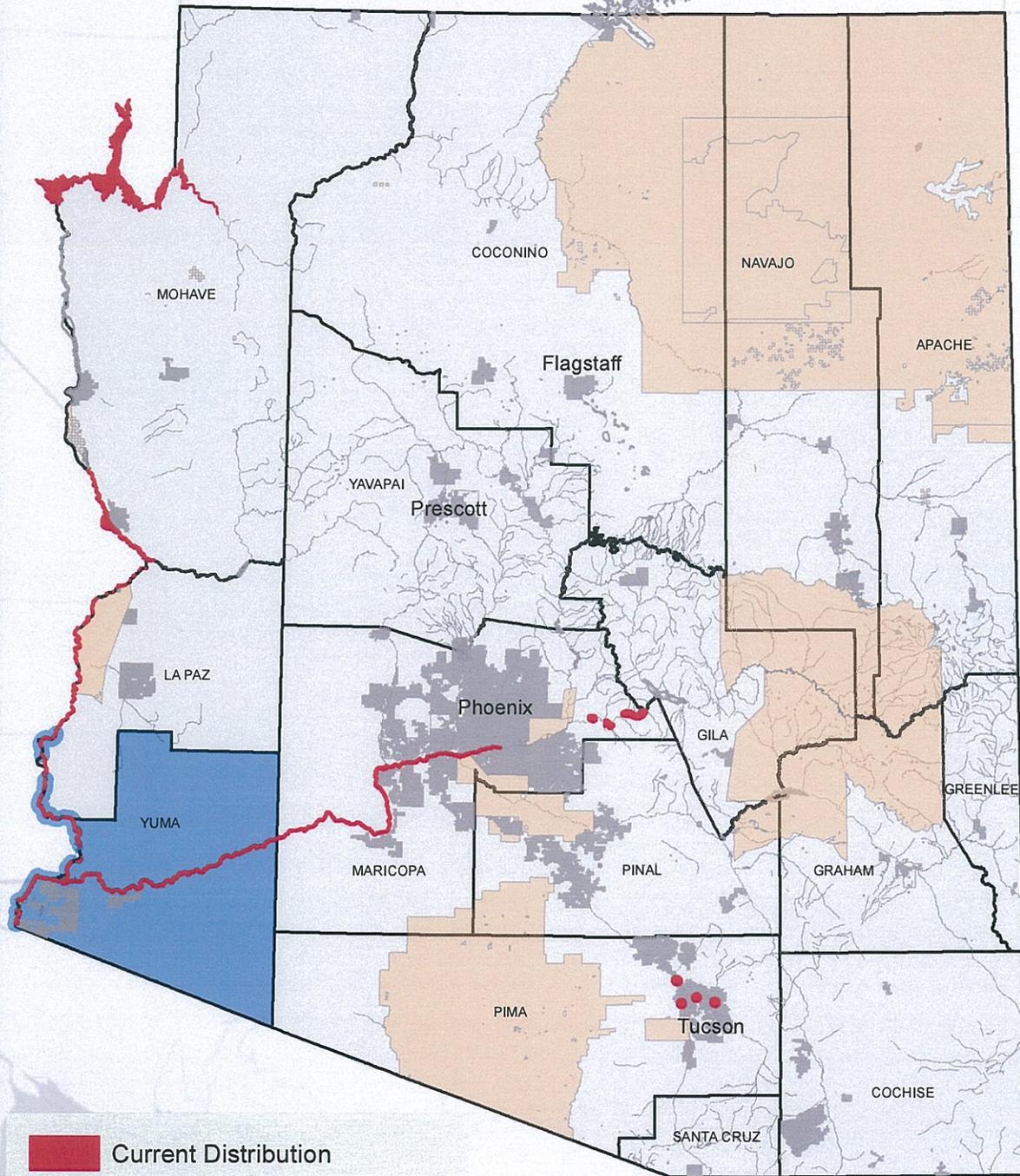
Literature Cited

Fuller, P.L., L.G. Nico, and J.D. Williams. 1999. Nonindigenous fishes introduced into inland waters of the United States. American Fisheries Society, Special Publication 27, Bethesda, Maryland.

International Union for Conservation of Nature (IUCN). 2010. IUCN Red List of Threatened Species. <http://www.iucnredlist.org> (August 2013).

U.S. Fish and Wildlife Service (USFWS). 2011. Biological Assessment of the Arizona Game and Fish Department's Statewide and Urban Fisheries Stocking Program for the Years 2011-2021. Wildlife and Sport Fish Restoration Program, U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

Tilapia (TISP)



-  Current Distribution
-  Legal Live Baitfish Use Areas
-  Urban Areas
-  Tribal Reservations