U.S. Farm-Raised Catfish Environmental Sustainability Certification Program Standard

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Standard for U.S. Catfish Production

Part A: Overview

Responsible environmental management of farms has become increasingly important to consumers, farmers, and the general public. The U.S. Farm-Raised Catfish Environmental Sustainability Standard for U.S. Catfish Production provides clear definitions for responsible environmental stewardship for catfish producers who choose to further reduce environmental impacts, improve management practices, and provide greater accountability to their buyers and the public.

The U.S. catfish industry is committed to producing the highest-quality products in an environmentally responsible manner. However, there is no existing quality management system for environmental sustainability for U.S. catfish farms. In the United States, some components of environmental sustainability as related to catfish farming are regulated, but others are not. Yet customers of catfish farms and processors increasingly are asking for verification that U.S. catfish is raised in an environmentally sustainable manner.

The U.S. Farm-Raised Catfish Environmental Sustainability Certification Program has resulted in the development of a quality management system for U.S. catfish production that is being specifically requested by customers and that will convey specific information to consumers regarding the environmental sustainability of U.S. catfish.

The United States has a complex and comprehensive set of laws, rules and regulations that require compliance of businesses to achieve the environmental, social, and health quality of life desired by Americans (Engle & Stone, 2013; Engle, 2007). The U.S. regulatory framework, combined with comprehensive monitoring and enforcement systems, has resulted in clear improvements to environmental quality, worker health and safety, and a safer food supply across the country. Walsh (2023) compared U.S. federal laws (without consideration of the many relevant state statutes, regulations, and rules) with international guidelines (FAO, 2011) and found that they were well aligned.

The U.S. has one of the most stringent environmental regulatory framework and enforcement systems in the world, with only Japan and Norway being rated as more stringent than the U.S. (Abate et al. 2016). U.S. catfish farming and processing businesses are regulated by this complex set of regulations, as are other economic sectors. The following summarizes the key laws and rules that govern U.S. catfish farming as related to environmental quality, social responsibility, animal health and welfare, and food safety.

The U.S. regulatory system is complex. As a federal republic of 50 sovereign states, the U.S. regulatory system begins with laws passed by U.S. Congress. States have the right to pass and enforce additional laws, regulations, and rules that meet or exceed federal requirements. The laws themselves are only the first step in the U.S. regulatory system. Once a law is passed, the agency with the relevant jurisdictional authority is charged with development of the specific

regulations, rules, and compliance requirements. Once rules are adopted by an agency, the associated permit writers and inspectors are charged with developing the permitting specifications and implementing the monitoring and inspection programs that assure compliance.

This standard acknowledges and summarizes U.S. laws and regulations and the enforcement structure that provides assurance that U.S. catfish farmers conform to the provisions of those laws related to environmental quality, food safety, social responsibility, aquatic animal health, drug and chemical use, feed use, and energy use (Tables 1 to 10). Lists of Required Documents for participants in the U.S. Catfish Sustainability Program are included in the Appendix.

A.1 Scope

Conformance to the provisions described below certifies the production and processing of U.S. catfish.

A.2 Definition of Terms

Catfish. All fish of the family Ictaluridae, 9 CFR 541.7(d)(2).

Fingerling. A size category including young fish, larger than a fry but not an adult (definition from USDA NASS, 2024).

Broodstock. These are fish or other stock kept for reproduction, including males. Female broodfish produce the fertilized eggs which go to hatcheries (definition from USDA NASS, 2024).

Foodsize. A size category including grown aquaculture products ready for market, also known as market size (definition from USDA NASS, 2024).

Fry. A size category including very young post-larval fish (definition from USDA NASS, 2024).

Ponds. The most common type of water facility for raising fish. Most ponds are man-made and fish usually have access to the entire pond (definition from USDA NASS, 2024).

Processors. Companies that convert live fish to a product ready to cook, such as fish fillets. Usually, the purchasing plant has no ties to the producer. However, in some cases, the plant may be a cooperative that is jointly owned by the producer and other producers. Also included in this category are the sales of aquaculture products by vertically integrated operations through their own processing and marketing operations (definition from USDA NASS, 2024).

Static, closed production system. Static production systems are those for which there is no continuous flow through of water and discharge from the production unit. In static ponds, the water is maintained with only infrequent additions or discharges (USEPA 2004a, b, c, d; 2006; 2020a,b).

Stockers. A size category including young aquaculture species that are large enough to be placed in the final grow out to foodsize (definition from USDA NASS, 2024).

Part B: U.S. Laws, Rules, and Regulation of Environmental Sustainability

B.1 Aquatic Animal Health Laws and Regulation (Table 1)

The U.S. farmed catfish industry relies on university-based licensed veterinarians and American Fisheries Society (AFS) Certified Aquatic Animal Health Inspectors and Fish Pathologists for fish health assistance that includes farm visits, United States Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS) certified laboratory diagnostic support, and training through seminars on best practices. Licensed veterinarians are required to maintain veterinarian-client-patient relationships with the farmers they serve. Recent research (Khoo et al., 2023; Kelly, 2023; Kumar et al., 2024) shows widespread use by catfish farmers of university diagnostic services (11,583 disease diagnostic reports from 2012 to 2022). Aquatic animal health specialists were found to be closely integrated with overall farming operations, leading to early detections of disease outbreaks. Active diagnostic laboratories that support U.S. catfish farmers included those of Mississippi State University (Stoneville, Mississippi) and Auburn University (Greensboro, Alabama).

In the U.S. catfish industry, there is only one available and effective vaccine for catfish, that for the disease *Edwardsiella piscicida*. Once this feed-based, oral vaccine became available, it was adopted widely across the U.S. catfish industry, with 83% of all fingerling production hatcheries vaccinating their fingerlings in 2022 (Hegde et al., 2022). No other vaccines are available for use by U.S. catfish farmers.

U.S. pond production of catfish has been rated by the Monterrey Bay Seafood Watch program as "Green" on Criterion 7, "Disease" for many years (Seafood Watch, 2022). The report states:

> "Data show that there has been a "sharp decrease in the percentage of foodfish operations with losses to disease over time, indicating improved management such as biosecurity, adoption of the one vaccine available and effective for US catfish…. Fingerling operations also were found to have decreased losses to disease."

The Seafood Watch report further states that:

> "There is no historical record of disease transfer from cultured U.S. channel catfish to wild fish populations. Data from the U.S. Fish & Wildlife Service National Wild Fish Health Survey Database suggest that on-farm pathogens and/or parasites that may be transmitted to receiving waters are not amplified beyond those found at natural or background levels."

USDA-APHIS Veterinary Services (VS) Aquatic Animal Health Program upholds the mission "(t)o protect and improve the health of U.S. farm raised aquatic animals in order to produce safe wholesome seafood, healthy recreational and display/ornamental animals, as well as protect the nation's aquatic animal natural resources" (Hartman 2018). USDA-APHIS provides agricultural producers with a broad range of cooperative programs for protecting the health of animals and plants. The Veterinary Services unit **"**protects and improves the health, quality, and marketability of our nation's animals, animal products and veterinary biologics by preventing, controlling and/or eliminating animal diseases, and monitoring and promoting animal health and productivity." The Animal Health Protection Act authorizes U.S. cooperation with states and foreign governments, and as such, the US is a member of the Office International des Epizooties (OIE), an intergovernmental organization responsible for improving animal health. The licensed

veterinarians and AFS Fish Health Inspectors who provide fish health care are required to report these diseases listed by the World Organisation for Animal Health (WOAH) as well as those listed by the USDA APHIS National Animal Health Reporting System (NAHRS). Federal (USFWS) and state laws also specify invasive species of concern to state natural resources and include requirements for notification. Relevant policies include: Animal Health Protection Act, Veterinary Feed Directive, Animal Welfare Act, and the International Standards of the World Organisation of Animal Health, Food and Drug Administration (FDA) guidance on Safety of Animal Feed Maintained and Fed On-farm, and sanitation requirements for feed manufacturing to prevent animal food from becoming adulterated.

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

Table 1. Aquatic Animal Health Management

Description	URL/Reference
Department of Health and Human Services (HHS)	
Food and Drug Administration (FDA)	
Animal Drug Availability Act	https://www.fda.gov/animal-veterinary/guidance-regulations/animal-drug-availability-act-1996
Authority of U.S. FDA-CVM as related to animal drug use, including antibiotics	https://www.fda.gov/about-fda/center-veterinary-medicine/cvm-offices
FDA List of Approved Aquaculture Drugs	https://www.fda.gov/animal-veterinary/aquaculture/approved-aquaculture-drugs
USFDA Veterinary Feed Directive Regulation Questions and Answers	FDA-CVM GFI #120. https://www.fda.gov/media/70173/download
3rd Edition Quick Reference Guide to Approved for Use in Aquaculture. 2020	U.S. Fish & Wildlife Service's Aquatic Animal Drug Approval Partnership Program, American Fisheries Society's Fish Culture and Fish Health Sections, Association of Fish & Wildlife Agencies Fisheries, and Water Resources Policy Committee's Drug Approval Working Group
Veterinary Feed Directive Final Rule and Next Steps. Fact sheet	https://www.fda.gov/animal-veterinary/development-approval-process/fact-sheet-veterinary-feed-directive-final-rule-and-next-steps
U.S. FDA Guidance for Industry: Seafood HACCP and the FDA Food Safety Modernization Act	https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-seafood-haccp-and-fda-food-safety-modernization-act
U..S FDA authority related to required approval of a drug to be administered to a food animal	https://www.fda.gov/about-fda/what-we-do
The Food Safety Modernization Act of 2011	https://www.fda.gov/food/food-safety-modernization-act-fsma/full-text-food-safety-modernization-act-fsma
U.S. Department of Agriculture (USDA)	
Animal Plant and Health Inspection Service (APHIS)	
Animal Health Protection Act, U.S.C. Title 7 Agriculture: Chapter 109 Animal Health Protection	https://uscode.house.gov/view.xhtml?path=/prelim@title7/chapter109&edition=prelim

USDA-APHIS National Veterinary Accreditation Program Guide – WOAH and International Standards	https://www.aphis.usda.gov/nvap/reference-guide/emergency-management/woah
USDA-APHIS and USFWS are required by federal law to maintain lists of reportable diseases that include but are not limited to WOAH-listed reportable diseases	https://www.aphis.usda.gov/livestock-poultry-disease/surveillance/reportable-diseases
USDA-APHIS Publications, Forms, and Guidance Documents	https://www.aphis.usda.gov/aphis/ourfocus/animalselfare/SA_Publications/CT_Publications_And_Guidance_Documents
USDA-APHIS on Area Veterinarians in Charge: management system for animal disease in U.S.	https://www.aphis.usda.gov/nvap/area-vet
USDA-APHIS restricts importation, interstate movement, detection, control, and eradication of diseases and pests, animal disease prevention and management	https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/program-overview
Talmadge-Aiken Act (7U.S.C.1633) provides authority for federal agencies to enter cooperative agreements with state agencies that administer and enforce state laws and regulations related to controlling or eradicating plant and animal pests and diseases	https://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title7-section1633&num=0&edition=prelim

B.2 Drug and Chemical Use Laws and Regulation (Table 2)

The Seafood Watch-US Channel Catfish (2022) report includes a "Green" rating on Criterion 4 (Chemical Use) and states that:

> "Overall, chemical use in U.S. catfish aquaculture results in minimal environmental impacts. This finding is based on the use and limits approved by the EPA, the infrequent use due to few disease outbreaks and a high economic cost of chemical treatment, and the long residence time and microbial activity that provide both time and opportunity for dissipation of the chemical before discharge (Boyd and Hargreaves 2004). Chemical use is highly restricted and strongly regulated in U.S aquaculture. Regulation is based on thorough risk analysis, including data on residues, fate, and toxicity to target and non-target species. Survey data indicate that high-risk chemicals (i.e., antibiotics) are used infrequently across the industry, particularly in foodfish ponds, which account for the majority of the production cycle and industry acreage. In addition, it appears that chemical usage is declining based on a lower percentage of total operations using chemicals and an overall reduction in number of farms, but robust data to verify this are lacking. The impact of chemical treatments during a production cycle is mediated by high water volumes and low discharge rates (i.e., the production system does not intentionally discharge water over multiple production cycles), but as stated, fully up-to-date and detailed data on the volume of chemicals used are not available. Catfish production ponds typically discharge water once every 6 to 10 years, and medicated feeds are not normally applied during winter months when overflow effluents are most likely to occur, thereby minimizing the risk of discharging active chemicals and/or their by-products. Therefore, the environmental impacts of chemical use in channel catfish aquaculture are minimal."

U.S. laws regulate and enforce the use of chemicals and drugs in aquaculture. The restrictions on chemical and drug use include stringent and lengthy approval processes for chemicals and drugs, resulting in very few drugs or chemicals approved for use in aquaculture. Those that have been approved are regulated and enforced with potential for both criminal and civil penalties imposed on those companies and individuals who do not abide by these laws. U.S. federal agencies with authority over drug and chemical use in aquaculture include the FDA, USDA-APHIS, and the U.S. Environmental Protection Agency.

U.S. law strictly regulates the use of antimicrobial agents in livestock production, including catfish and prohibits the use of antimicrobials listed by the World Health Organization (WHO) as highly and critically important to human health. U.S. laws include restrictions on other antimicrobials in addition to those listed by WHO, WOAH, and NAHRS.

The laws specify that antimicrobial agents can be used only if prescribed by a licensed veterinarian following diagnosis of a specific disease. Antibiotics (even those few approved for use in catfish) have not been available over the counter in the U.S. since January 1, 2017, when all approved antibiotics were classified as Veterinary Feed Directive drugs. Therefore, there is no option to legally purchase antimicrobial agents unless a veterinarian maintains the required veterinary/patient/client relationship and writes a prescription (based on diagnostic testing results) for each specific farm for an approved drug. U.S. laws prohibit prophylactic use of antimicrobials; use of antibiotics as a growth promotor is also strictly prohibited and highly controlled.

FDA regulates the manufacture, distribution and use of animal drugs and ensures that drugs used in food-producing animals, including fish, are safe and effective and that foods derived from treated animals are free from potentially harmful drug residues. FDA has jurisdiction over all new animal drugs through the Federal Food, Drug, and Cosmetic Act as amended in 1968 and through the FDA Center for Veterinary Medicine (CVM) that regulates the manufacture and distribution of food additives and drugs to be fed to animals (including fish) and further regulates animal feed products. FDA further provides guidance on the safety of animal feed maintained and fed on the farm along with sanitation requirements for feed manufacturing. Animal feed manufacturing, distribution, and use of animal drugs is regulated by the FDA to ensure that drugs used in fish production are safe and effective and that foodfish are free from potentially harmful drug residues.

Very few antimicrobials have been approved for use in U.S. aquaculture generally, with even fewer approved for use in catfish farming. None of the antimicrobials approved in the U.S. for catfish farming are prohibited by WOAH.

The role of USDA-APHIS is to test veterinary biologic products made by domestic manufacturers and inspect production facilities, methods, and records. U.S. manufacturing facilities of veterinary biologics are licensed, and import permits are required for veterinary biologics produced in other countries. U.S. law requires diagnoses by licensed veterinarians or fish health professionals who have established a veterinarian/patient/client relationship with the farmer to have access to medications for their fish (through a Veterinary Feed Directive), through the Food Safey Modernization Act (FSMA). FSMA is enforced by USDA-APHIS through its jurisdiction over veterinary services. As a result, U.S. catfish farmers rely on their fish health professional for fish health management recommendations, as part of the overall required veterinarian/patient/client relationship. Decisions on quarantine and other aquatic animal health issues are made based on recommendations from their veterinarian or fish health professional. When the farm's fish health professional is not a licensed veterinarian, the diagnostic report is provided to a licensed veterinarian who writes the prescription to provide to the feed mill for medicated feed authorization.

As authorized by the Clean Water Act, EPA administers the National Pollutant Discharge Elimination System (NPDES) which prohibits the discharge of pollutants, including regulated products, such as drugs and other chemicals, into waters of the United States. USEPA works with its federal, state, and tribal regulatory partners to ensure compliance with pesticide laws and regulations to protect human health and the environment. EPA regulations are enforced by state-specific agencies, often designated as a Department of Environmental Quality or a similar title. Each state's Department of Environmental Quality regulatory program sets pollution limits, determines compliance requirements, and enforces environmental laws and regulations. Individual states may impose more stringent regulations, but not less rigorous ones.

USEPA authority extends further to the registration and licensing of pesticides to protect human health and the environment. With respect to aquaculture, USEPA has jurisdiction over disinfectants, sanitizers, and aquatic treatments used solely for the control of algae, bacterial slime, or pest control (excluding pathogens in or on fish).

In the U.S., civil and criminal penalties are levied against those companies and individuals who do not abide by these laws. Civil and criminal penalties are levied against those veterinarians,

feed manufacturers, and manufacturers of veterinary biologic companies and individuals who do not abide by these laws and are a strong deterrent to abuse. The relevant statute [CFR 9-I-161.7] states, "... anyone who performs accredited veterinarian duties that he or she is not authorized to perform will be subject to such criminal and civil penalties."

Table 2. Drug and Chemical Use

Description	URL/Reference
Department of Health and Human Services (HHS)	
Food and Drug Administration (FDA)	
Authority of U.S. FDA-CVM as related to animal drug use, including antibiotics	https://www.fda.gov/about-fda/center-veterinary-medicine/cvm-offices
Veterinary Feed Directive Final Rule and Next Steps. Fact sheet	https://www.fda.gov/animal-veterinary/development-approval-process/fact-sheet-veterinary-feed-directive-final-rule-and-next-steps
The Food Safety Modernization Act of 2011	https://www.fda.gov/food/food-safety-modernization-act-fsma/full-text-food-safety-modernization-act-fsma
Authority of U.S. FDA-CVM as related to animal drug use, including antibiotics	https://www.fda.gov/about-fda/center-veterinary-medicine/cvm-offices
Federal Food, Drug, and Cosmetic Act (FD&C Act). U.S. Food and Drug Administration	https://www.fda.gov/regulatory-information/laws-enforced-fda/federal-food-drug-and-cosmetic-act-fdc-act**;** https://www.fda.gov/food/seafood-guidance-documents-regulatory-information/fish-and-fishery-products-hazards-and-controls; https://www.fda.gov/food/guidance-regulation-food-and-dietary-supplements/registration-food-facilities-and-other-submissions
U.S. Environmental Protection Agency (EPA)	
Toxic Substances Regulatory and Guidance Information	https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-toxic-substances
Spill Prevention, Control, and Countermeasure (SPCC) for Agriculture	https://www.epa.gov/oil-spillsprevention-and-preparedness-regulations/spill-prevention-controland-countermeasure-spcc
Chemical Handling Laws and Regulations that Apply to Your Agricultural Operation by Farm Activity	www.epa.gov/agriculture/laws-and- regulations-applyyour-agricultural-operation-farm- activity#ChemicalHandling
Laws and Regulations that Apply to Your Agricultural Operation by Farm Activity	https://www.epa.gov/agriculture/laws-and-regulations-apply-your-agricultural-operation-farm-activity
Water Regulatory and Guidance Information	https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-water

Pesticide Regulatory and Guidance Information	https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-pesticides
National Environmental Protection Act (NEPA)	https://www.epa.gov/nepa/what-national-environmental-policy-act
U.S. Department of Interior	
U.S. Fish & Wildlife Service	
Critical Habitat under the Endangered Species Act	https://www.fws.gov/southeast/ endangered-species-act/critical-habitat/; https://www.federalregister.gov/documents/2022/07/21/2022-15495/endangered-and-threatened-wildlife-and-plants-regulations-for-designating-critical-habitat; and https://www.fws.gov/ southeast/ endangered-species-act/critical-

B.3 Energy Use on U.S. Catfish Farms

The close ties of U.S. catfish farmers with university research and extension has resulted in rapid adoption of production technologies that use resources, including energy, more efficiently. The engagement among research, extension specialists, and farmers industrywide has resulted in improved efficiencies that are likely to continue as research continues to identify ways to improve efficiency of energy and other resources. In a study on resource use efficiencies, in the U.S. catfish industry, Kumar et al. (2023) reported that, "Study results support recent findings that underlying economic sustainability was the key driver of progressive adoption of productivity-enhancing technologies in the U.S. catfish industry".

Engle et al. (2021) showed that U.S. catfish production in open ponds utilizes energy more efficiently than fish production in more intensive systems such as recirculating aquaculture systems (RAS). Hegde et al. (2022) and Kumar et al. (2023) showed that rapid adoption by U.S. catfish farmers of more intensive pond production methods increased production per unit of land and used energy, water, and other resources more efficiently than prior management practices.

B.4 Feed Use Laws and Regulation (Table 3)

Less than 1% of the feed fed to U.S. catfish is from fishmeal/fish oil. The small amount of fishmeal that is used in U.S. catfish production is fed primarily to catfish fry (less than 2 inches in length). “Fry starter feeds are only used in hatcheries and are estimated to account for less than 0.1% of annual feed fed (pers. comm., Menghe Li, Mississippi State University 2017)” (Page 34, Seafood Watch-US Channel Catfish, 2020). A small amount of oil is sprayed on the pellets as a top coating to maintain pellet integrity and reduce waste from what are called “fines,” or dust, that dissolve into the water without being consumed by the fish.

Menhaden used for fishmeal is caught from U.S. coastal waters, primarily the Gulf of Mexico that is MSC-certified with oversight from the Gulf States Marine Fisheries Commission (MSC; Accesswire, 2024). “The most commonly available fish meal in the United States is menhaden meal, which contains 62% protein of excellent quality and 9% oil, a rich source of essential fatty acids and energy. It is also an excellent source of phosphorus and other minerals. However, fish meal is expensive, and the supply is limited. It is not used in catfish foodfish feeds, but catfish fry feeds used in the hatchery and some fingerling feeds contain fish meal.” (Li & Robinson, 2021).

U.S. law enforces regulation of illegal, unreported, and unregulated (I.I.U.) fishing, through the Illegal, Unreported and Unregulated Fishing Enforcement Act of 2013 (159 Congressional Record 69) that enhanced existing authority of NOAA and the U.S. Coast Guard to regulate IUU fishing.

Soybean meal, the major ingredient in U.S. catfish feeds has been shown to have decreased its global warming potential from 2015 to 2024 by 19% per kg of U.S. soybeans; 6% per kg U.S. soybean meal, 22% per kg U.S. crude soy oil and 8% per kg U.S. refined soy oil.

No U.S. catfish feed mills use raw fish in their diet formulations nor do they use catfish meal in their feeds. Catfish offal from U.S. catfish processing plants is sold to a rendering company that sells catfish meal primarily to hog producers as feed for piglets with some additional sales of catfish meal for pet foods.

Table 3. Feed Use

Description	URL/Reference
U.S. Department of Commerce (DOC)	
National Oceanic and Atmospheric Administration (NOAA)	
The Illegal, Unreported, and Unregulated Fishing Enforcement Act of 2013. 159 Congressional Record 69 gives NOAA and other federal and state agencies are given the authority to enforce those laws, including enforcement through vessel forfeiture and civil and criminal penalties	https://www.govinfo.gov/app/details/CRECB-2013-pt1/CRECB-2013-pt1-Pg69
U.S. Department of Homeland Security	
U.S. Coast Guard	
The Illegal, Unreported, and Unregulated Fishing Enforcement Act of 2013. 159 Congressional Record 69 directs the Coast Guard to enforce specified laws to address illegal, unreported, or unregulated (IUU) fishing	https://www.govinfo.gov/app/details/CRECB-2013-pt1/CRECB-2013-pt1-Pg69

B.5 Environmental Quality Laws and Regulation (Tables 4, 5, 6, 7, 8)

B.5.1 Effluents (Table 4)

U.S. catfish are raised in ponds with long hydraulic retention times such that water is retained without discharge from draining for 10 or more years (Engle et al., 2021). U.S. catfish production in ponds was scored "Green" on both Criteria 1 ("Data Quality and Availability") and 2 ("Effluents") by Seafood Watch (2022). The Seafood Watch report states:

> 1) "Effluent regulatory control is stringent and enforcement is strict. Data regarding effluent discharge are available through the literature and provide information regarding typical ponds under various environmental conditions (rain, drought, etc.). The impact of effluent discharges from catfish ponds is well studied and understood; comprehensive regional-scale studies specific to watersheds where catfish farming occurs in the U.S. have been completed, and state regulatory agencies monitor and report public water quality as well as identify causes of impairment"; and 2) "Due to the overall low volume of effluent and relatively minor contribution to cumulative impact in the receiving waterbody, catfish farming does not result in significant effluent related environmental impacts. Any contribution to cumulative impact is well regulated and managed to be reduced to an ecologically safe level. Data show no evidence that effluent discharges cause or contribute to cumulative environmental impacts, beyond the well-regulated and enforced ecologically acceptable impacts set by federal and state-level assessments."

Relevant federal laws that authorize the U.S. Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers (USACE), and the U.S. Coast Guard to establish and enforce effluent guidelines and national standards for wastewater discharges to surface waters, including discharges from concentrated aquatic animal production (CAAP), or aquaculture, facilities, include the National Environmental Protection Act, the Clean Water Act, and the Rivers and Harbors Act. The state departments of Environmental Quality (or other, similar name) set pollution limits, determine compliance, and enforce environmental laws and regulations for their respective state. States are authorized to set more, but not less stringent limits than the federal standards and guidelines.

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

B.5.2 Chemical Use on Farms (Table 4)

The U.S. EPA regulates and enforces regulations related to use of chemicals on farms through the Federal Insecticide, Fungicide, and Rodenticide Act. U.S. catfish pond production is rated Green on Criterion 4, Chemical Use by Seafood Watch (2024). The report states:

> "Data regarding chemical use are well documented, published by the USDA National Animal Health Monitoring System (NAHMS) in 2010. Chemicals legal for use in the U.S. go through a scientifically rigorous authorization by the FDA, which assesses the environmental and human health impact of the expected use and discharge of chemicals; these are publicly available and fairly comprehensive. Impacts of chemical discharges are also fairly well understood and documented in the literature."

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

B.5.3 Pesticide Use (Table 4)

The EPA works with its federal, state, and tribal regulatory partners to assure compliance with pesticide laws and regulations to protect human health and the environment. State natural resource agencies protect wildlife and natural resources through their authorization and jurisdiction over resources within state boundaries.

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

B.5.4 Predator Control (Table 5)

It is not legal in the U.S. to pursue, hunt, capture, kill, attempt to take, capture, or kill any migratory bird, including endangered species. Thus, lethal predator control techniques are not allowed on endangered species and are only allowed for other migratory birds if a permit is approved. Predator control on U.S. farms is regulated by the U.S. Fish and Wildlife Service (USFWS) and USDA-APHIS, through its Wildlife Services (WS) Program.

The USFWS enforces the Endangered Species Act (together with the National Oceanic and Atmospheric Administration, NOAA), and provides migratory bird protection through permitting by the USDA-APHIS-WS (USDA-APHIS-Wildlife Services, 2020). The Endangered Species Act expressly prohibits the “take”, or kill, of an endangered species. Relevant policy includes the Endangered Species Act, the Migratory Bird Treaty Act, the Fish and Wildlife Coordination Act, and the Illegal, Unreported, and Unregulated Fishing Enforcement Act of 2013.

The Seafood Watch-US Channel Catfish rating on Predator Control (Criterion 9X) is “Green” because nonlethal predator deterrents are used extensively. Lethal control is restricted to the double-crested cormorant, that has exhibited rapid population growth. In addition, catfish ponds provide considerable habitat to reptiles, amphibians, and mammals that would otherwise not exist under previous agricultural land.

Civil and criminal penalties are levied against those companies and individuals who do not abide by the laws and restrict their take to those species approved by permit. Enforcement is under the authority of the Lacey Act through USFWS wildlife officers. Laws are actively enforced by USFWS and state wildlife officers in each state. U.S. wildlife officers undergo the same training and have the same authority as law enforcement officers. Under The Endangered Species Act of 1973, take of a single individual of an endangered species is a criminal misdemeanor with penalties of up to 1 year imprisonment and fines pursuant to a maximum of $50,000. Under the Migratory Bird Treaty Act of 1918 (MBTA), misdemeanor offenses have fines up to a maximum of $5,000 and or imprisonment for not more than six months for individuals, or $10,000 for an organization. Felony offenses have fines up to a maximum of $250,000 and/or imprisonment for not more than two years for an individual or $100,000 for an organization.

B.5.5 Habitat (Table 6)

Seafood Watch (2022) rated United States Channel Catfish – Ponds as “Green” on Criterion 3, Habitat. The report states:

> "Catfish ponds are sited in moderate-value habitats that were historically altered (more than 15 years ago) by activities such as agriculture, yet represent a small fraction of disturbance overall in the ecosystems they are sited in; in addition, catfish ponds provide critical habitat to a variety of taxa that would otherwise be lost as cropland, which ponds have replaced. As such, catfish ponds are said to maintain ecosystem functionality with moderate impacts. There are limited considerations of cumulative habitat impacts. Enforcement of these regulations is highly effective and active at the area-based scale, and the permitting, licensing, and enforcement history is transparent and accessible."
>
> "Regulatory control of habitat conversion is moderate and enforcement is strict. The areas where catfish farming primarily occurs in the U.S. have completed habitat assessments and these are available in the literature. Data regarding site locations and their history is available through the USDA Natural Resources Conservation Service (USDA-NRCS) and USACE mapping. Data on the impact of habitat loss specifically due to catfish farm construction are limited, though this is due to the "secondary" conversion nature of their construction (catfish ponds are almost exclusively sited in retired cropland, created up to 200 years ago). "

USFWS is authorized to protect wildlife, habitat, and biodiversity and regulates critical habitat under the Endangered Species Act (U.S. Fish and Wildlife Service, 2020). Incentive programs have been created to conserve wildlife habitat and biodiversity with the USDA-NRCS that include the: Environmental Quality Incentives, Voluntary Public Access and Habitat, Regional Conservation Partnership, Agricultural Management Assistance, Conservation Innovation Grants, Wetland Mitigation Banking, Conservation Stewardship, Conservation Reserve, Agricultural Conservation Easement, Healthy Forests Reserve, Wetland Reserve Easement, Wetland Reserve Enhancement, and the Agricultural Land Easements programs.

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

B.5.6 Wetland Regulation (Table 6)

The USDA-NRCS and USACE enforce wetland regulations and permitting. USDA-NRCS is responsible for the certification of wetlands determination, manages the Wetland Mitigation Banking Program and incentive programs that include conservation of wetland areas such as the Wetland Reserve Easement and Wetland Reserve Enhancement Partnership programs. Relevant policy includes the Clean Water Act (jurisdiction and wetlands).

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

B.5.7 Source of Seed (Table 7)

State agencies regulate the management of wild fish and prohibit capture of wild fry and/or fingerlings (seed). Seafood Watch scores U.S. Farmed Catfish "Green" for Criterion 8X, "Source of Stock."

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

B.5.8 Non-native Species

U.S. catfish are raised in eco-regions where the species is native, under similar climatic conditions to those of wild channel catfish, using farming practices that have evolved through extensive research into catfish farming methods. There is a robust scientific literature and extension materials on appropriate and suitable farming conditions for U.S. catfish (Tucker & Hargreaves, 2004) as well as water quality conditions (Boyd, 1990) that later surveys (Kumar et al., 2020; Hegde et al., 2022) show have been adopted on U.S. commercial catfish farms.

USFWS regulates the importation and transport of species, including offspring and eggs, determined to be injurious to the health and welfare of humans, the interests of agriculture, horticulture or forestry, and the welfare and survival of U.S. wildlife resources. USFWS regulation of non-native species is authorized through the National Invasive Species Act, the Non-indigenous Aquatic Nuisance Prevention and Control Act, and the Lacey Act. USFWS also regulates inter-state movement of fish and wildlife. Management authority for resources within the boundaries of each state lies with each state's fish and game agency, but state agencies can request assistance from USFWS that has authority to impose more serious penalties.

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

B.5.9 Disease Transfer from Farms to Wild

The Seafood Watch report on US channel catfish raised in ponds (2022) rates U.S. catfish as "Green" on Criterion 7 (Disease). The report states:

> "Review of data from the USFWS National Wild Fish Health Survey Database revealed no historical record of disease transfer from cultured channel catfish to wild fish populations. Management practices have resulted in moderately successful mitigation of disease occurrence and losses in the industry. The ponds used to produce catfish are static and do not intentionally discharge water over multiple production cycles, reducing the risk of transfer of disease to wild populations. Data from the USFWS National Wild Fish Health Survey Database suggest that on-farm pathogens and/or parasites that may be transmitted to receiving waters do not amplify those found at natural or background levels."

B.5.10 Proper Storage and Management of Farm Supplies (Table 8)

The U.S. EPA laws also promulgate and enforce regulations through specific guidelines related to proper storage and management of farm supplies, including fuel, pesticides, other farm supplies and wastes, and provides guidance for doing so. The EPA works with its federal, state, and tribal regulatory partners to ensure compliance with pesticide laws and regulations to protect human health and the environment. These partners include each state Department of Environmental Quality (specific names of departments vary state by state) for regulation of storage of fuel/oil and solid waste disposal, and state departments of Agriculture that regulate agricultural chemicals and their storage.

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

B.5.11 Waste Management (Table 8)

Waste management on farms is regulated by the U.S. Environmental Protection Agency through specific guidelines for proper management of farm wastes. Enforcement is largely through state partners. These partners include each state Department of Environmental Quality (specific names of departments vary state by state) for regulation of storage of fuel/oil and solid waste disposal, and state departments of Agriculture that regulate agricultural chemicals and their storage.

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

Table 4. Environmental Quality: Water, Effluents, Chemical Use on Farms, and Pesticide Use

Description	URL/Reference
U.S. Environmental Protection Agency (EPA)	
National Environmental Protection Act (NEPA)	https://www.epa.gov/nepa/what-national-environmental-policy-act
Water	
Water Regulatory and Guidance Information	https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-water
Effluents	
USEPA Effluent Limitation Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category: Final Rule. 2004b. Federal Register 69(162) Part II. United States Environmental Protection Agency, Washington, D.C.	http://epa.gov/guide/aquaculture; https://www.federalregister.gov/documents/2004/08/23/04-15530/effluent-limitations-guidelinesand-new-source-performance-standards-for-the-concentratedaquatic
Chemical Use on Farms	
Laws and Regulations that Apply to Your Agricultural Operation by Farm Activity	https://www.epa.gov/agriculture/laws-and-regulations-apply-your-agricultural-operation-farm-activity
Chemical Handling Laws and Regulations that Apply to Your Agricultural Operation by Farm Activity	www.epa.gov/agriculture/laws-and- regulations-applyyour-agricultural-operation-farm-activity#ChemicalHandling
Pesticide Regulatory and Guidance Information	https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-pesticides
Toxic Substances Regulatory and Guidance Information	https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-toxic-substances
Spill Prevention, Control, and Countermeasure (SPCC) for Agriculture	https://www.epa.gov/oil-spillsprevention-and-preparedness-regulations/spill-prevention-controland-countermeasure-spcc

Table 5. Predator Control

Description	URL/Reference
U.S. Department of Interior	
U.S. Fish & Wildlife Service	
U.S. Fish & Wildlife Service (USFWS). 2020	U.S. Criminal Code, Title 18, ESA 19973, MBTA 1918
Predator Control under the Endangered Species Act	https://www.fws.gov/law/endangered-species-act
U.S. Department of Agriculture	
Animal Plant and Health Inspection Service (APHIS)	
USDA-APHIS-Wildlife Services has inspectors in each state that verify that each farm continues to implement non-lethal control measures	Control of Predation and Wild Animals (7 U.S.C. 8351-8354)
Wildlife Services. 2020. Migratory Bird Depredation Permit Process	www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/operational-activities/ ct_federal_permit_process

Table 6. Habitat and Wetlands

Description	URL/Reference
U.S. Environmental Protection Agency (EPA)	
National Environmental Protection Act (NEPA)	https://www.epa.gov/nepa/what-national-environmental-policy-act
U.S. Department of Defense	
U.S. Army Corps of Engineers	
Wetlands Jurisdiction; permits for structures, Code of Federal Register Title 33	https://www.nae.usace.army.mil/Missions/Regulatory/Jurisdiction-and-Wetlands/
U.S. Department of Agriculture	
Natural Resources Conservation Service (NRCS)	
Certified Wetlands Determination	https://www.nrcs.usda.gov/ resources/guides-and-instructions/certified-wetlands-determination
Environmental Quality Incentives Program	https://www.nrcs.usda.gov/programs-initiatives/eqip-environmental-quality-incentives
Voluntary Public Access and Habitat Incentive Program	https://www.nrcs.usda.gov/programs-initiatives/vpa-hip-voluntary-public-access-and-habitat-incentive-program
Regional Conservation Partnership Program	https://www.nrcs.usda.gov/programs-initiatives/rcpp-regional-conservation-partnership-program
Agricultural Management Assistance Program	https://www.nrcs.usda.gov/programs-initiatives/ama-agricultural-management-assistance
Conservation Innovation Grants	https://www.nrcs.usda.gov/programs-initiatives/cig-conservation-innovation-grants
Wetland Mitigation Banking Program	https://www.nrcs.usda.gov/programs-initiatives/wmpb-wetland-mitigation-banking-program
Conservation Stewardship Program	https://www.nrcs.usda.gov/programs-initiatives/csp-conservation-stewardship-program
Conservation Reserve Program.	https://www.nrcs.usda.gov/programs-initiatives/crp-conservation-reserve-program
Agricultural Conservation Easement Program	https://www.nrcs.usda.gov/programs-initiatives/acep-agricultural-conservation-easement-program

Healthy Forests Reserve Program	https://www.nrcs.usda.gov/programs-initiatives/hfrp-healthy-forests-reserve-program
Wetland Reserve Easement Program	https:://www.nrcs.usda.gov/programs-initiatives/wre-wetland-reserve-easements
Wetland Reserve Enhancement Partnerships	https://www.nrcs.usda.gov/programs-initiatives/wrep-wetland-reserve-enhancement-partnership
Agricultural Land Easements	https://www.nrcs.usda.gov/programs-initiatives/ale-agricultural-land-easements
Critical Habitat under the Endangered Species Act	https://www.fws.gov/southeast/ endangered-species-act/critical-habitat/; https://www.federalregister.gov/documents/2022/07/21/2022-15495/endangered-and-threatened-wildlife-and-plants-regulations-for-designating-critical-habitat; and https://www.fws.gov/ southeast/ endangered-species-act/critical-habitat/
Critical Habitat under the Endangered Species Act	https://www.fws.gov/southeast/ endangered-species-act/critical-habitat/; https://www.federalregister.gov/documents/2022/07/21/2022-15495/endangered-and-threatened-wildlife-and-plants-regulations-for-designating-critical-habitat; and https://www.fws.gov/ southeast/ endangered-species-act/critical-habitat/

Table 7. Source of Seed

Description	URL/Reference
Department of Health and Human Services (HHS)	**Department of Health and Human Services (HHS)**
Food and Drug Administration (FDA)	***Food and Drug Administration (FDA)***
The Food Safety Modernization Act of 2011	https://www.fns.usda.gov/f2s/what-is-the-food-safety-modernization-act; https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-seafood-haccp-and-fda-food-safety-modernization-act; full text at: https://www.fda.gov/food/food-safety-modernization-act-fsma/full-text-food-safety-modernization-act-fsma
FDA-CVM GFI #120 Veterinary Feed Directive Regulation Questions and Answers	https://www.fda.gov/media/70173/download

Table 8. Proper Storage and Management of Farm Supplies and Waste Management

Description	URL/Reference
U.S. Environmental Protection Agency (EPA)	
National Environmental Protection Act (NEPA)	https://www.epa.gov/nepa/what-national-environmental-policy-act
Proper Storage and Management of Farm Supplies	
Laws and Regulations that Apply to Your Agricultural Operation by Farm Activity	https://www.epa.gov/agriculture/laws-and-regulations-apply-your-agricultural-operation-farm-activity
Chemical Handling Laws and Regulations that Apply to Your Agricultural Operation by Farm Activity	www.epa.gov/agriculture/laws-and- regulations-applyyour-agricultural-operation-farm- activity#ChemicalHandling
Pesticide Regulatory and Guidance Information	https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-pesticides
Toxic Substances Regulatory and Guidance Information	https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-toxic-substances
Spill Prevention, Control, and Countermeasure (SPCC) for Agriculture	https://www.epa.gov/oil-spillsprevention-and-preparedness-regulations/spill-prevention-controland-countermeasure-spcc
Water Regulatory and Guidance Information	https://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-water
U.S. Department of Defense	
U.S. Army Corps of Engineers	
Wetlands Jurisdiction; permits for structures, Code of Federal Register Title 33	https://www.nae.usace.army.mil/Missions/Regulatory/Jurisdiction-and-Wetlands/
U.S. Department of Defense	
Department of Health and Human Services (HHS)	
Food and Drug Administration (FDA)	
FDA guidance on Safety of Animal Feed Maintained and Fed On-Farm	https://www.fda.gov/media/91080/download
Sanitation requirements for feed manufacturing to prevent animal food from becoming adulterated. Code of Federal Register Title 21 that specifies sanitation	https://www.ecfr.gov/current/title-21/chapter-I/subchapter-E/part-507

B.6 Food Safety (Table 9)

Public health in the U.S. is regulated generally through the Public Health Service Act that is the legal authority of the U.S. Department of Health and Human Services (HHS) for responding to public health emergencies. The HHS Secretary leads all Federal public health and medical responses to public health emergencies. State Departments of Health also inspect fish processing establishments, including the products' condition, equipment, manufacturing process, hygienic practices, sanitation, and labeling of products.

In the U.S., the FDA operates a mandatory safety program for all fish and fishery products under the provisions of the Federal Food, Drug and Cosmetic (FD&C) Act and related regulations. While safety of most seafood products is under FDA's jurisdiction, the safety of U.S. farmed catfish is under the jurisdiction of the USDA Food Safety and Inspection Service (USDA-FSIS) along with other farmed sources of protein (i.e., beef, poultry, pork) through the Federal Meat Inspection Act (FMIA). USDA-FSIS requires the continuous presence of federal inspectors at all times that catfish processing plants are in operation. Relevant regulatory authorities include the FDA, USDA-APHIS, EPA, CVM, and USDA-FSIS.

USDA-FSIS protects the public's health by ensuring that meat, poultry, and egg products are safe, wholesome, and properly labeled. USDA-FSIS authorizes provisions of the Federal Meat Inspection Act of 1906. Inspection of farm-raised fish of the Siluriformes order (that includes the species of catfish farmed in the U.S. and elsewhere in the world) was moved from FDA to the more rigorous testing and inspection program of USDA-FSIS in 2016. Relevant policy includes: Veterinary Feed Directive Final Rule (2015), FDA List of Approved Drugs, Federal Food, Drug, and Cosmetic Act (FD&C Act).

The catfish raised on U.S. farms have not been genetically modified and are exclusively non-GMO, not Genetically Modified Organisms (Tucker and Hargreaves, 2004).

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

Table 9. Food Safety

Description	URL/Reference
U.S. Department of Health and Human Services (HHS)	**Department of Health and Human Services (HHS)**
Food and Drug Administration (FDA)	***Food and Drug Administration (FDA)***
The Food Safety Modernization Act of 2011	https://www.fns.usda.gov/f2s/what-is-the-food-safety-modernization-act; https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-seafood-haccp-and-fda-food-safety-modernization-act; full text at: https://www.fda.gov/food/food-safety-modernization-act-fsma/full-text-food-safety-modernization-act-fsma
FDA-CVM GFI #120 Veterinary Feed Directive Regulation Questions and Answers	https://www.fda.gov/media/70173/download
Federal Food, Drug, and Cosmetic Act (FD&C Act). U.S. Food and Drug Administration	https://www.fda.gov/regulatory-information/laws-enforced-fda/federal-food-drug-and-cosmetic-act-fdc-act**;** https://www.fda.gov/food/seafood-guidance-documents-regulatory-information/fish-and-fishery-products-hazards-and-controls; https://www.fda.gov/food/guidance-regulation-food-and-dietary-supplements/registration-food-facilities-and-other-submissions
Public Health Service Act	https://www.govinfo.gov/content/pkg/COMPS-8773/pdf/COMPS-8773.pdf
U.S. Department of Agriculture	
Food Safety Inspection Service (USDA-FSIS)	
Food Safety Inspection Service. U.S. Department of Agriculture protects the public's health by ensuring that meat, poultry and egg products are safe, wholesome and properly labeled	https://www.fsis.usda.gov/about-fsis
Federal Meat Inspection Act	https://www.fsis.usda.gov/policy/food-safety-acts/federal-meat-inspection-act, Section 18

Animal Plant and Health Inspection Service (APHIS)	
Talmadge-Aiken Act (7U.S.C.1633) provides authority for federal agencies to enter cooperative agreements with state agencies that administer and enforce state laws and regulations related to controlling or eradicating plant and animal pests and diseases	https://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title7-section1633&num=0&edition=prelim
U.S. Environmental Protection Agency (EPA)	
Safe Drinking Water Act	https://www.epa.gov/sdwa

B.7 Social Responsibility (Table 10)

The Occupational Safety and Health Administration (OSHA), the U.S. Department of Labor (DOL), and state partners enforce the Occupational Safety and Health Act of 1970, the Fair Labor Standards Act of 1928, and the Worker Protection Standard. EPA enforces the Agricultural Worker Protection Standard of 1992 to reduce pesticide poisonings and injuries among agricultural workers and pesticide handlers. The U.S. Equal Employment Opportunity Commission (USEEOC) enforces federal laws that make it illegal to discriminate against a job applicant or an employee because of the person's race, color, religion, sex, national origin, age, disability, or genetic information. State Departments of Labor administer and enforce laws related to minimum wage, overtime, student learners, child labor, disabled workers, equal pay, and collecting unpaid wages for employees. The U.S. Immigration and Customs Enforcement (ICE) Agency enforces immigration and guest worker laws.

Civil and criminal penalties are levied against those companies and individuals who do not abide by these laws.

Table 10. Social Responsibility

Description	URL/Reference
U.S. Department of Labor	
Wages and the Fair Labor Standards Act	https://www.dol.gov/agencies/whd/flsa
Occupational Safety and Health Administration (OSHA)	
OSHA authority	https://www.osha.gov/laws-regs/oshact/completeoshact
U.S. Equal Employment Opportunity Commission (USEEOC)	
Laws and guidance	https://www.eeoc.gov/laws-guidance
U.S. Department of Agriculture	
Animal and Plant Health Inspection Service	
Animal Welfare Act authorizes USDA-APHIS to provide leadership for determining standards of humane care and treatment of animals	https://www.nal.usda.gov/animal-health-and-welfare/animal-welfare-act
U.S. Environmental Protection Agency (USEPA)	
Agricultural Worker Protection Standard	https://www.epa.gov/pesticide-worker-safety/agricultural-worker-protection-standard-wps
U.S. Health and Human Services (USHHS). 2023	
HHS Legal Authorities Related to Disasters and Emergencies	https://www.phe.gov/Preparedness/planning/authority/Pages/default.aspx

The Standard requires that participating businesses develop a quality management system for environmental sustainability. The Process Verified Points included in the U.S. Farm-Raised Catfish Environmental Sustainability Certification Program are those for which no regulations are currently in place for U.S. catfish farming. The process verified points conform to Items 6.3.b ("production and/or handling practice that provides specific information to consumers to enable them to make informed decisions on the products that they buy") and 6.3.e ("characteristic, practice, or requirement that is specifically requested by a customer or consumer") of the QAD 1001 Procedure of the USDA Process Verified Procedure.

Specific process points related to environmental sustainability that are not regulated by U.S. laws include:

1. Fishmeal and fish oil conservation
2. Protection of wild fish stocks by using only domesticated, farm-raised fry and fingerlings.

C.1 Catfish Processor Process Verified Points

C.1.1 Fishmeal and fish oil conservation

Processors will require that farmers provide copies of the signed statement from feed mill(s) specifying the percent of wild fishmeal and fish oil used in the feeds for the past year prior to purchase of fish.

C.1.2 Use of fry or fingerlings from the wild

Processors will require that farmers provide copies of signed statements from vendors who supply fry and fingerlings to growout farms that the fish sold were raised on farms and not captured from the wild.

C.2 Catfish Farm Standard Process Verified Points

C.2.1 Fishmeal and fish oil conservation

C.2.1.1 Background. Excessive use of fishmeal and fish oil in fish feeds can contribute to over-fishing, often of marine forage fish that contribute to marine food chains.

C.2.1.2 Standard. The feed fed contains less than 5% wild fish meal and fish oil.

C.2.1.3 Compliance. The farm will obtain annually a signed statement from the feed mill(s) that specifies the percent of wild fish meal and fish oil used in the feeds for the past year.

C.2.1.4 Relevant information. Global overview on the use of fish meal and fish oil in industrially compounded aquafeeds: Trends and future prospects (Tacon and Metian. 2008); Composition and formulation of channel catfish feeds (Robinson and Li 2012).

C.2.2 Use of fry or fingerlings from the wild

C.2.2.1 Background. Use of wild fry, or fingerlings that can result in depletion of natural populations of wild fish.

C.2.2.2 Standard. All fish used for growout on the farm were obtained from domestic stocks raised on farms and hatcheries. All fry and fingerlings grown have been raised on farm or on a hatchery that supplies the farm with fingerlings for stocking.

C.2.2.3 For compliance. A letter will be provided by the vendor certifying the origin of fry or fingerlings from the vendor. The certification letter will be updated each year as part of the quality management system.

C.2.2.4 Relevant information. Sadovy de Mitcheson, Y and M. Liu. 2008. Environmental and biodiversity impacts of capture-based aquaculture. In A. Lovatelli and P.F. Holthus (eds). Capture-based aquaculture. Global overview. *FAO Fisheries Technical Paper*. No. 508. Rome, FAO. pp. 5–39.

Part D. Requirements for Participation in the U.S. Farm-Raised Catfish Environmental Sustainability Certification Program

D.1 Quality Management System

Participation in the program requires the development and maintenance of a Quality Management System. The company applying for participation in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program must develop a Manual that describes and establishes the details of the Quality Management System. The Manual developed will be based on the QAD 1001 Procedure of the USDA Process Verified Program.

The Quality Management System Manual will specify the supply chain partners involved in the program and will include the agreements signed for participation in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Management System.

D.2 Agreements Among Supply Chain Partners

Application for participation in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program will include agreements established between the applicant and their supply chain partners. Agreements to be signed will include:

1. Modification of purchasing agreements with farms to include:
    a. Commitment to comply with the Standards of the U.S. Farm-Raised Catfish Environmental Sustainability Certification Program.
    b. Agreement to be audited by USDA-AMS.

2. Signed agreement (Attachment A to this Standard) with all hatcheries that supply fish to participating farmers that specifies:
    a. Commitment to comply with the Standards of the U.S. Farm-Raised Catfish Environmental Sustainability Certification Program.

b. Agreement to be audited by USDA-AMS.

3. Signed agreement (Attachment B to this Standard) with all feed mills that supply feed to participating farmers that specifies:
    a. Commitment to comply with the Standards of the U.S. Farm-Raised Catfish Environmental Sustainability Certification Program.
    b. Agreement to be audited by USDA-AMS.

Table 11. U.S. Farm-Raised Catfish Environmental Sustainability Process Verified Points – Summary

Process Verified Points	Standard	Compliance record-keeping
Catfish Processor		
1. Fishmeal and fish oil conservation	The feed fed contains less than 5% wild fish meal and fish oil.	Processors maintains copies provided by farmers of the signed statement from feed mill(s) specifying the percent of wild fishmeal and fish oil used in the feeds for the past year prior to purchase of fish.
2. Use of fry or fingerlings from the wild	All fish used for growout on the farm are from captive, domestic stocks raised on farms and hatcheries.	Processor maintains copies provided by farmers of the signed statements from fry and fingerling suppliers of the origin of the fish sold.
Catfish Farm		
1. Fishmeal and fish oil conservation	The feed fed contains less than 5% wild fish meal and fish oil.	The farm will obtain annually a signed statement from the feed mill(s) that specifies the percent of wild fish meal and fish oil used in the feeds for the past year.
2. Use of fry or fingerlings from the wild	All fish used for growout on the farm are from domestic stocks raised on farms and hatcheries. All fry and fingerlings grown have been raised on farm or on a hatchery that supplies the farm with fingerlings for stocking.	A letter will be provided by the vendor certifying the origin of fry or fingerlings from the vendor. The certification letter will be updated each year as part of the quality management system.

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Agreement A

Agreement with Hatcheries for Participation in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program

THIS AGREEMENT (the "Agreement") made and entered into this _____ day of _____, _____ ("the Execution Date").

BETWEEN: _____("Hatchery") and

_____

BACKGROUND:

A. The partners wish to associate themselves for purposes of participating in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program.

B. This agreement sets out the terms and conditions of participation in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program

TERMS AND CONDITIONS:

A. Hatchery agrees to take necessary steps to conform to the standards of the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program, including:

1. Provide a signed statement annually to each farm participating in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program specifying that the fingerlings/fry sold farms participating in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program were farm-raised and not caught from the wild.

B. Hatchery agrees to be audited by the USDA-AMS for purposes of the U.S. Farm-Raised Catfish Environmental Sustainability Certification Program.

IN WITNESS WHEREOF, the parties have duly affixed their signatures under hand and seal this _____ day of _____.

_____ _____

Title Date Title Date

Printed name: _____ _____

Agreement B
Agreement with Hatcheries for Participation in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program

THIS AGREEMENT (the "Agreement") made and entered into this _____ day of _____, _____ ("the Execution Date").

BETWEEN: _____("Feed Mill") and

_____

BACKGROUND:

A. The signatories wish to associate themselves for purposes of participating in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program.

B. This agreement sets out the terms and conditions of participation in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program

TERMS AND CONDITIONS:

A. Feed Mill agrees to take necessary steps to conform to the standards of the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program, including:

1. Provide a signed statement annually to each farm participating in the USDA-AMS-PVP U.S. Farm-Raised Catfish Environmental Sustainability Certification Program specifying the percent of wild fishmeal and fish oil used in the feeds for the past year prior to purchase of fish.

B. Feed mill agrees to be audited by the USDA-AMS for purposes of the U.S. Farm-Raised Catfish Environmental Sustainability Certification Program.

IN WITNESS WHEREOF, the parties have duly affixed their signatures under hand and seal this _____ day of _____.

_____ _____

Title Date Title Date

Printed name: _____ _____

Appendix to Standard: List of Required Documents

List of Required Documents – Growout Farms

Aquatic Animal Health

- Aquatic Animal Health Management Plan with dates of review and revision, and includes biosecurity measures (including a list of likely diseases), record of response protocols to disease outbreaks and containment measures (including those of any invasive diseases), a procedure for handling mortalities that safeguards against the human health risk from puncture wounds and bacterial infections from handling dead catfish, twice a year visual inspection of overflow drain pipes from pond facilities to minimize the risk of escapes, and appropriate personnel training
- Record of visits with fish health professional (to farm and farmer to fish health laboratory), notifications of disease outbreaks maintained either by farm or the relevant diagnostic laboratory
- Disease testing reports, diagnosis, prescriptions, treatment regime prescribed
- Record of application of medicated feed or other therapeutant
- Receipts of medicated feed purchased
- Auditor will do visual inspection of office, chemical storage area to ensure no prohibited antimicrobials in use
- Records of water quality monitoring (i.e., dissolved oxygen, chloride levels to prevent brown blood disease, alkalinity, etc.). Records can include inspection of automated dissolved oxygen monitoring systems and receipts of relevant maintenance services, records from on-farm testing, and/or water quality testing reports from diagnostic laboratories
- Record, or farm log of attendance by farmers and staff at Extension and other workshops, seminars, meetings, including the annual training conducted by the processor that manages the Quality Management System
- Record of mortalities, reason for mortalities, and handling of mortalities in accord with the procedure specified in the Aquatic Animal Health Management Plan

Chemical Use

- Record of use, rationale, and application methods of all chemicals, including disinfectants, herbicides, anaesthetics
- Record of inspection of storage of chemicals, fuel, and feed to verify safety
- Record of inspection of waste management system and disposal methods used for non-biological waste disposal
- Receipts from waste management services, including recovery of waste oil or other materials or equipment for recycling or removal from premises

Energy use

- Annual documentation of energy use through records of electric and fuel bills for comparison across years

Production records

- Yield (lb of fish sold/acre in growout production)
- FCR (lb of feed purchased/lb of fish sold)
- Record of seed purchases, including date, vaccination status, health status
- Receipt from source (s) of fry and fingerlings
- Broodstock management plan, where applicable

Predator control records

- Report to USFWS (that includes species) on take of avian predators (only for farms that engage in lethal take)

Examples of business records that can be used to demonstrate compliance with laws

- Business registration/license with appropriate authorities
- Deed to property or rental agreement
- Tax forms, federal, state, local
- Hatchery records show proof of conformance with stocking regulations, that fish stocked have not been harvested from the wild
- USFWS permit for avian predator control
- Well permits or well registration, as required by state law
- Prescriptions for medicated feed from veterinarians
- Pesticide Applicator License
- MSDS (Material Safety Data Sheets) data sheets on each chemical stored on farm
- Records of insurance

Annual letter from hatchery specifies:

- That all fry and fingerlings purchased were raised on the hatchery farm and not harvested from the wild
- Whether fry or fingerlings purchased have been vaccinated

Annual letter from feed mill specifies:

- Percent of fishmeal and percent of fishoil used in catfish growout feed for the year
- That fishmeal and fishoil is not from endangered species
- That fishmeal and fishoil is not from illegal, unreported, and unregulated fishing (I.U.U.)
- That feed mill has a written policy of its commitment to source feed ingredients from responsibly managed sources and to seek continued improvement

List of Required Documents – Hatcheries

Aquatic Animal Health

- Aquatic Animal Health Management Plan with dates of review and revision, and includes biosecurity measures (including a list of likely diseases), record of response protocols to disease outbreaks and containment measures (including those of any invasive diseases), and a procedure for handling mortalities that safeguards against the human health risk from puncture wounds and bacterial infections from handling dead catfish, twice a year visual inspection of overflow drain pipes from pond facilities to minimize the risk of escapes, and appropriate personnel training.
- Record of visits with fish health professional (to farm and farmer to fish health laboratory), and notifications of disease outbreaks. Records include a log maintained either by farm or the relevant fish health laboratory.
- Disease testing reports, diagnosis, prescriptions, treatment regime prescribed.
- Record of application of medicated feed.
- Receipts of medicated feed purchased.
- Auditor will do visual inspection of office, chemical storage area to ensure no prohibited antimicrobials in use.
- Records of water quality monitoring (i.e., dissolved oxygen, chloride levels to prevent brown blood disease, alkalinity, etc.). Records can include inspection of automated dissolved oxygen monitoring systems and receipts of relevant maintenance services, records from on-farm testing, and/or water quality testing reports from diagnostic laboratories.
- Record, or farm log of attendance by farmers and staff at Extension and other workshops, seminars, meetings, including the annual training conducted by the processor that manages the Quality Management System.
- Record of mortalities and reason for mortalities, and handling of mortalities in accord with the procedure specified in the Aquatic Animal Health Management Plan.

Chemical Use

- Record of use and application methods of all chemicals, including disinfectants, herbicides, anaesthetics.
- Record of inspection of storage of chemicals, fuel, and feed to verify safety
- Receipts from waste management services, including recovery of waste oil or other materials or equipment for recycling or removal from premises.

Energy use

- Annual documentation of energy use through records of electric and fuel bills for comparison across years.

Production records

- Yield from fingerling ponds
- FCR
- Record of any purchases of fry or fingerlings, including date, vaccination status, health status

- Record of harvest during which screen on drain is checked as harvest net is moved around drainpipe to prevent escapes.
- Broodstock management plan

Predator control records

- Report to USFWS (that includes species) on take of avian predators (only for farms that engage in lethal take)

Business records that can be used to demonstrate compliance with laws

Business registration/license with appropriate authorities

- Deed to property or rental agreement
- Tax forms, federal, state, local
- Hatchery records show proof of conformance with stocking regulations, that fish stocked have not been harvested from the wild.
- USFWS permit for avian predator control
- Well permits or well registration, as required by state law
- Prescriptions for medicated feed from veterinarians
- Pesticide Applicator License
- MSDS (Material Safety Data Sheets) on each chemical stored on farm
- Records of insurance

Hatchery-specific Records

- Record of invoices from vaccine provider
- Records of application of vaccine
- Invoices of fry and fingerling sales to farms

List of Required Documents – Feed mills

- Receipts from purchases of fishmeal & fishoil, specifying species and fishery
- Written policy statement that specifies that ingredients are sourced from responsibly managed sources.
- Documentation that terrestrial feed ingredients sourced do not have significant environmental impacts. Have copy of: Sustainable solutions. 2024. Life cycle assessment of US soybeans, soybean meal, and soy oil. https://www.nopa.org/wp-content/uploads/2024/02/2024-US-Soy-LCA-Study_PEER-REVIEW-FINAL.pdf
- Copy of prescriptions for therapeutants from veterinarian for medicated feed