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Third Party Certifications in Aquaculture[1]

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Introduction

Aquaculture is a growing industry that is becoming increasingly diversified and complex. At the same time, emerging consumer preferences are encouraging many producers to explore a labeling system that communicates standards in product safety, quality, and sustainability (Gempesaw et al. 1995; Risius et al. 2017).

Certification programs are product and practice standards that, when met, allow a producer the use of a specific label or other marketing claim. These labels (sometimes called ecolabels, see Figures 1 and 2) are used to inform consumers of certain product traits or values such as sustainability and animal welfare (FAO 1999b).

When considering any form of label-based marketing it is advised that interested parties consult the Federal Trade Commission's (FTC) "Green Guides," which are publications that are meant to clarify relevant sections of federal consumer protection law (Czarnezki et al. 2014). The FTC, Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), and state-level consumer protection agencies prosecute false marketing claims and unauthorized use of ecolabels (Czarnezki et al. 2014).

Figure 1. The Monterrey Bay Aquarium's "Seafood Watch" is an example of ecolabeling wild-caught seafood that uses a red, yellow, and green system to identify sustainable seafood.
Credits: Emily Roan, UF/IFAS

What are third party certifications?

Third-party certification programs specify quality assurance standards that are administered by an entity that exists outside of the producer and consumer supply chain.

Third-party certification programs are wholly governed by an outside party, which establishes product standards, administers inspections, and oversees product label

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franchising. These entities may be independent industry groups, non-governmental organizations (NGOs), or government offices, such as the USDA, which administers the Certified Organic program (FAO 1999a).

These certification programs vary greatly in scope and mission, and it is recommended that interested parties carefully compare each program against the scope, mission, and values of the producing facility. Many certification programs publish information on governing and technical boards, which can give a producer insight on the scope of the program and the standards-writing process. These boards usually consist of a mix of industry, conservation, government, and academic professionals. Additionally, these certification programs may also conform to voluntary guidelines such as those set by International Social and Environmental Accreditation and Labeling Alliance (ISEAL), the Global Seafood Sustainability Initiative (GSSI), or the Food and Agriculture Organization of the United Nations (FAO).

In aquaculture, many of these programs focus on environmental stewardship and animal health with regards to feed sourcing, wildlife interactions, disease management, antibiotic use, or product safety (Boyd et al. 2005). In a rapidly globalizing industry, these programs may also include international standards that ensure responsible social and labor practices.

Program costs vary but generally reflect the size and scope of the facility seeking certification. While sometimes burdensome due to membership fees and increased operating costs, participation in voluntary third party certification programs allows producers to easily label and market certified products as having met desirable thresholds of quality assurance (Brach et al. 2018; Pieniak et al. 2013). The standards under which certified producers are required to operate are intentionally more restrictive than existing national or state regulation, as seen in Table 1.

Certification in aquaculture: Who is involved and how do I apply?

Many of these third-party certification programs require initial and annual onsite audits of facilities participating in the program. These audits are performed by a professional and independent auditing firm that has been approved by the certification program. These firms, or certification bodies, are an outside party and will likely require additional fees or accommodations. The certification body will perform the audit according to the guidelines provided by the certification program and will report their findings directly to both the farm and the certification program. This guarantees impartiality because the person conducting the audit has no vested interest in the outcome.

Certification programs may be species-, system-, or industry-specific. For instance, one program may publish separate standards for raising various individual species, while a similar program may only publish general standards for related species or systems. Standards and policies are updated as the program administration deems necessary, and it is advised that an interested producer contact the organization directly for the most up-to-date information and to apply.

International Programs—Aquaculture Food Products

Global Aquaculture Alliance—Best Aquaculture Practices

The Global Aquaculture Alliance (GAA) is a membership-based, industry-focused not-for-profit that seeks to advocate for responsible global aquaculture. In addition to educational pursuits, the GAA also administers a program called the Best Aquaculture Practices (BAP).

The BAP is a third party certification program that publishes standards that encompass a large part of the supply chain. Standards exist for feed mills, hatcheries, farms, and seafood processing plants. These standards seek to enforce global initiatives in sustainability, social compliance, and food safety. To date there are over 2000 certified facilities worldwide (BAP 2018).

Certified products are classified on a range of a "1 Star" certification to a "4 Star" certification. A "1 Star" product was only processed in a BAP-certified plant, while a "4 Star" product was fed BAP-certified feed, raised on BAP-certified hatcheries and farms, and processed in a BAP-certified plant. "2 and 3 Star" products exist somewhere in the middle. "2 Star" compliant products are raised in a BAP-certified farm and processed in a BAP-certified plant, while "3 Star" compliant products are additionally fed BAP-certified feed or are from a BAP-certified hatchery.

Certified products are marked with a comprehensive label which contains the BAP logo, the number of stars, and a certificate number. Logo use must be approved, and the BAP enforces a retail-level logo policing program. Certified facilities are publicly listed on the BAP's website (see BAP 2018).

Interested facilities should apply directly to BAP. After the application and fees are collected, an independent certification body will be assigned to the facility. An onsite audit will begin, and all non-compliant practices will be presented directly to the facility. All non-compliant practices must be corrected and submitted to the certification body. The certification body will then submit a report to BAP, and BAP will issue the final certification and accompanying validation letter. Certified facilities are subject to annual review. Should a facility believe that their practices are not yet up to BAP standards, the program offers an optional precursor program (iBAP). The iBAP program provides step-by-step technical guidance that prepares a facility for full BAP certification.

Figure 2. A "4 Star" BAP logo found on commercially available frozen fish. Each star represents a production process that has earned certification, and the certification number is present so that consumers can access additional information on the process, farm, and product.
Credits: Darla Hollander

Global Good Agriculture Practices

Global Good Agriculture Practices (GlobalGAP) is member-based international organization that seeks to set voluntary agricultural standards to promote sustainability and customer assurance. GlobalGAP began as a European retailer-led working group, but is now led by elected officials with retail and production backgrounds. Standard-writing is inclusive and involves multi-stakeholder communication and collaboration with scientists and technical experts. To date GlobalGAP has had various working partnerships with the ASC, GAA, and other major certification bodies and maintains a worldwide presence.

While better known for traditional land-based agricultural standards, GlobalGAP publishes a comprehensive standard for the aquaculture industry. This standard sets criteria for feed sourcing, custody chains, and farm level operations that concern occupational safety, food safety, and animal and environmental welfare.

GlobalGAP offers base levels of certification but also offers supplementary "add on" programs for additional assurance and will certify producers against additional standards in subjects such as sustainability, social practices, or the use of genetic modification.

Certification through the GlobalGAP affords a producer the right to use a consumer end label. The label contains a unique 13-digit GlobalGAP Number (GGN). The label directs consumers to a website that has information on sustainable aquaculture, and when the GGN is entered, information on the producer and product are provided. To date over 90 farms in 32 countries can be found on this database.

Interested producers should review the standards and perform a self audit before reaching out to an approved independent certification body. GlobalGAP also publishes a list of approved independent consultants whom producers can hire to assist with the transition. Once all parties are ready, the certification body will perform an on-site audit and submit the results to GlobalGAP, which will issue a certificate that is good for one year. Annual on-site audits are necessary to retain certification.

Friend of The Sea

Friend of the Sea (FotS) is an international NGO that certifies seafood products and promotes the conservation of marine habitats. FotS is affiliated with "The Dolphin Safe Project," a well-known ecolabel in the fishing industry. All members of the FotS standards-setting technical committee are appointed after an open application process, and any stakeholder is encouraged to make use of public input and complaint procedures.

FotS aims to be inclusive of small-scale producers and has a revenue-based pricing model. FotS certification criteria follow guidelines set by the UN's Food and Agricultural Organization.

Certification standards maintain that aquaculture farms responsibly manage interactions with wildlife and wildlife habitats, minimize the use of hormones and anti-foulants, reduce carbon emissions, and work as a positive social actor. Over 100 facilities have been certified worldwide (Friend of the Sea 2018).

After initially applying directly to FotS, a producer will be put in contact with representatives from an accredited certification body who will perform an onsite audit. Producers who already possess GlobalGAP certification and a GGN will be recognized as having met overlapping standards and FotS will seek to minimize duplicate audits. Annual audits are required to maintain certification.

Certified products will be added to a digital database and will be allowed to bear an FotS logo. Products certified with both GlobalGAP and FotS will be entitled to a label that bears both the FotS logo and the product's GGN.

Figure 3. A can of wild-caught fish bearing a Friend of the Sea logo. Credits: Emily Roan, UF/IFAS

Aquaculture Stewardship Council

The Aquaculture Stewardship Council (ASC) is an international not-for-profit NGO that seeks to minimize the negative environmental impacts of aquaculture. Born out of open dialogues organized by the World Wide Fund for Nature (formerly the World Wildlife Fund, or WWF), the ASC is governed by a multi-stakeholder supervisory board with technical committees including representatives from industrial, retail, academic, and conservation backgrounds. Although, there is limited adoption in the United States, there are over 1000 facilities certified worldwide (ASC 2018). A sister organization called the Marine Stewardship Council (MSC) provides a similar service in the wild-caught industry and has a similar label (Figure 4a).

In addition to general standards on traceability and social and labor practices, the ASC publishes species-specific farm standards. These standards seek to minimize pollution, harmful effects on local wildlife, the use of wild fish in feed, and disease transmission by setting provisions that can be documented and that are verifiable.

Being ASC-certified allows a facility to use the "ASC Certified" logo on its products (Figure 4b), and ensures that the facility is included on a publicly available list of ASC-certified partners. Logo use is governed directly by the ASC, which publishes a logo user guide and marking toolkit.

A facility seeking certification should first contact an approved and accredited independent certification body. In addition to fees associated with the ASC, each independent certifier will have their own payment structure. Once a relationship has been established and an application received, the ASC will publicly post information regarding the upcoming audit for the purpose of stakeholder input. Once sufficient time has passed, an independent auditor will conduct an onsite audit of all facilities and relevant documents. The independent certifier will submit a report to the ASC where it will be posted publicly for comment. If the applicant meets all requirements, a certificate will be issued, and the certified facility will be required to participate in annual surveillance audits, which will include reviewing improvement plans.

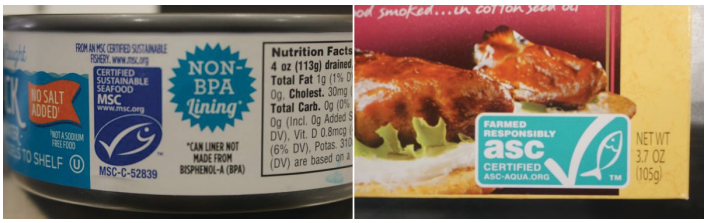

Figure 4. Examples of products certified by the Marine Stewardship Council and the Aquaculture Stewardship Council respectively. Credits: Left, Darla Hollander; right, Emily Roan, UF/IFAS

International Organization for Standardization

The International Organization for Standardization (ISO) is an NGO based in Switzerland that seeks to promote international trade by ensuring safety, quality, and efficiency. The ISO publishes standards for almost every industry, which are written by independent and elected technical advisors. The standards managed by ISO are often used by governments and other certification agencies to inform additional standards. Individual ISO standards can also be followed on a voluntary basis.

The number of relevant standards is too great for the scope of this publication, but of significance is the ISO 9000 series of standards that govern quality management systems and standards published by the fisheries and aquaculture

technical committee (ISO/TC 234). The ISO/TC 234 sets standards that include, but are not limited to, marine cage design, crustacean distribution chains, and environmental monitoring.

Certified ISO compliance entitles a product to bear a statement claiming to be ISO certified. This claim does not confer the use of any particular label. Statements of conformity can be printed directly on the package or integrated into other marketing materials and logos.

Naturland

Naturland is a German-based organization that seeks to establish international organic standards. Naturland certification meets minimum EU standards for organic agriculture, but standards are intentionally differentiated, and certification is open to producers outside of Europe. Like many organic certification programs, Naturland sets general standards for all of agriculture with supplementary regulations for aquaculture and various species therein. Certified farms are subject to both announced and unannounced visits to confirm compliance.

Domestic Programs—Aquaculture Food Products

Certified Naturally Grown

Certified Naturally Grown (CNG) is a US and Canadian grass-roots organization that seeks to offer a peer-reviewed alternative to governmental certified organic programs. To date, only aquaponics will be considered for certification. Inspectors are participating farmers, and participating producers are required to become qualified inspectors for other producers. Waivers for owed membership dues are considered for beginning or struggling producers. Inspections occur annually, and members in good standing are entitled to use the Certified Naturally Grown logo on their certified products.

USDA Process Verified Program

While the USDA does not currently publish Certified Organic standards for aquacultured products, the Agricultural Marketing Service (AMS) does administer a program that verifies agricultural processes for use as a marking claim. Examples of such claims that would pertain to the aquaculture industry may include "grown without antibiotics" or "fed a 100% vegetarian diet." While not currently in prevalent use with regards to aquacultured products, the Process Verified Program has great potential to be used to market specialty aquacultured food items.

Process points related to the claim in question must be verifiable and auditable and must have a documented management system available for review by AMS auditors. Once all application materials have been approved and service fees have been received, AMS auditors will conduct a desk audit of relevant management and quality assurance systems. The AMS compares quality management systems against standards set forth by the International Organization for Standardization (ISO 9000 series). When all paperwork is reviewed and approved, the AMS will send auditors to all related sites such as hatcheries, feed mills, farms, and processing plants. Once approved and accepted into the program, participating producers will continue to take part in ongoing annual audits.

In addition to being able to market a final product with a verified process claim, producers also benefit from being able to use a USDA Process Verified shield in promotional materials. The use of such shield and label claims are governed by the USDA Food Safety and Inspection Service.

Figure 5. Although the poultry industry is the largest participant in the USDA Process Verified program, the program is open to aquaculture products as well.
Credits: Darla Hollander

Ornamentals, Baitfish, and the Future of Third Party Certification in Aquaculture

Despite the rich diversity in food fish third party certifications, certification and labeling programs have room to grow in the ornamental and baitfish industries. The collapse of the internationally supported Marine Aquarium Council, which until 2008 administered a third party certification

program for wild-caught and aquacultured ornamental marine fish and coral, left a vacuum in the industry. Friend of the Sea has launched a less comprehensive but similar certification for ornamental marine organisms, although the program is considerably smaller in scope than other FotS certifications.

Similarly, there currently is no widely recognized third party certification program for baitfish or sports fish for stocking ponds. Baitfish regulations vary greatly by state, and states with greater regulations focus on the movement of baitfish from various water bodies and the associated health risks. For example, states bordering the Great Lakes require baitfish stock to possess a health certificate to limit the risk of regional outbreaks of the disease viral hemorhagic septicemia (VHS) (Heck 2013).

One state, Arkansas (which has a large interstate baitfish industry), administers a voluntary third party health certification. As ecological concerns around the movement of aquatic diseases grow, methods and standards already established or proposed by the Arkansas Baitfish Certification Program, the American Fisheries Society Fish Health Section, and the USDA's Animal and Plant Health Inspection Service have potential to form the basis of a widely recognized voluntary standard for the growing Florida bait industry.

Conclusion

Although there is some evidence that programs that write and update standards in accordance with widely accepted scientific principles are effective at decreasing negative environmental impacts, the intention, scope, and practices of each program vary, and it is therefore difficult to assess and compare each program's effectiveness (Boyd and McNevin 2011).

The development of third party certification programs is a market-driven response to consumer concerns over the environmental and social impacts of the growing and diverse aquaculture industry and the make-up of the governing structure and influential stakeholders of each organization will determine the focus and scope of prescriptive standards (Boyd and McNevin 2011). No standard addresses all needs, concerns, or markets, and programs may discriminate against producers based on size, location, species produced, and other factors (Bush et al. 2013).

By certifying a product using a third party, an aquaculture producer can gain access to new markets (Boyd and McNevin 2011), build brand awareness (Brach et al. 2018), and potentially receive a premium price for a product that is perceived as sustainable (Carlucci et al. 2017).

Resources

ISEAL Alliance: https://www.isealalliance.org/

Global Seafood Suitability Initiative: https://www.ourgssi.org/

FAO Technical Guidelines on Aquaculture Certification: https://www.fao.org/3/a-i2296t.pdf

Federal Trade Commission Green Guides: https://www.ftc.gov/sites/default/files/documents/federal_register_notices/guides-use-environmental-marketing-claims-green-guides/greenguidesfrn.pdf

Global Aquaculture Alliance: https://www.aquaculturealliance.org/

Best Aquaculture Practices: https://www.bapcertification.org/

GlobalGAP Aquaculture: https://www.globalgap.org/uk_en/for-producers/globalg.a.p./integrated-farm-assurance-ifa/aquaculture/

GNN Meet Your Farm: https://aquaculture.ggn.org/en/meet-your-farm.html

Friend of The Sea: https://www.friendofthesea.org/

Aquaculture Stewardship Council: https://www.asc-aqua.org/what-you-can-do/get-certified/

International Organization for Standardization Quality Management (ISO 9000): https://www.iso.org/iso-9001-quality-management.html

International Organization for Standardization Fisheries and Aquaculture (ISO/TC 234): https://www.iso.org/committee/541071.html

Naturland Aquaculture: https://www.naturland.de/en/naturland/what-we-do/naturland-seafood-2/organic-aquaculture-2.html

Certified Naturally Grown: https://www.cngfarming.org/aquaponics

USDA-Process Verified: https://www.ams.usda.gov/services/auditing/process-verified-programs

University of Arkansas Cooperative Extension Service-Aquaculture and Fisheries: https://www.aphis.usda.gov/animal_health/animal_dis_spec/aquaculture/downloads/cahps_concept%20_faqs.pdf

American Fisheries Society-Fish Health Section: https://units.fisheries.org/fhs/

USDA-APHIS, Proposed Commercial Aquaculture Health Program: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/aquaculture

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Table 1. Examples of How Finfish Welfare Law Compare to Third-Party Certification Standards

Federal Law	**State Law**	**Best Aquaculture Practices**	**Global Good Agricultural Practices**	**Aquaculture Stewardship Council**
*The Animal Welfare Act** *Humane Slaughter Act** *Preventing Animal Cruelty and Torture Act**	Title XVLI Chapter 828 (Anti-animal cruelty law)** FDAC Best Management Practices	Limits on crowding, fasting, and time out of water Requires humane handling techniques Requires humane slaughter techniques	Limits on crowding, fasting, and time out of water Requires humane handling techniques Requires a regular animal welfare assessment	Required minimum water quality requirements
*excludes finfish **Humane slaughter excludes aquatic species				