

CSARP+: Accelerating Reduction of Antibiotics in Chilean Farmed Salmon

About the Monterey Bay Aquarium

To protect ocean health while meeting the growing, global demand for seafood, Monterey Bay Aquarium focuses on improving the sustainability of aquaculture around the world. Our Seafood Watch program assesses the environmental impacts of aquaculture species that are important to the U.S. market and assigns green, yellow, or red ratings to highlight areas of environmental risk. Our Global Ocean Conservation team then works collaboratively with local industry members, scientists, governments, and other stakeholders to tackle the intertwined environmental, social, and economic issues needed to improve the sustainability of the product.

The Challenge

Farmed salmon is one of the most popular and valuable fish consumed in the United States. Nearly half of farmed salmon imported to the U.S. comes from Chile, the world's second-largest producer of farmed salmon and the largest exporter to the U.S. In 2022, the market value of Chilean salmon exported to the U.S. was \$3 billion. However, over two-thirds of Chilean farmed salmon is rated red (Avoid) by Seafood Watch due to the high use of antibiotics. The Chilean salmon farming industry struggles to control *Piscirickettsia salmonis*, an endemic bacterial disease that causes fish to die. To combat these bacteria, Chile uses more antibiotics than any other salmon-farming country.

Disease presents a significant challenge to aquaculture producers globally. Control methods include the use of antibiotics, but the ecological impacts associated with these products can be significant. Notably, the development of antimicrobial resistance (AMR) is a global health concern and there is a need to better understand the role aquaculture production plays in the development of AMR. Currently, there are no global standards for assessing the ecological impact of using antibiotics in aquaculture operations. A number of different methodologies used across the aquaculture sector have produced a variety of context-specific results. However, there is limited ability to apply these findings across species, regions, or production systems. As such, there is a global need to establish standard methodology and tools to better understand the ecological and health impacts associated with antibiotic and pesticide use in aquaculture.

Chilean Salmon Antibiotic Reduction Program (CSARP)

In 2019, Monterey Bay Aquarium partnered with the Chilean salmon farming industry to launch the Chilean Salmon Antibiotic Reduction Program (CSARP). The initiative aims to reduce the use of antibiotics in Chilean farmed salmon by 50 percent by 2025. The program defines specific guidelines at different levels (site, neighborhood, industry) to reduce antibiotic consumption and ecological impact in the Chilean salmon industry. Participating industry partners are responsible for 95 percent of Chile's salmon production.

CSARP has established itself as a benchmark in transparency and cooperation. However, a 2022 progress report found participating industries had collectively reduced antibiotic use by just 12 percent. Deeper analysis found progress among individual companies varies. While some companies are doing their part to meet the 2025 goal, others have increased antibiotic use. To ensure the viability of industry, livelihoods, and communities while safeguarding environmental health, greater company-level reinforcement is needed.

CSARP+

The clear progress in reducing use of antibiotics by some companies shows the CSARP model can be an effective approach to ensuring more sustainable aquaculture production. To acknowledge companies that are taking concrete and consistent actions to reduce antibiotic consumption and encourage more companies to join them, the Aquarium and its partners introduced CSARP+. Unlike CSARP, which tracks the collective performance of the industry, CSARP+ recognizes individual companies that demonstrate effective health plans and policies to reduce antibiotic use in farmed salmon. To determine which companies qualify for CSARP+ status, the Aquarium assessed each company's performance and consistency of efforts to reduce the impact of antibiotics over the last six years. To maintain CSARP+ status, companies must continue to reach new, individual reduction targets each year.

CSARP+ membership is based on four key principles:

- 1. Transparency and Timely Information:** Members must be committed to providing transparent and timely data.
- 2. Continuous Improvement:** A focus on ongoing improvement in antibiotic use practices is essential.
- 3. Communication and Visualization at the Company Level:** Clear communication and data visualization within the company regarding antibiotic usage is required.
- 4. Innovation and Collaboration:** Members are expected to contribute to and participate in collaborative efforts for innovation in antibiotic reduction.

To be considered for CSARP+ membership, Chilean farmed Atlantic salmon producers must meet the following criteria:

- **Not categorized as “Very High” Users:** Producers with a history of very high antibiotic use in the previous year are not eligible (see Table 1).
- **Reduced Antibiotic Use:** Producers must demonstrate that at least 50% of cycles are below 400 grams per harvested ton of fish (ICA) at the closed cycle on an annual basis. Alternatively, they can show a cage-level frequency of antibiotic use below 2.5 at the closed cycle on an annual basis.
- **No Critical Antibiotic Use:** The producer must have a clean record of never using critically important antibiotics for salmon.

Table 1. Categories of antibiotic consumption at the cycle level.

| Category | ICA |
|-----------------------|----------------------------|
| Very High | More than 600 g/ton |
| High | 400 to 600 g/ton |
| Medium | 180 to 400 g/ton |
| Low | Less than 180 g/ton |
| No antibiotics | 0 |

Demonstrating their commitment to the antibiotic reduction goals, CSARP+ companies:

- Submit quarterly antibiotic consumption rates.
- Participate in periodic technical meetings.
- Support technical, scientific, communication, and training activities.
- Maintain a health policy consistent with reducing the use of antibiotics with concrete, verifiable, and trackable actions.

In return, Monterey Bay Aquarium:

- Periodically collects and analyzes data and prepares relevant reports for monitoring and other scientific purposes.
- Maintains the confidentiality of the data according to the monitoring and scientific objectives of the program.
- Publicizes the progress of CSARP+ members on the Aquarium website and social channels and to our business partners.

The Aquarium will continue to monitor the progress of CSARP members that do not meet CSARP+ criteria and add new companies to the list as they achieve stronger reduction numbers.

For more information, contact: CSARP@mbayaq.org