



FACT SHEET | FLORFENICOL USE IN TASMANIAN SALMON FARMING

Florfenicol is the most effective treatment for salmon, it is safe for consumers and the best option for the environment.

- **Florfenicol is a safe and well-established veterinary medicine** with over 30 years of use globally.
- **Strict withholding periods** ensure fish are 100 per cent safe for human consumption.
- **Environmental impact is minimal** due to rapid breakdown in marine environments.
- **Use is strictly regulated** and requires veterinary prescription.
- **It's an important tool** for protecting fish welfare.
- **International experience** and science demonstrates its safety and effectiveness when used responsibly.

What is Florfenicol?

Florfenicol is an antibiotic medicine used to treat bacterial infections in animals. It was introduced into veterinary clinical use in the 1990s and has been widely used in aquaculture and livestock globally. In Australia, it is already approved for use in the beef and pork industries. Now, it has been authorised by the Australian Government's independent regulator, the Australian Pesticides and Veterinary Medicines Authority, for use in Tasmanian salmon farming to protect fish health.

Why is it Needed in Tasmania?

Tasmanian farmed salmon can be affected by a bacterium called *Piscirickettsia salmonis* (*P.salmonis*), which causes a disease called piscirickettsiosis. If untreated, *P. salmonis* can cause fish mortality. While a new vaccine has been developed and salmon are now vaccinated for the first time in Tasmania, no vaccine is a silver bullet. Other animal health tools, including antibiotics such as Florfenicol, are needed to ensure the health and welfare of salmon.

How Does Florfenicol Work?

Florfenicol is a "bacteriostatic" antibiotic, which means it stops bacteria from growing and multiplying by preventing bacteria from making the proteins they need to survive. The fish's own immune system can then clear the infection. Florfenicol is particularly effective against *P.salmonis* because it can penetrate cells where these bacteria hide.

Is it Safe to eat salmon that have been treated with Florfenicol?

Yes, florfenicol-treated salmon is 100 per cent safe to eat. Consumers across the world have been eating salmon treated with florfenicol since the 1990s.

Here's why it is 100 per cent safe to eat:

- **Withholding periods:** The APVMA requires a strict withholding period before salmon are harvested after treatment.
- **Strict safety limits:** The APVMA has established a Maximum Residue Limit (MRL) for florfenicol in Atlantic salmon, which is aligned with international standards in EU, USA, Japan, and China.
- **Rapid breakdown:** Studies show that florfenicol residues in fish tissue fall rapidly after treatment ends, with levels below the MRL well before the required withholding period.
- **Not used in human medicine:** Unlike some antibiotics, florfenicol is not used to treat human infections, greatly reducing the risk of antibiotic resistance affecting human health.

How is it Given to Salmon?

Florfenicol is mixed into fish feed and given orally. This method ensures precise dosing and minimizes environmental release.

What About the Environment?

Environmental studies show florfenicol is safe for the environment:

- **Rapid breakdown:** In seawater, florfenicol breaks down within days. The half-life is approximately 4.5 to 7 days in marine sediments, meaning it does not persist for as long as other antibiotics in sediment.
- **Safe for marine life:** Studies show florfenicol does not significantly affect marine organisms including algae, crustaceans, and wild fish at dosing levels used to treat salmon.
- **Inactive metabolites:** The main breakdown product, florfenicol amine, has no antibiotic activity and doesn't impact the environmental microbial population or contribute to potential for resistance.

What About Antibiotic Resistance?

The use of florfenicol minimizes resistance risks:

- **Targeted use:** Florfenicol can only be used when necessary, as prescribed by veterinarians, not as a preventative measure.
- **Proper dosing:** Using the correct dose for the full treatment period reduces the risk of bacteria developing resistance.
- **Monitoring:** Regular testing monitors bacterial susceptibility to ensure the antibiotic remains effective.
- **Experience from other countries:** Data from countries using florfenicol for decades shows the target bacterium remains susceptible when the drug is used as regulated.

How is Use Regulated?

Florfenicol use in aquaculture is strictly controlled:

- **Veterinary prescription required:** Only veterinarians can prescribe florfenicol after diagnosing bacterial infection.
- **Government approval:** It must be used as allowed under the Australian Pesticides and Veterinary Medicines Authority (APVMA) permit.
- **Mandatory withholding periods:** Farmers must observe withholding periods before harvest.
- **Regular monitoring:** Residue testing ensures compliance with safety standards.
- **Public reporting:** Antibiotic use must be reported to the EPA and Biosecurity Tasmania, and its use will also be public disclosed.
- **Compliance verification:** Similar to existing programs for antibiotics, such as oxytetracycline, regular testing verifies that residue levels comply with safety standards.

International Experience

Florfenicol is widely used internationally for treating piscirickettsiosis in salmon:

- **Approved for aquaculture:** Used in multiple countries including USA, Canada, UK, Norway, and Chile.
- **International MRL alignment:** Australia's MRL matches standards in the EU, USA, Japan, and China.
- **Over 30 years of veterinary use:** Introduced in the 1990s with extensive safety data from use in livestock and aquaculture.
- **Proven effectiveness:** Consistently reduces mortality from bacterial diseases when used as regulated.

Comprehensive Environmental Monitoring Program

The Tasmanian Environment Protection Authority (EPA) has developed a robust monitoring program specifically for florfenicol use:

Monitoring Components:

- **Sediment Testing:** 50% of treated pens tested at time intervals specified by the EPA. Both florfenicol and all metabolites are tested.
- **Wild Fish Testing:** Fish sampled from inside lease areas, at 500m and 1000m from farms, and at reference sites. Testing occurs during treatment and at multiple points afterward, including at withholding period endpoints.
- **Visual Monitoring:** Underwater video surveys during and after treatment to assess any changes to seafloor condition.
- **Water Column Testing:** Regular testing of water at various distances from farms (i.e. 35m, 100m, 500m) to track dispersion and dilution.

Public Health Collaboration:

- The EPA has consulted with the Department of Health's Public Health Services to ensure monitoring addresses both environmental and human health considerations.
- Monitoring includes all florfenicol metabolites to enable comprehensive public health assessments.

Transparency and Review:

- Monitoring data will be reviewed by EPA and health authorities.
- The program will be adapted based on initial results to ensure it remains fit for purpose.
- This world class program represents the most comprehensive antibiotic monitoring program for Tasmanian aquaculture to date.

This fact sheet is based on scientific research, regulatory assessments, and international experience with florfenicol use in aquaculture.