

Vaccination of

Lumpfish

Cyclopterus lumpus



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Vaccination in the fry phase (hatchery)

Vaccination in the fry phase is carried out mainly to protect fish until they have reached injectable size. It is mostly commonly required to protect against one or more variants of vibrio bacteria. Exactly which bacteria is required to protect against and when the disease occurs can vary from site to site. It is important therefore that a vaccination strategy is tailored to each individual site in the best possible way.

To protect against disease early in the fry phase dip-vaccination can be carried out on fish as small as 1 gm. Dip-vaccination at this size will give a somewhat limited effect and duration of immunity (expected protection 2-3 months) Vaccination of such small fish must be followed up with a subsequent dip-vaccination, typically at 3-5 grammes size (expected protection 4-6 months) The fish should then have protection until they reach a size at which they can be injection-vaccinated.

It is recommended that dip-vaccination be co-ordinated with other necessary handling events (e.g grading) to minimize stress associated with vaccination. Stress can be a trigger for a disease outbreak.

Choice of vaccination regime depends on the disease that protection is required against, and time at which the disease occurs:

- 1. Dip-vaccination is for protection during the early production phase until the fish have reached injectable size.**
- 2. Injection vaccination is mainly performed in order that fish shall have protection after they are transferred to cages.**



Overview of diseases of lumpfish and typical administration route for vaccines

Agents	Administration route	
	Dip-vaccine	Injection vaccine
<i>Aeromonas salmonicida</i> type V		×
<i>Aeromonas salmonicida</i> type VI		×
<i>Vibrio anguillarum</i> O1	×	×
<i>Vibrio anguillarum</i> O2a		×
<i>Vibrio splendidus</i>	×	
<i>Vibrio logei</i>	×	
<i>Vibrio ordalii</i>	×	
<i>Vibrio wodanis</i>	×	
<i>Moritella viscosa</i>		×
<i>Pseudomonas anguilliseptica</i>	×	×
<i>Tenacibaculum</i> sp.	×	
<i>Pasteurella</i> sp.	—	—
<i>Flavivirus</i>	—	—

Administration of dip-vaccine

1:10

The vaccine is diluted 1:10, which means that 1 litre of vaccine is mixed with 9 litres of seawater. Up to 50 kilos of fish can be vaccinated per 10 litres of pre-mixed vaccine solution.

30-60
SEC

The fish are held in the vaccine solution between 30 and 60 seconds. Ensure that the fish have plenty of space, so that they can swim freely. This is most important to ensure the best possible uptake of the vaccine. Add air / oxygen to the vaccine solution as required.

5-15
°C

Recommended temperature for vaccination is 5–15°C.

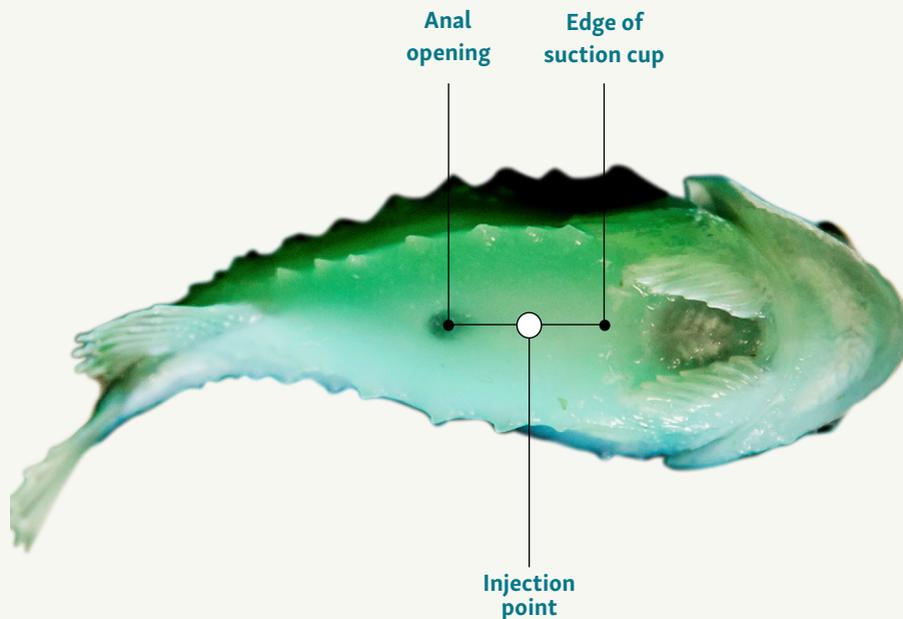
HEALTHY
FISH

Only healthy fish should be vaccinated.

Injection vaccination

Injection vaccination is required primarily to achieve long-lasting protection against disease after transfer to cages. An oil adjuvant is necessary to achieve a long-lasting protection against single agents such as atypical furunculosis.

The recommended injection point is in the centre-line, mid-way between the rear edge of the suction cup and anal opening (see figure). Needle length used depends on the size of the fish, to ensure that the vaccine is deposited freely in the abdominal cavity. Deposition of vaccine in the abdominal wall can lead to acute mortality, depending on which adjuvant is used in the vaccine.



Administration of injection vaccination

**0,05
ML**

IP-vaccination. Recommended minimum size for vaccination is 10 gramme individual weight. A single dose of 0.05 ml is injected freely in the abdominal cavity.

**5-12
°C**

Recommended temperature at vaccination is 5–12°C.

**6-12
MTHS**

Expected protection: 6–12 months.

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It is recommended to contact your fish health service provider regarding the sedation of lumpfish.

**HEALTHY
FISH**

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Contact us

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