

Fishtreat™ - An Ecological Aquaculture Therapy System

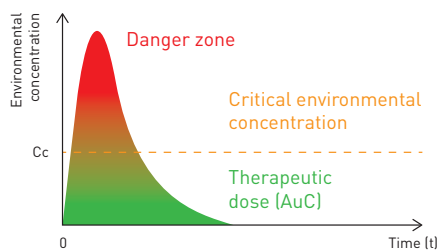
R&D and Commercialization Opportunity for a system, method and device for disease and parasite management in aquaculture

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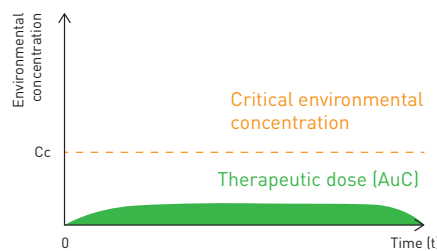
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Opportunity Conventional medicinal treatment of sea lice requires the use of vast quantities of active ingredients plus solubilizing agents annually. These can be administered in short term bath treatments (e.g. 30 min) to 7 days in-feed treatment. Both result in environmental concentrations which can contaminate sensitive nearby ecosystems. There is a high risk of residual chemical having an impact on non-target marine life in the vicinity of fish farms.

A solution *Fishtreat™* is a system for treating fish over an extended period thereby reducing the risk from dangerously high concentrations of therapeutic agents while maintaining the total therapeutic dose (area under curve, AuC). The *Fishtreat™* system uses a passive dosing device with much lower effective amount of active ingredient and solubilizing agent, combined to yield a higher success rate, e.g., elimination of lice. There is a much lower risk for effects to non-target organisms and commercial species in the vicinity of treatment. In short, a much more effective, sustainable and economical treatment regime, as illustrated below.



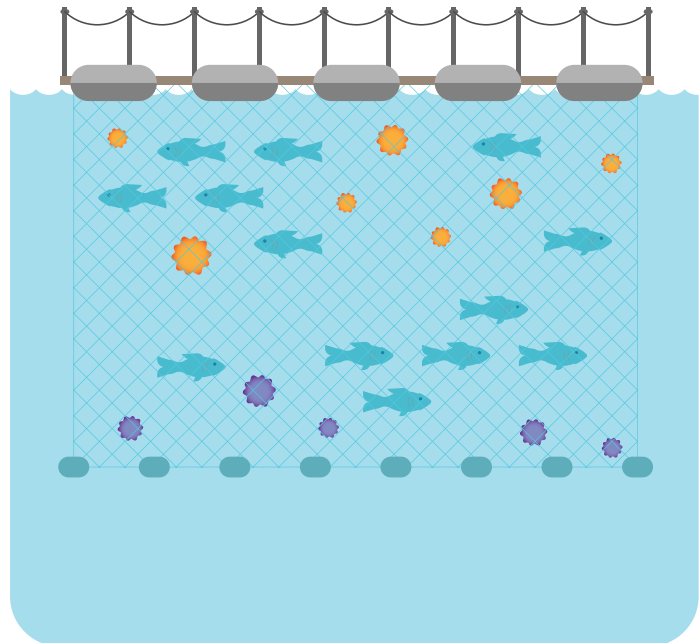
Conventional treatment



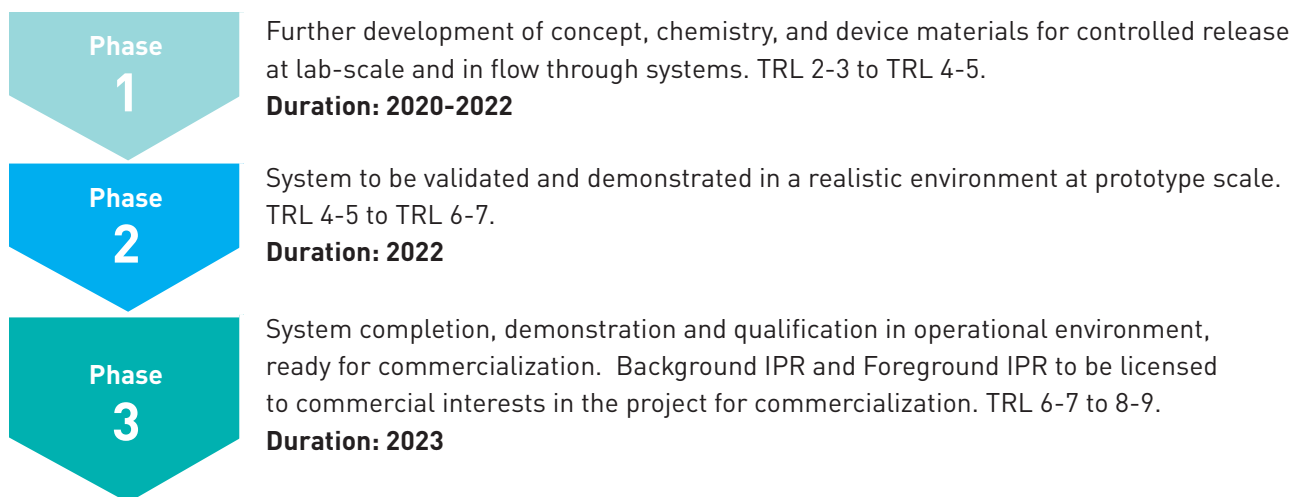
FishTreat™ sustainable therapy



The *Fishtreat™* system is comprised of passive dosing devices with appropriate therapeutic agents designed for controlled release of the agents. A number of the devices, buoyant and semi-buoyant, are released for a specified length of time, then collected and are reusable. The simplicity of the devices as well as delivery and collection system will lead to limited changes in current practice, operations and infrastructure, as well as short time-to-market for this concept.



NIVAs Objectives NIVA wishes to develop and commercialize the IPR, and to offer the expertise and knowhow of its researchers toward that end. We wish to partner with stakeholders that can benefit from the *Fishtreat™* system, including both the private sector and the public authorities. A three phase development programme leading to commercialization is envisioned:



Relevant publications

- Langford, K.H., Øxnevad, S., Schøyen, M., Thomas, K.V., 2014. *Do Antiparasitic Medicines Used in Aquaculture Pose a Risk to the Norwegian Aquatic Environment?* Environmental Science & Technology 48, 7774-7780.
- Lillicrap, A., Macken, A., Thomas, K.V., 2015. *Recommendations for the inclusion of targeted testing to improve the regulatory environmental risk assessment of veterinary medicines used in aquaculture.* Environment International 85, 1-4.
- Macken, A., Lillicrap, A., Langford, K., 2015. *Benzoylurea pesticides used as veterinary medicines in aquaculture: Risks and developmental effects on nontarget crustaceans.* Environmental Toxicology and Chemistry 34, 1533-1542.