fishPHARM

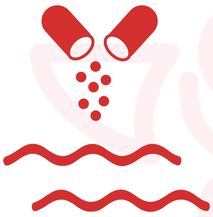
A Cornell iGEM Project

THE DISEASE

Bacterial Coldwater Disease (BCWD) causes horrible skin lesions, necrosis of the fins, spinal deformity, and eventual mortality in otherwise edible or viable salmonid fish

BCWD outbreaks are common in cramped conditions including fish hatcheries and farms as well as in lakes and oceans

BCWD is caused by the gram-negative bacillus *Flavobacterium psychrophilum*, which thrives in temperatures below 16 °C



CURRENT TREATMENTS

The fish farming industry pours antibiotics directly into the water in fish tanks, but these antibiotics can leach into the environment and give rise to resistant strains

ECONOMIC DAMAGE

BCWD has a mortality rate of up to 70%, and the aquaculture industry loses millions of dollars every year as a result

OUR SOLUTION

fish**PHARM** is a comprehensive treatment plan for BCWD with four key components

FLAVOCIDE

A biologically engineered peptide (ecnB) suspended in a biodegradable copolymer that is toxic to *Flavobacterium psychrophilum*

FISHBIT

Our novel drug delivery mechanism that integrates ecnB peptide and allows for the time-dependent release of treatment into fish

FISHAPP

A preventative monitoring system fish farmers can use in combination with FishBit to keep their hatcheries BCWD-free

OUTREACH

We are working in collaboration with local upstate NY fish hatcheries to implement our novel BCWD treatment system