



marineharvest



# Sea Lice Management In Ireland

---

4th Sea Lice Multination Workshop – Trondheim: November 11<sup>th</sup> & 12<sup>th</sup> 2013

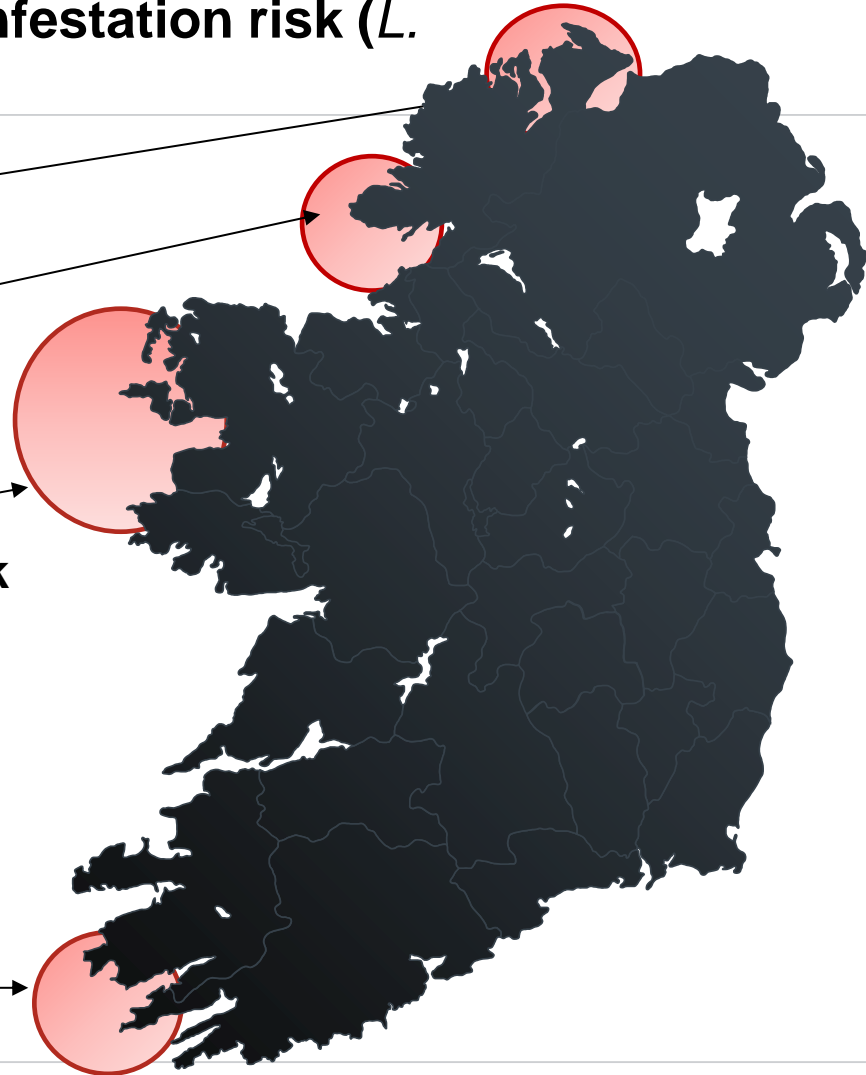
## MHI Site Distribution & Lice infestation risk (*L. salmonis*)

NW Donegal = High risk

South Donegal = Low risk

Mayo & Galway = High risk

South West = Low risk



## Challenges for Irish Industry

---

- › Irish Production is circa 10,000 tonnes
- › Multi site bays the norm
- › Some fish move from offshore smolt sites to inshore grow-out sites
- › Prolonged ( 3 months +) harvest common
- › Bays are shallow with high exposure level & strong water exchange
- › Industry would like to move from higher “lice risk” sites if licencing would allow

# Available lice treatments

---

## ***AVAILABLE TREATMENTS:***

- › Hydrogen peroxide
- › SLICE (Emamectin benzoate)
- › Alphamax (Deltramethrin)
- › Salmosan (Azemethophos)
- › Ectoban (Teflubenzoron)

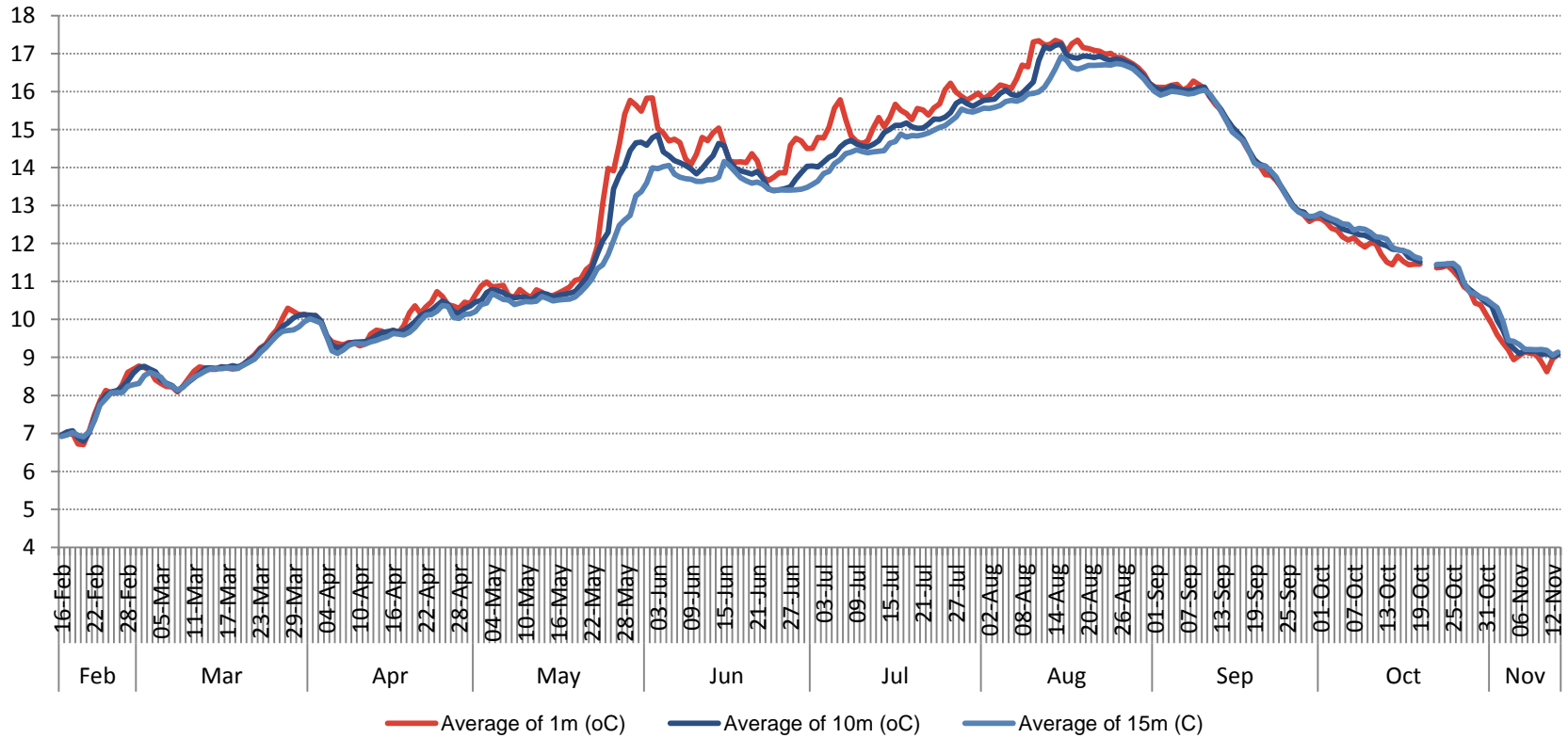
## Treatment limitations

---

- › Organic fish treatments restricted by organic standards to no more than 3 lice treatments in entire life cycle. Hydrogen peroxide excepted. Salmosan & Ectoban not permitted.
- › Ectoban inefficient at temperatures  $<8^{\circ}\text{C}$ .
- ›  $\text{H}_2\text{O}_2$  use limited by sea temperatures.  $<12^{\circ}\text{C}$ .
- › Limited efficacy with Salmosan at second treatment and totally ineffective at third treatment.
- › Variations in uptake of oral treatments within a population
- › Pancreas disease
- › Gill disease

# Sea Temperature Range

## Cranford 2012



## Treatment strategy - Goal

---

- › Must observe national treatment trigger levels (0.3 – 0.5 ovigerous lice per fish) in spring period (March, April & May).
- › Max 2 ovigerous lice at all other times.



On farm checks:	7 days
National inspections:	14 / year
National Reporting:	monthly
Pens:	min 2
Fish:	30 / pen

## Treatment strategy – Use of products

---

- Sea lice treatments must be rotated to reduce selection pressure & resistance development (applied per zone and not just site)
- There will be no more than 2 consecutive treatments with the same chemical class or product on the same site.
- Treatments with products having shown resistance will not resume until sensitivity is restored
- Resistance bioassays will be conducted
- Sub-optimal treatments must be investigated



## Treatment strategy – Optimisation of lice management.

---

- Use of H<sub>2</sub>O<sub>2</sub> in winter (water temp. <12°C).
- If required, bath treatments followed by oral treatment.
- Use of well-boat or fully enclosed tarpaulins only for baths.
- Must observe fallow periods.
- Aim for entire Bay fallow in all regions.
- Aim for same generation in each bay
- Introduction of Cleaner fish.

## Cleaner fish project

- › First tried in 1990's but abandoned due to concerns over pathogen transfer
- › In the future wrasse will form major part of the Integrated Lice Management Strategy
- › Many high risk sites will be stocked with wrasse in 2014
- › Wild caught wrasse - mainly ballan and goldsinny
- › Annual wrasse requirement for Ireland <300,000
- › There is a feasibility study underway on hatching wrasse and lumpsucker



**Goldsinny wrasse**



**Ballan Wrasse**