

# AQUACULTURE *update*

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## Observations on sea lice in a SEA System<sup>™</sup> floating bag and a conventional netpen

The SEA System<sup>™</sup> is a floating fabric bag technology for fish culture recently developed by Future SEA Technologies Inc. Its pump and adjustable intake allows selection of incoming water for optimum growing conditions and to regulate current speed. An 875-m<sup>3</sup> SEA System<sup>™</sup> bag was tested alongside a 324-m<sup>3</sup> traditional mesh netpen using a group of commercially produced Atlantic salmon juveniles at the Pacific Biological Station's Experimental Mariculture Facility at Nanaimo, B.C.

During routine sampling in a 9-month growth trial (Nov./98-July/99), incidence of the sea louse *Lepeophtheirus salmonis* appeared to be lower in Atlantics from the bag.

Dedicated lice checks using sealice inspection protocols were carried out at 2 months prior to harvest and again at harvest (Table 1, Figure 1).

**Table 1. Confirmed observations.**

	19-May-99		17-Jul-99	
	Bag	Net	Bag	Net
# fish sampled	25	25	25	25
# fish infected	8	16	2	15
total # lice	10	24	2	24
Prevalence	32%	64%	8%	60%
Mean Intensity	1.25	1.5	1	1.6
(Range)	(1 - 2)	(1 - 2)	(1)	(1 - 3)
Abundance	0.4	0.96	0.08	0.96
(Range)	(0 - 2)	(0 - 2)	(0 - 2)	(0 - 3)

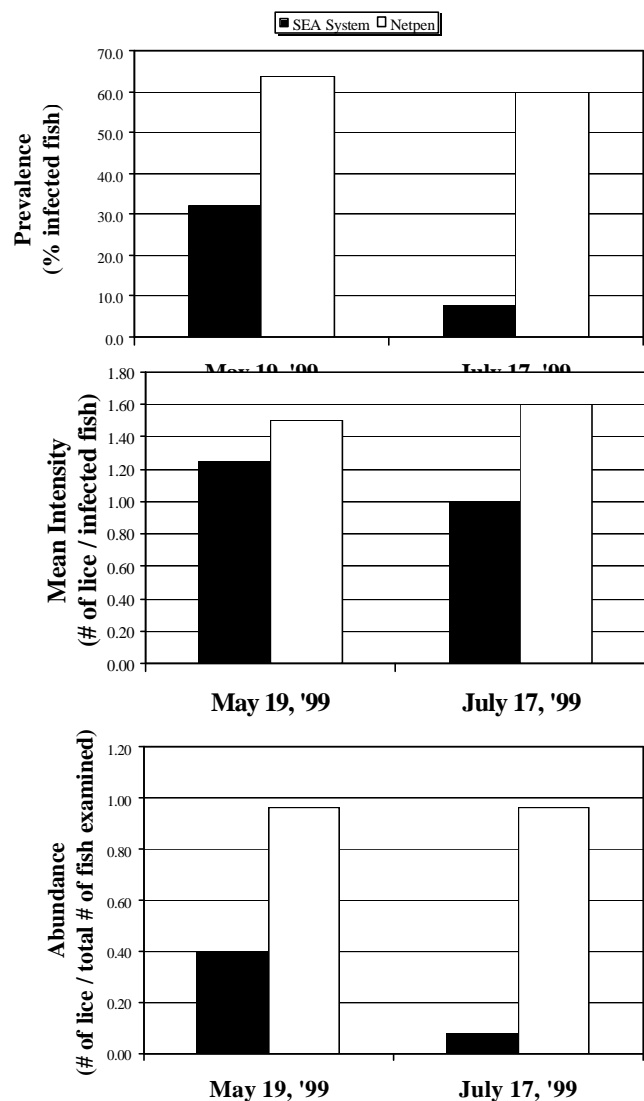
**Prevalence:** # of infected fish divided by # of fish, %  
**Mean Intensity :** # of parasites divided by # infected hosts.

**Abundance:** # of parasites divided by total # of hosts examined.

(Terms after Margolis et al. 1982)

Lice infestations in both groups were low by industry standards and did not result in loss of market quality of the fish.

The fish were assessed for lice damage using a wound score method developed by Johnson et al. (1996) but in no case were results higher than 20 out of a possible 500 score.

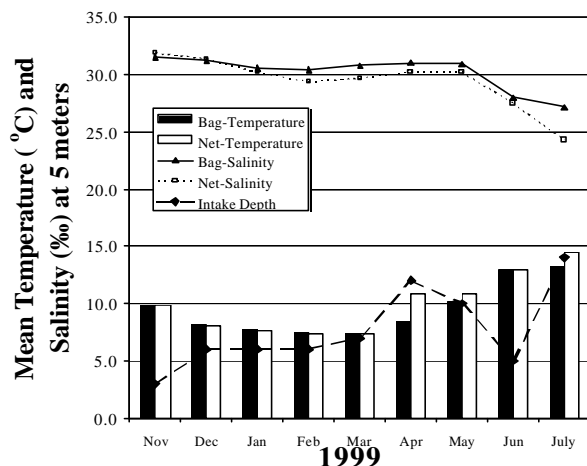


**Figure 1. Lice Infestation Summary.**

The difference in prevalence is statistically significant for both sampling times ( $p < 0.05$ ) and confirms earlier observations that the bag had lower counts of sea lice per fish than in the netpen despite higher stocking density at harvest (Bag 23.3 kg/m<sup>3</sup>, Netpen 4.8 kg/m<sup>3</sup>). Mean intensity and abundance data were not sufficient for statistical analysis.

Possible causes for the difference in lice prevalence include advantageous placement of the SEA System™ intake and influence of greater current speed and exercise levels in the bag.

**Figure 2. Overall means for environmental conditions.**



Environmental conditions for the growout trial were similar in the bag and the netpen (Fig. 2), however, mean water temperatures in the bag were 1 to 2 degrees lower than the netpen during April, May and July. Salinity was also similar except for a more rapid decline in the netpen towards the end of the growth trial in July.

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## References

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