

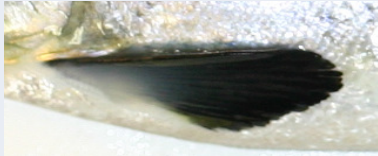
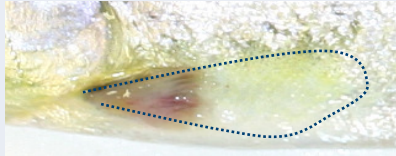


Bagging vs Pumping

Any effect on fin damage?

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What is fin damage?

Fin	Undamaged	Damaged, with fin splitting
Caudal fin	 A photograph of a fish's caudal fin, which is intact and has a smooth, rounded shape.	 A photograph of a fish's caudal fin that is severely damaged and split. A dashed line outlines the original shape of the fin for comparison.
Left Pectoral fin	 A photograph of a fish's left pectoral fin, which is intact and has a smooth, rounded shape.	 A photograph of a fish's left pectoral fin that is severely damaged and split. A dashed line outlines the original shape of the fin for comparison.

- Can affect all fins

How does it affect the fish as a product?



Operational perspective:

- Can increase susceptibility to pathogens



- Welfare problem: damage to live tissue
- Implications for perceived product quality e.g. QIM and its use in Norwegian Industry Standard for fish

Potential risk factors?

Risk factor	Study
<ul style="list-style-type: none">• Knotted nets• Turbine pumps• Handling	<p>(Butcher et al., 2010) (Grizzle et al., 1992) (Rutecki and Meyers, 1992, Person-Le Ruyet et al., 2007)</p>
<ul style="list-style-type: none">• Stocking density• Feeding regime• Underfeeding	<p>(North et al., 2006) (Noble et al., 2008) (Hatlen et al., 2006)</p>

Bagging vs pumping: which fins did we look at?

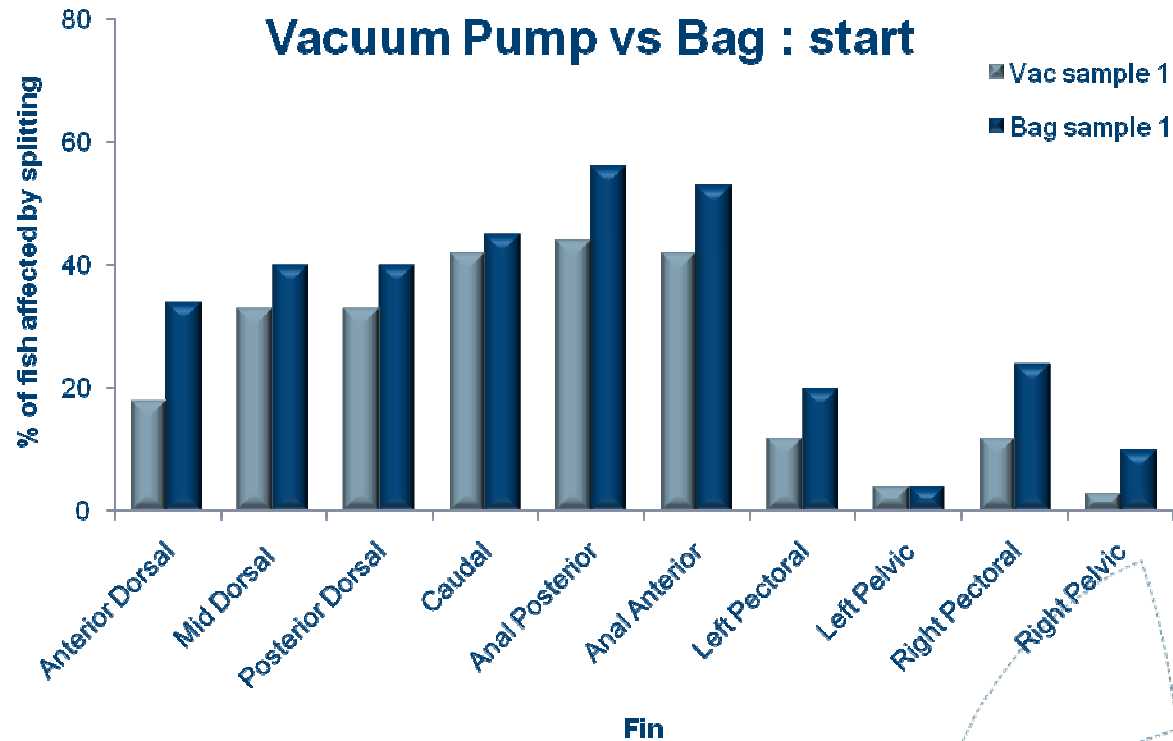


Does the transfer method have an effect upon :

1. The number of fish affected by fin splitting?
2. How many fins on each fish?

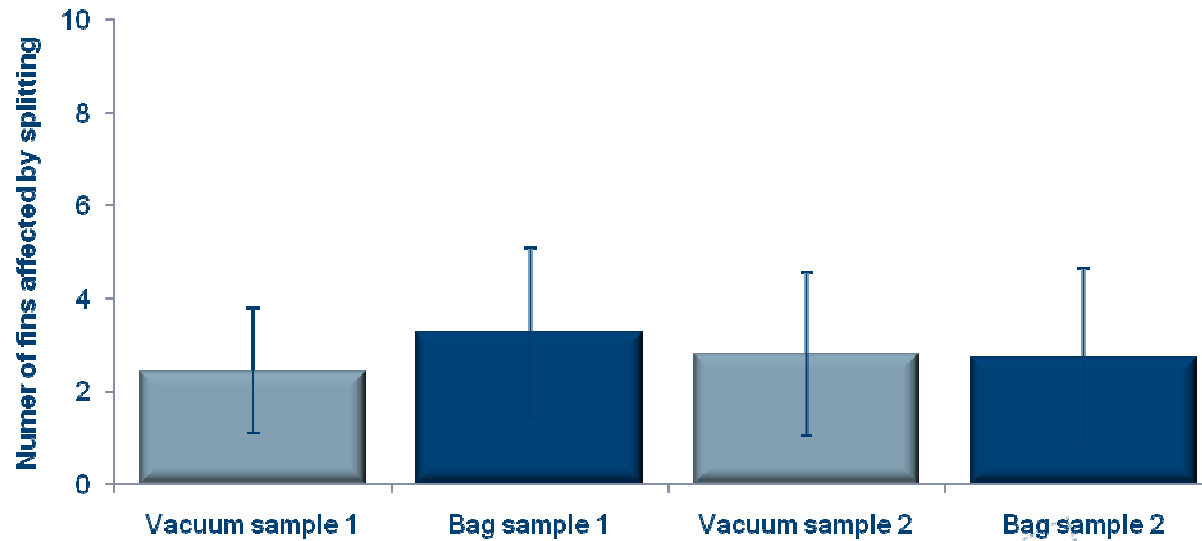


1. The number of fish affected by fin splitting?



Bagged fish have slightly more fin damage than pumped fish, especially their front fins (anterior dorsal and pectoral)

2. How many fins on each fish?



Appears that more fins are damaged (per fish) during bag transfer than vacuum pumping at the start but not 6 weeks later

In summary:

1. The number of fish affected by fin splitting?
Bagging appears to damage a slightly higher number of fish than pumping at the start, but not 6 weeks later
2. How many fins per fish?
Bagging also damages a greater number of fins per fish at the start, but this also disappears 6 weeks later



In summary:

Bagging appears to be a mildly acute risk factor to *post-sorted fish immediately after transfer*

But fish recover from this minor damage and there are no differences between bagged and pumped fish after 6 weeks