

Summary: RESULTS OF ORGANOLEPTIC TESTING (SENSORY EVALUATION) OF NORTH SASKATCHEWAN RIVER FISH

Introduction

The Canadian Food Inspection Agency defines tainted fish as that which is rancid or has an abnormal odour or flavor. Sensory evaluation (organoleptic testing) is a sensory analysis process that can determine if petroleum hydrocarbons from oil spills have affected fish tissues in a manner that makes them unpalatable for human consumption (i.e. tainted fish products).

Husky was required by the Saskatchewan Ministry of Environment and the Ministry of Health to conduct sensory analysis on fish tissue samples from the North Saskatchewan River following the Husky 16TAN oil spill discovered on 21st July 2016, approximately 75km upstream of Paynton Ferry. In conjunction with the results from the risk assessment based on lab analysis of fish tissue and field deployment of semi-permeable membrane devices, the sensory analysis will inform and support lifting the precautionary fish consumption advisory.

Methodology

The sensory panel focused on the difference in taste and smell of subject and control fish tissue samples. Husky (through their contractor SLR Consulting; SLR) collected fish tissue samples from upstream and downstream reference zones, and two potentially impacted zones. The sensory protocol was developed, conducted and supervised by BC Canadian Aquatic Health Science (CAHS). Methodology was based on established protocols. Participants were screened to ensure they met criteria for panelist selection. It should be noted there was a 20% representation of First Nations participants. Samples of walleye and sauger were prepared according to standard methods and presented to 20 panelists. In each test, samples were ranked according to taste, and panelists were invited to provide additional comments.

Findings

Results were compared to see if an individual's preference for fish collected from potentially contaminated zones, was different from fish collected in upstream and downstream reference zones. No statistically significant differences were found in the taste preferences for fish in the reference zone when compared with fish from the potentially impacted zones. No statistically significant difference was found for fish from any of the capture zones. Petroleum odor/flavor was detected in 2% of samples; in the upstream reference zone (2 samples), and one of the potentially impacted zones (1 sample).

Conclusion

Results of the statistical analyses and the low detection of petroleum odour in the potentially impacted zones compared to the upstream reference zone supports lifting the Do Not Consume advisory.