Science, Service, Stewardship

A transformative approach to ageing fish otoliths using near infrared (NIR) spectroscopy: a case study of EBS walleye pollock

NIR spectroscopy is a proven technique in the petrochemical, agricultural and pharmaceutical industries

For ageing fish otoliths revolutionary.....

- What it is and why it works ?
- What we found in our study ?
- What is next ?

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It works because……

- NIR radiation excites the molecular bonds of organic compounds in fish otoliths, resulting in vibrational energy (the more energy detected the older the fish)

In our study we found……

- 1) Very high agreement between traditional (microscopic ages) and NIR predicted ages, 2) better repeatability, 3) as good or better precision, and 4) efficiency gains > 600% (Traditional yields ~35 otoliths / FTE / h; NIR method yields ~ 250 otoliths / FTE / h)

Our next steps are to ……

- Operationalize ageing using NIR spectroscopy this spring (assessment model) for walleye pollock, begin analysis of Pacific cod