Chinook Salmon – DFO T-Wand Study 2013 / 2014

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T-wands for Chinook Salmon

Objective:

Examine the accuracy of the ETD T-wand at 'standard' and 'new' for detecting CWTs in Chinook salmon

Methods (attempted blind sample designs)

2013 Escapement (Chilliwack River Hatchery): heads on, DFO staff, all fish screened with T-wand with standard setting and R9500 tube. All beep-positive heads to head lab

2014 Escapement (Chilliwack River Hatchery): heads on, DFO staff, all fish screened with T-wand with adjusted lower setting and R9500 tube. All beep-positive heads to head lab

T-wands: Definitions

T-wand 'setting'

- settings controlled digitally
- refers to the strength of the signal that T-wand will accept as a tag and beep
- translates to a detection range because a tag beyond that range will not produce enough of a signal to activate the beep

NMT "Standard" Setting	New Setting (Green Tape applied to wand)
Lab Range: 6 cm	Lab Range: 5.25 cm
To allow sampler to easily find a tag that was in the 5.5 cm range	To reduce interference, without compromising high detection range

NMT is maintaining database of settings for each wand by serial number

Hatchery – T-wand vs. Tube Results (2013) - Adults

	'Beep'	'No Beep'	Total
T-WAND: 0% of CWTs missed, 3.2% false positive			
Tagged	276	0	276
Not Tagged	9	666	675
Total	285	666	951
TUBE: 0% of CWTs missed, 5.2% false positive			
Tagged	276	0	276
Not Tagged	15	660	675
Total	291	660	951

Hatchery – T-Wand Results by Clip Status - Adults (2013)

mark rate for sample: 19.6%

T-WAND	'Beep'	'No Beep'	Total
Marked (AFC): 0% of CWTs missed, .6% false positive			
Tagged	180	0	180
Not Tagged	1	5	6
Total	181	5	186
Unmarked: 0% of CWTs missed, 7.7% false positive			
Tagged	96	0	96
Not Tagged	8	661	669
Total	104	661	765

Hatchery – T-wand vs. Tube Results (2014)

	'Beep'	'No Beep'	Total
T-WAND: 0% of CWTs missed, 3.6% false positive			
Tagged	350	0	350
Not Tagged	13	946	959
Total	363	946	1309
TUBE: 0% of CWTs missed, 4.6% false positive			
Tagged	350	0	350
Not Tagged	17	942	959
Total	367	946	1309

Hatchery – T-Wand Results by Clip Status (2014)

mark rate for sample: 15.7%

T-WAND	'Beep'	'No Beep'	Total
Marked (AFC): 0% of CWTs missed, 1.5% false positive			
Tagged	197	0	197
Not Tagged	3	6	9
Total	200	6	206
Unmarked: 0% of CWTs missed, 6% false positive			
Tagged	153	0	153
Not Tagged	10	940	950
Total	163	940	1103

Conclusions

- Significant improvement over earlier “blue” models
- “New” setting does not result in loss of data

Considerations

- Attempted Blind Study
  - DFO trained staff, with vested interest in success in sampling following correct protocols
- Training& Standard Operating Protocols (SOPs)
  - Test Interference – to remove / recognize environment and metallic items on sampler (e.g. watch, buttons, cell phone)
  - Each wand marked to ensure correct side of wand used
  - Correct movement over head & sides of fish, no matter size
- Use of 'Test Standard'
  - Inconsistent results
  - Affects samplers' confidence in tool