STATE OF ALASKA

FRANK MURKOWSKI, GOVERNOR

DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES
MARK, TAG AND AGE LABORATORY

P.O . BOX 25526
JUNEAU, AK 99802-5526
PHONE: (907) 465-3483
FAX: (907) 465-2765

Ron_Josephson@fishgame.state.ak.us

MEMORANDUM

TO: Distribution

FROM: Ron Josephson

DATE: November 26, 2004

SUBJECT: Electronic Screening of Troll Chinook Heads

Sitka has completed their initial field testing of a hand held tag detector for 2004. This memo will serve to summarize those efforts and provide an update of testing of the handheld wand at the ADFG Tag Lab.

For the months of October and November 2004, adipose clipped troll chinook salmon sampled at Sitka were screened with a handheld wand for the presence of a coded wire tag. The samplers then indicated on the sampling form if they detected a signal or if not. When the heads arrived at the lab we were able to make final determinations of tag presence or absence. The intention of this testing was to get some idea of the tag recovery rate for a field sampler using a wand.

The method of wanding a fish has been well described by the manufacturer (Northwest Marine Technology, Inc.). The basic approach is to rub one of two sensitive locations on the end of the wand over the fish's head. The full area from the eyes to the snout is tested, if no signal is received the inside roof of the mouth is also tested.

The results of the Sitka testing showed that field sampling can be quite effective at detecting coded wire tags. The samplers wanded 353 chinook; 144 of these did not have tags of which the Sitka wanding had three false positive signals; 209 had coded wire tags of which one tag was missed at Sitka for a 99.5% detection rate. See Table 1.

The wands are supposed to detect tags within 2.5 cm and are naturally more effective with smaller fish. The average weight of the winter troll kings during this sampling period was 12.7 pounds.

The wand screening in Sitka was hampered by interference with the wand. Apparently the local FM radio station is close enough to cause the wand to falsely signal. Some filtering of this interference is possible by wrapping the wand with aluminum foil; however that covering is fragile and soon lost

when wanding in the mouth of fish. (NMT is developing an integrated filter into the wand that should allow interference free sampling at Sitka.)

Table 1. Results of screening of winter troll chinook at Sitka for coded wire tags with a hand held wand detector.

	Final Result	
Sitka's Results	No tag	Tag
No Signal	141	1
Signaled	3	208
Total	144	209

Last Spring and again this winter the Tag Lab conducted testing of the hand held wands. We followed a similar procedure as at Sitka with the exception that we did not test in the mouth unless hand wanding had not detected a signal and but normal head screening had detected a signal. In those cases we would test in the mouth. (The primary reason for this approach is the heads are frozen and it is difficult to open the mouth enough to get the wand inside.)

We found the wand to be very effective at detecting tags in the lab environment. In testing 1,225 heads that we later found tags, the wand detected all but two tags. External wanding found about 97% of the tags, the other 3% where found with the additional mouth wanding. For the two tags that were not detected, one was a half-length tag and the other was not detected until we re-magnetized the head.

Table 2. Results of the Tag Lab's screening of troll chinook for coded wire tags with a hand held wand detector.

	Final Result	
Lab's Wand Result	No tag	Tag
No signal	634	2[1]
Signaled	1	1,224
Total	635	1,226

The chinook landed during this period were slightly larger than the smaller sample tested at Sitka. The average weight was at about 14 pounds.

I believe the wands can be used for some screening during the winter troll fishery, however I still have reservations about the wholesale use during summer fisheries.

1 Of the two tags that were not detected with the wand, one was a half-length tag and one was not detected with the more sensitive V-Box detector until the head was remagnetized.