K9 Oil Detection

W. Scott Pegau

Oil Spill Recovery Institute

Cordova, AK

wspegau@pwssc.org

www.pws-osri.org

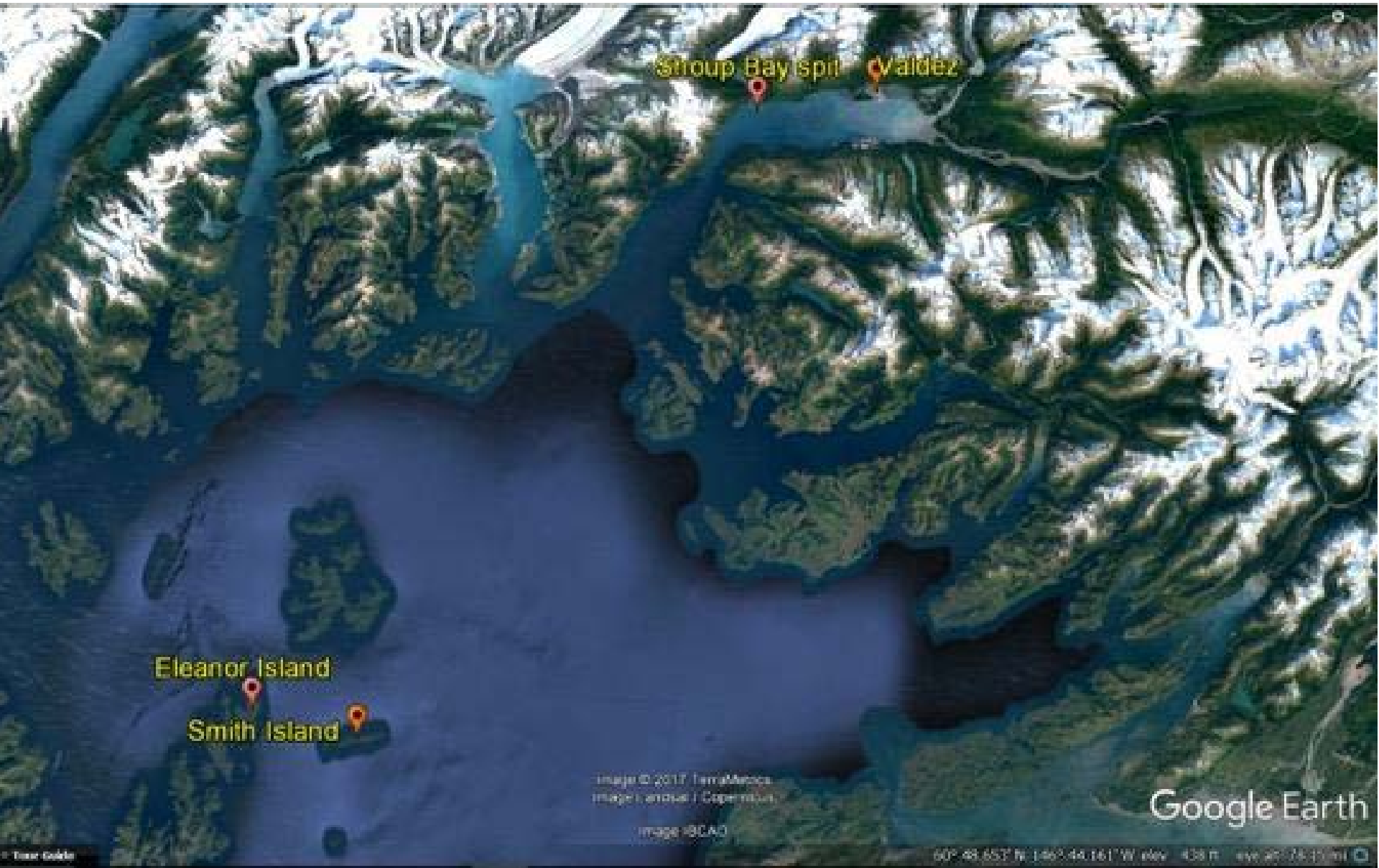
Outline

- Purpose
- Field efforts
- Results
- Conclusion

- http://www.pws-osri.org/wp-content/uploads/2017/09/17-10-03-Owens-K9.compressed.pdf

Determine if dogs can detect residual oil in PWS Beaches?

Approach


Stroup Bay spit
Valdez
Eleanor Island
Smith Island
Google Earth

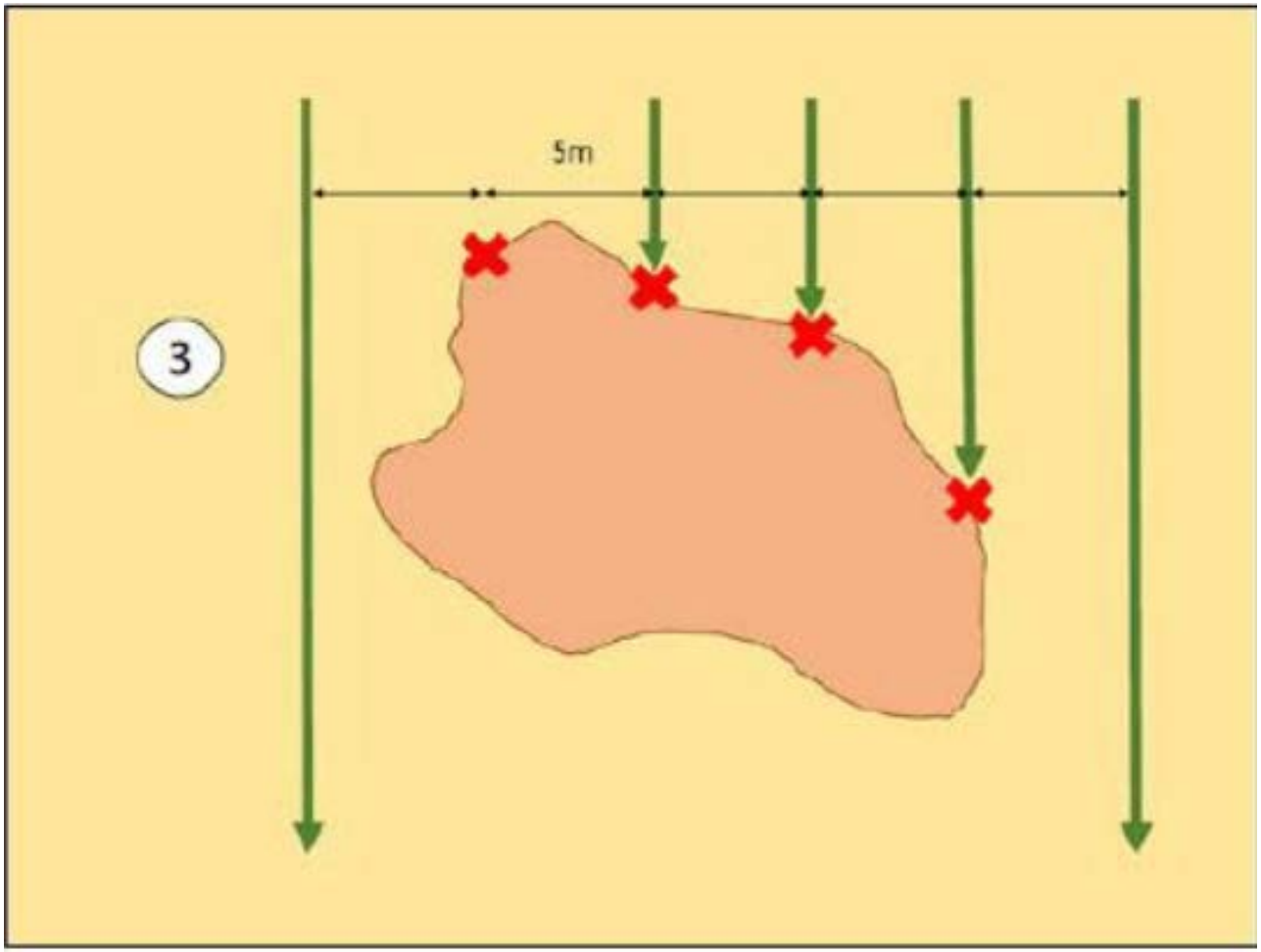
Transport


K9 Team

Search

Broad Search

Delineating



Alert

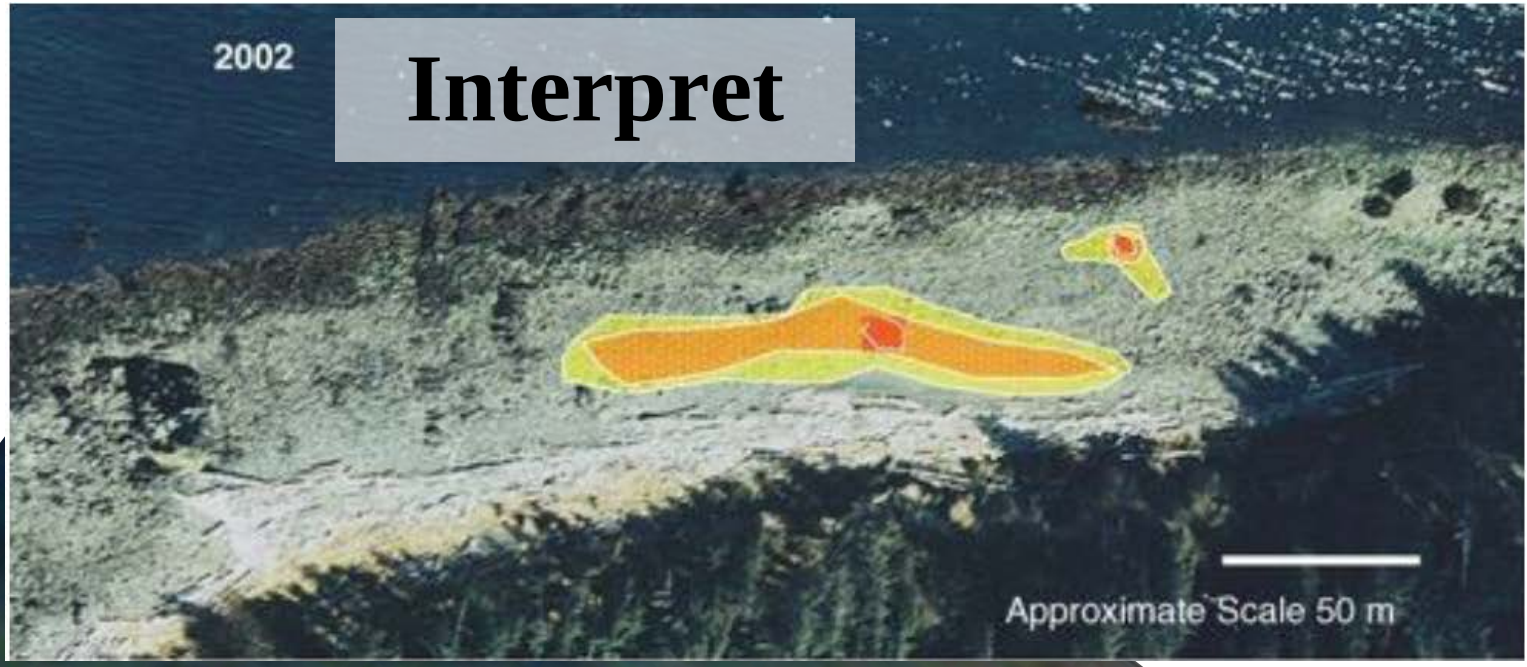
Marking Alerts

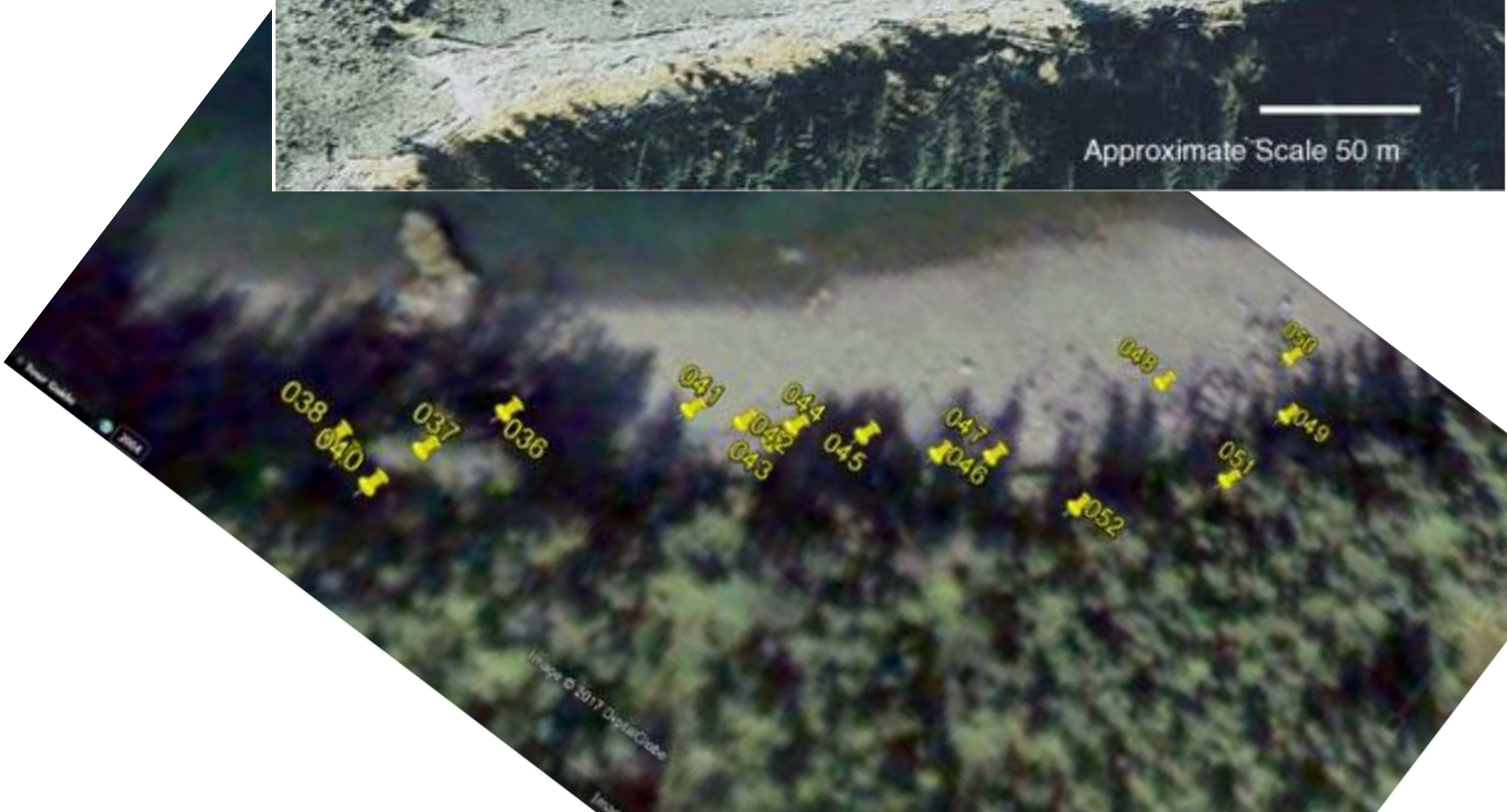
Dig for Oil


Find or Not

Document

Interpret


2002
Approximate Scale 50 m


038
040
037
036
041
042
043
044
045
047
046
048
050
049
051
052

Results

A total of 52 alerts were documented as follows:

- 19 subsurface oil alerts were verified by pit observation
- Nine (9) subsurface alerts were logged as NOO in pits that reached the water table
- 22 subsurface alerts were unverified as no pits were dug at these locations
- Two (2) alerts were due to human error (cross-contamination)

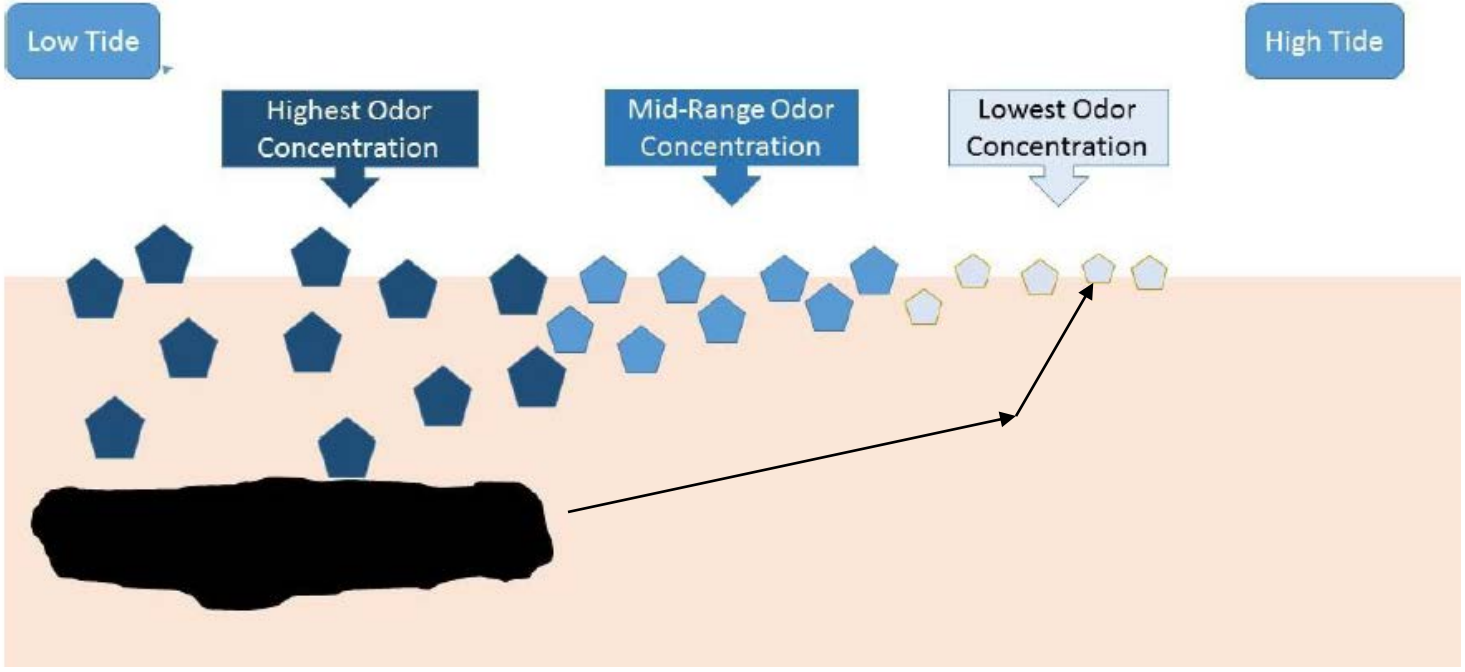
Results

- Almost half (47%) of the subsurface oil alerts were in the middle intertidal zone and a further 26% were in the upper intertidal zone
- Only one (1) upper intertidal zone subsurface oil alert was verified and nine (9) alerts had no pit or were incomplete
- The large proportion of pits not dug or that were incomplete at the alerts (50%; 27 out of 53 alerts) is a result of the challenges associated with digging pits in the very coarse sediments that typify these beaches in Prince William Sound.


Verified Alert
Unverified with Pit
No Pit or Pit not to Water Table
Canine track
0
50
100
200
Meters
N

Discussion of Alert

- The odors may drift away from the source.
- The pit may be not directly located above the odor source.
- The pit may not be sufficiently deep.
- The pit may be filled with water and no oil or sheen is visible if the oil is below visual detection limits
- It takes some time for the odor to migrate to the surface (problem when we buried targets)



Issues to Consider

- The detected oil may not be visually detectable or the odor migrate away from directly above the oil
- Rough footing for dogs
- Landing dog without walking through an oiled area
- Cross contamination
- Be ready to change approach
- What is the correct sensitivity level to train the dog to

Conclusions

- The dog was able to detect known locations of oil in PWS
- The dog alerted on other locations where the oil wasn't always visible.
- This is a team effort
- The best use may be in having the dog clear beaches to confine where pits are dug
- Greater respect for what a dog may detect