Whale Bycatch Avoidance: what’s NOT to love about pingers?

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Alaska: Endangered species’ critical summer foraging areas......
..... 1000’s of coastal seines and gillnets in summer fisheries....
Increasing Potential for Large Whale Interactions
Entanglement = RARE but potentially significant events
Entanglement Consequences

Fishermen:
- damage/loss of gear
- lost fishing time
- personal injury
- regulatory response
Entanglement Consequences

Fishermen:
• damage/loss of gear
• lost fishing time
• personal injury
• regulatory response

Whales:
• injury
• impaired feeding
• death
Bottomline

No one wants whales in nets
Bottomline

No one wants whales in nets

Common Goal = AVOIDANCE
Whales involved…

- Baleen whales (no sonar)
- Young, inexperienced
- Acoustic world
Stumblers
Stumblers

NOT attracted to gear
NOT scavenging
NOT aware
Stumblers

NOT attracted to gear
NOT scavenging
NOT aware

NO positive reinforcement
Stumblers

NOT attracted to gear
NOT scavenging
NOT aware

NO positive reinforcement = Good news!
Need to ALERT, not SCARE

Make nets “acoustically visible”
Success of Acoustic Alarms

10 kHz porpoise pingers mandated

- CA-OR swordfish driftnets
- New England sink gillnets

Take Rates Reduced

**IF**

- nets are fully equipped
- **AND** pingers fully operational
“Visible” = acoustic alert

CONCERNS

• Acceptable, legal ?
• Safe ?
• Effective ?
• Effects ?
“Visible” = acoustics, alarms

CONCERNS

• Acceptable, legal ?
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CHALLENGES

• Statewide
• Multi-fishery
• Multi-species
Safe for whale? legal?

Currently.....

**180 dB** = Level A harassment
  - Potential to injure animal

**160 dB** = Level B harassment
  - Potential to disturb, disrupt feeding or other behaviors
Effective... if properly used
• FutureOceans ‘F3’ 3kHz alarm
• Apparent success w/humpbacks in Australia
• 135 dB re 1µPA
• Recommended spacing @ 50m
Effectiveness of 3kHz whale pingers in AK?

Fishermen feedback < Voluntary pinger use Voluntary logbooks
Effectiveness of 3kHz whale pingers in AK?

Fishermen feedback < Voluntary pinger use Voluntary logbooks

• Record whale approaches, avoidance
• Was catch affected?
• Were there more scavengers (SSL) at your net?
• How / where on net did you put pinger(s)?
• Did whales seem to habituate to pinger?
Testimonials and Logbooks

Humpbacks can hear 3kHz pingers and casually avoid pingered nets

‘Pingers’ show promise to keep whales away from nets

BOB TKACZ, FOR THE JOURNAL

Acoustical “pingers,” required in some Atlantic Coast fisheries to help porpoises stay out of driftnets, are getting strong reviews from salmon harvesters on both sides of the Gulf of Alaska along with almost desperate interest from others here trying to avoid costly whale encounters.

Federal officials in Alaska have raised the possibility that use of the herring-sized transmitters might amount to “harassment” under the Marine Mammal Protection Act.
Was catch affected?
Were scavengers attracted?
So, what’s NOT to love ??

- Pingers seem to alert baleen whales
- Alternative to their use – entanglement
- Porpoise Pingers mandated in Lower48
So, what’s NOT to love ??

“Federal officials... have raised the possibility they...might amount to harassment...”

“Some Protected Resources people had concerns,” Brown said of the NOAA division.
NMFS Conundrum

- F3 pingers seem to alert whales
- Alternative to their use = entanglement
- Porpoise Pingers mandated in Lower48

.... a no-brainer..... except
Humpbacks = “Endangered” species
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Adding more anthropogenic noise to ocean
Effect on Endangered Species?

- Individual behavior change?
- Population/habitat effects?
Effects of 135 dB pingers?

Individual

- No injury
- But intent is to change path/behavior

Population

- Displaced from feeding grounds?
- ‘Ensonifying the Ocean’?
Need to fully ‘pinger’ nets

Avoid “Gate Effect”

A gap in an acoustic ‘fence’ looks like a gate...
To work, nets need to be fully pinged.
To work, nets need to be fully pingered

Displace whales from feeding habitat?
To work, nets need to be fully pingered.

Displace whales from feeding habitat?

Compared to / added to rest of SOUNDSCAPE?
Pinger risk assessment
POTENTIAL costs x KNOWN benefits
Pinger use continues, interest growing globally……
Questions remain

Re: Pingers

How many in use? For how long? Where?
How being used?
When effective, when not?

Fleet reports
Questions remain

Re: Pingers

How many in use? For how long? Where?
How being used?
When effective, when not?

Re: whales

Will whales habituate?
Cumulative effects? At what density?
Population-level effects?
  Displaced from feeding areas?
  For how long?
  How can you tell if due to pingers vs normal?

Field Trials
UAF Approach
Parallel and collaborative studies

- Acceptable?
- Safe, legal?
- Effective?
- Effects?
Monitor whales’ response

Of individuals
- Tagging and Controlled Exposure Experiments

Of feeding groups
- Measure movements near pingered line
Shared Goals

• No one WANTS whales in their gear
• Conflicts with “stumblers” are resolvable
• In everyone’s best interest to
  – reduce entanglement frequency and impact
  – proactively address the issue prior to mandates
Whale Bycatch Avoidance

Logic and Reason

Communication and Collaboration

Research and Outreach
Funding and Support

- NOAA
- NPRB
- Alaska Sea Grant
- FutureOceans