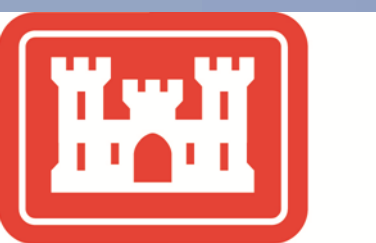


Evaluation of Tickler Chains and Draghead Deflectors for Sea Turtle Protection

During Hopper Dredging in Hawaii

Dena Dickerson, Tim Welp, Stephen Willis, Doug Novy, and John Henrikson



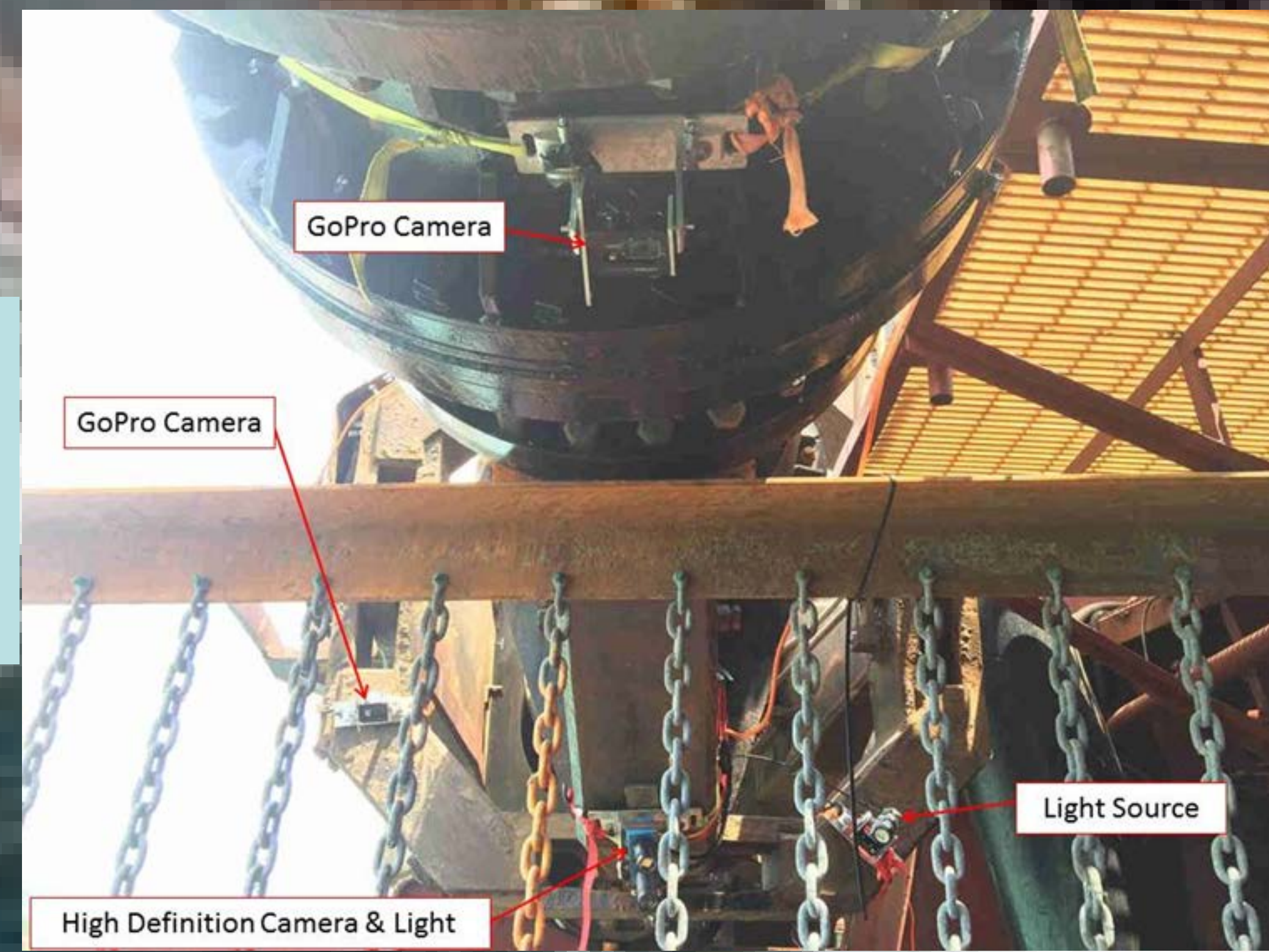
US Army Corps of Engineers
San Francisco District



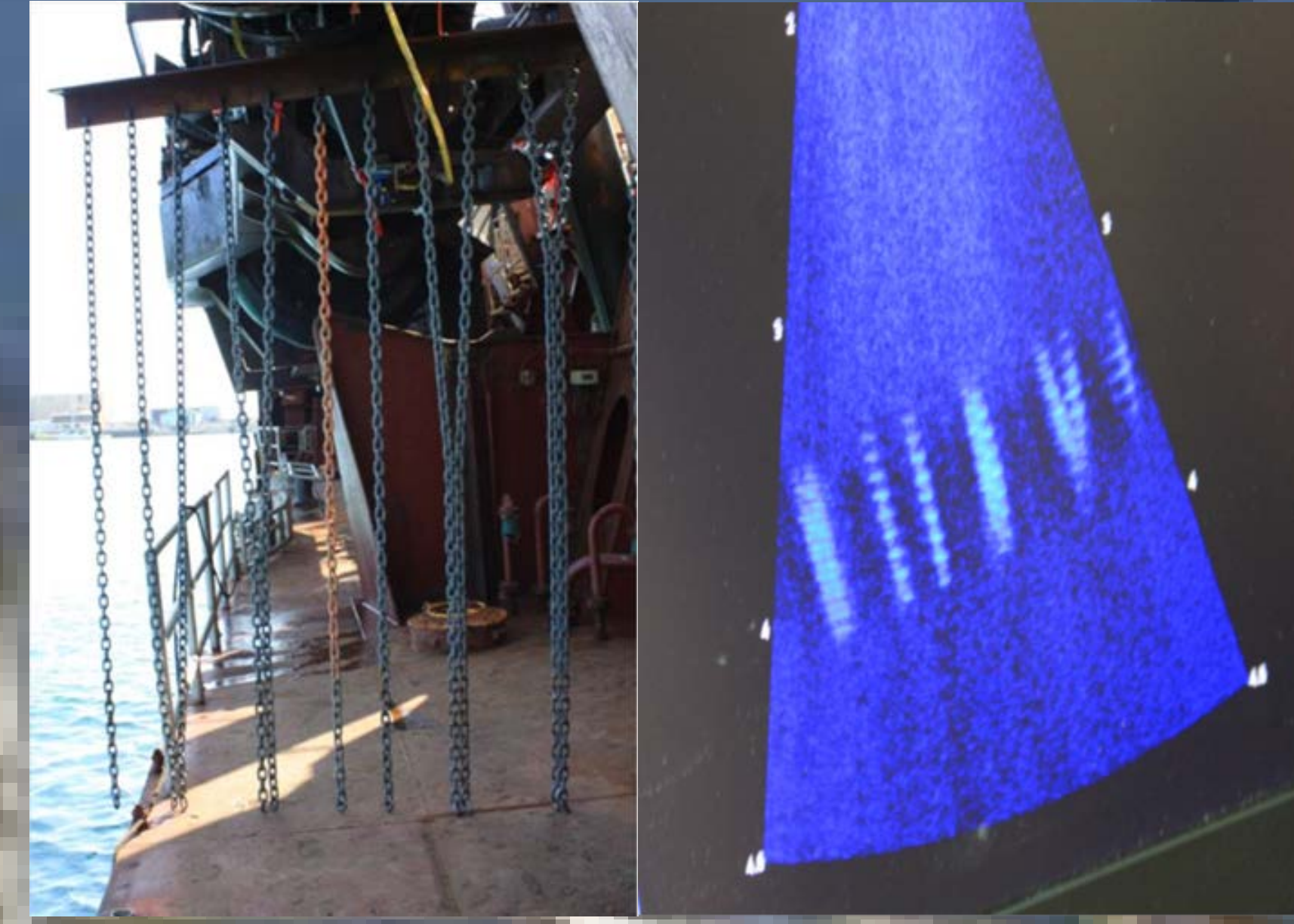
Technology that builds
away from draghead.



ing but unproven
to be dragged along
ivate a turtle on or
y from the oncoming



tle tickler chains and draghead deflector
erating characteristics were evaluated on
SAYONS with GoPro, high definition, and



A major concern was that chains could entangle and pose drowning risk to turtles, so chains were wire-tied together to test if acoustic camera could discriminate this fouling condition.

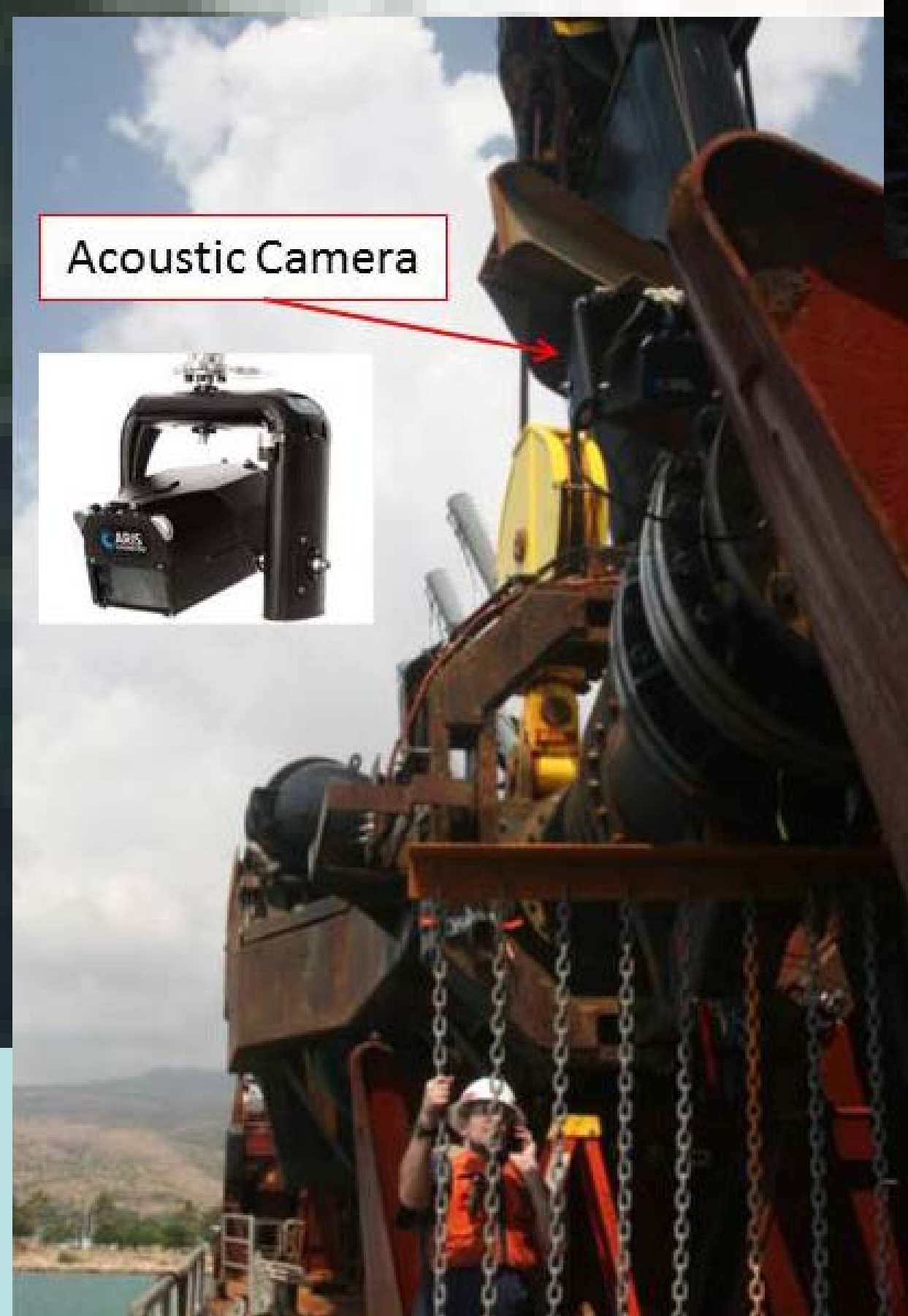
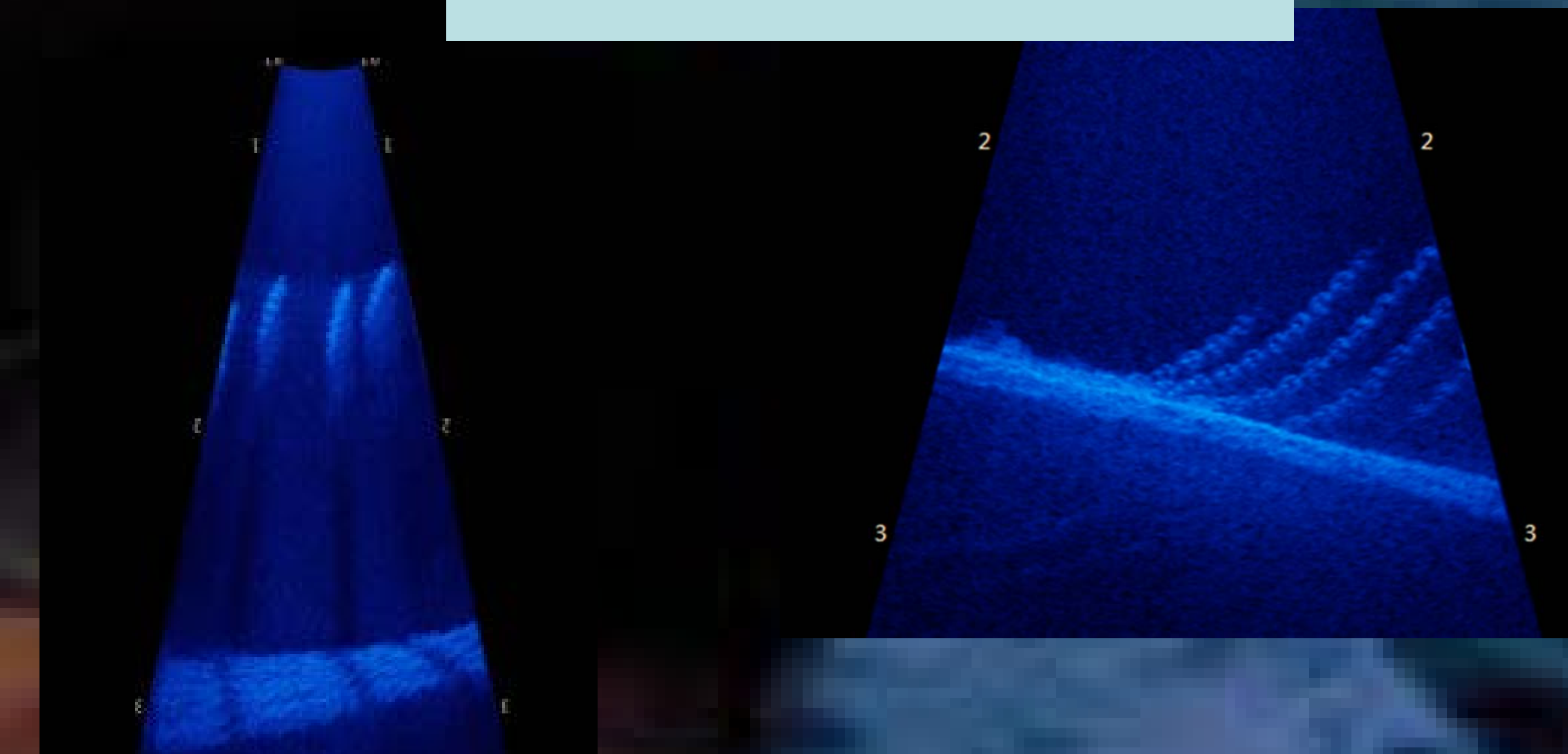
This study successfully demonstrated;

- feasibility of deploying turtle tickler chains off the dragarm.
- that an acoustic camera could be used to monitor equipment performance underwater in turbid water with extremely limited visibility on a dynamic dragarm.

The acoustic camera was able to confirm that;

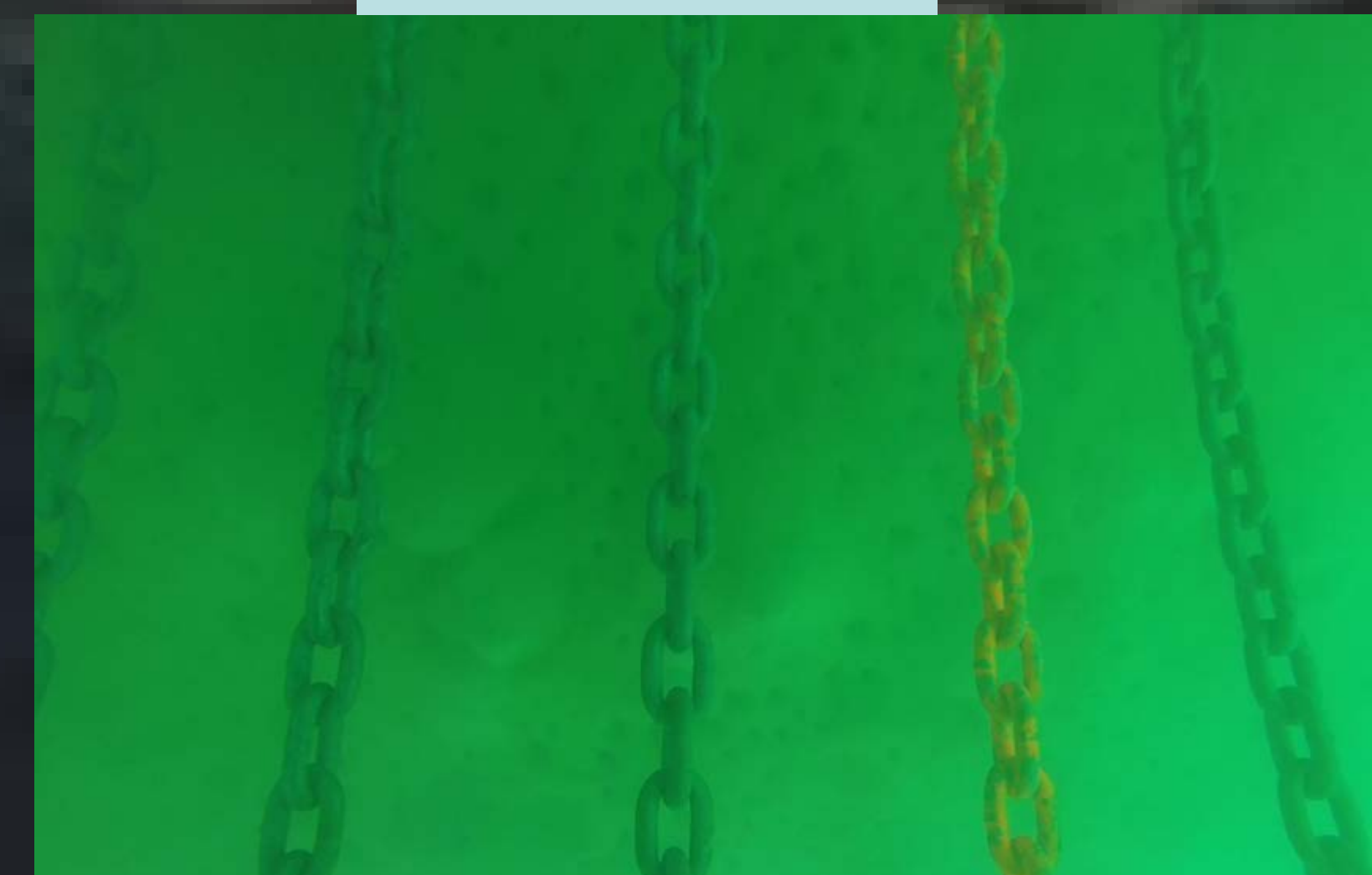
- the chains maintained contact with bottom with even spacing and not entangle or become bunched together.
- the draghead deflector was deployed correctly and generated the needed sediment wave to move turtles away from the draghead.

Acoustic camera viewing chains .



Acoustic camera viewing turtle deflector.

GoPro Camera



High Definition Camera

