Case Study: Government

Alaska Department of Fish & Game Solves Crab Policy Issue by Deploying ADMET

Challenge

The Alaska Department of Fish & Game (ADF&G) has many responsibilities related to protecting and preserving the state's wildlife. This includes crab fisheries in Alaskan waters. One consequence of the crab pot fishing gear used by the industry is a phenomenon called "ghost fishing" which happens when functional pots are lost but continue to trap and kill crabs and other organisms. In response, regulations were enacted that require one sidewall of all crab pots have an opening that is secured with biodegradable 100% cotton twine that will break down after time, allowing organisms to escape.

Some in the industry questioned the appropriateness of the twine specification, claiming that the twine failed on active traps before the pots could be retrieved. The ADF&G sought to test the time-to-failure by assessing the elasticity and tensile strength of the twine. David Barnard, Biometrician of the Bering Sea and Aleutian Islands Crab Observer program, needed a machine to test twines of different strength to ensure the regulations were correct.

Solution

Before conducting testing, ADF&G depended on observational data regarding the strength and durability of the twine. The department wanted to back this observational data up with empirical evidence. Initially, the ADF&G staff considered field-testing twine using actual crab pots in the field, but it would have required a large vessel and been labor intensive and expensive. Ultimately, it was decided to use a controlled study to eliminate as many variables as possible.

Mr. Barnard contacted ADMET and found that the competitively priced eXpert 5601 Universal Testing Machine would have necessary capabilities to conduct his study. Additionally, Mr. Barnard was pleased with the size of the ADMET machine having found competitors' machines to be too large.

Results

Upon receipt of the machine, Mr. Barnard was able to set it up himself with no difficulties. The ADMET machine gave him the capability to conduct the necessary elasticity and tension studies. The study examined 30-thread and 60-thread twine samples that have been soaked in a laboratory tank and another set of twine samples soaked at the bottom of a harbor. Mr. Barnard runs 20 replicates of each size.

Thanks to this study, ADF&G was able to provide the Board of Fisheries information on the physical properties of the twine so the Board can make an informed decision regarding regulatory change requests on the matter.

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