



NOAA Marine Debris Program Innovative Removal Helicopter & Barge Removal in the Gulf of Alaska

Photo: GoAK

Project Description

Gulf of Alaska Keeper (GoAK) conducts removal activities on the shorelines of Alaska, primarily on the rugged coasts of Prince William Sound and the outer coast of the Kenai Peninsula. Many of these locations are remote, with the nearest port for disposal or support many hours or even days away by boat, as is common in Alaska. Because of the distances and logistical challenges posed, GoAK and other organizations have had to find innovative approaches to maximize the effectiveness of removal. One such approach is helicopter and barge removal. Removal activities conducted by the Gulf of Alaska Keeper often involve collecting debris into large, high capacity bags, called "super sacks". When possible, these bundles are then lifted by a helicopter to a barge or other cargo vessel waiting immediately offshore. The technique was first used by GoAK in 2007 at Gore Point, where over 20 tons of debris were removed from and transported to a large self-powered landing craft. Removed debris was then taken nearly 90 sea miles away to Homer, Alaska, for disposal.

This concept was expanded significantly to remove debris from a total of 11 locations in the Gulf of Alaska and British Columbia in 2015, using gift funds from the Government of Japan. In most cases, the debris was pre-aggregated by ground crews and then airlifted by helicopters to a large barge (roughly the size of a football field), which was pulled by a tug. The barge started its pickup in Kodiak, Alaska, and made its way clockwise around the Gulf of Alaska. It picked up debris from sites along the way before returning to Seattle, where debris was transferred into the waste stream for disposal at the Waste Management landfill in Oregon.

Innovative Techniques

This project takes place in an area where there is no road or practical land access. GoAK has used this project to both improve efficiency for retrieving debris in these remote locations, as well as to further the development of helicopter protocols and operational concepts.

These projects have also piloted new concepts for the storage and retrieval of marine debris beyond the use of helicopters, as well as the proper placement of vessels and communications between the different units involved in the removal (ground crews, barge/tug operators, and helicopter pilots).

Uses & Lessons Learned

Through the use of helicopters to transport debris to a large barge, GoAK has developed a method of remote removal that circumvents the challenge of transporting debris through potentially dangerous surf conditions, significantly reducing debris removal and transport risks. The use of the barge/airlift concept can also significantly increase the overall efficiency of cleanup activities in situations where the technique can be applied.

Despite its success, this technique requires a great amount of planning in order to coordinate the debris collection with the final disposal methods, as well as dependable funding. Helicopter and vessel time are both very expensive. Furthermore, the use of this type of machinery increases the requirements that must be met for compliance with NEPA (National Environmental Policy Act) and other permitting frameworks based on an increased level of potential impact/disturbance.

In using these removal methods, it is also critical to begin communications between contractors, resource and land management agencies, and funding groups early in order to make expectations as clear as possible across parties.

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