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## **OptimERA Ocean Mesh Communications Experiment**

### **Communications Problem:**

The Bering Sea fishery is the largest ocean fishery in the US. There are over 1000 boats that fish out of the communities along the Aleutian chain. Because of the size of most boats, and location of the fishery, it is impossible for the fishermen to take advantage of the telecommunications made available today via satellite. Many of the fisheries have been lengthened out to stabilize the fisheries and ensure the lasting food resource. Consequently many of these fishermen are fishing around 8 months a year. They have access only to minimal communications like slow email, and expensive satellite phones. There is a vast market for the communications industry that is not being explored because the technology to accomplish this was not available 10 years ago.

### **Hypothesis to a Solution:**

Using a high powered, multi frequency, Mesh network it would be possible to extend high bandwidth communications into high traffic shipping and fishing locations. This would allow real-time monitoring of equipment critical to safety as well as add another layer of safety backup for the people who work in the Bearing Sea, some of the most dangerous jobs in the US.

### **Experiments:**

- 1) Use spectrums of 900 MHz, 2.4 GHz, 3.5 GHz, and 5.8 GHz with adjustable power levels similar to the current Marine Power limits of 25 Watts, in different combinations and at different power levels, to form a mobile mesh network of boats that backhaul to different land based satellite locations.
- 2) Provide different services to the fishing and shipping fleets to analyze the market potential for a high bandwidth mobile mesh network service.

### **Location:**

The Bering Sea Alaska. The Coordinates below would be the center of a circle that would have a radius of 300 Miles.

N 53° 55' 8"      W 166° 30'33"

### **Duration:**

5 years is required to conduct these experiments. This time will allow us to understand the best frequencies to be used, develop technology that is needed for the experiments, and gather enough information to determine weather the service is viable economically.