

## LOCATIONS FOR COLLECTION OF BIOTA

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**OBJECTIVE:** To accurately locate all collections of biota, and to show the geophysical and biological transects sampled.

**BACKGROUND:** One of the important aspects of our biological sampling of biota for radiological analysis was the use of Geographic Information Systems (GIS) to plot the locations of all samples. This involved taking GIS measurements in the field, for the terrestrial, intertidal, and benthic collections while on the Ocean Explorer expedition, and for the trawl locations while on the Gladiator.

In the past, the collection of biota was often ascribed to general locations, such as a bay or cove, or even a broader region. Global Positioning System (GPS) units make it possible to locate exactly on maps the location of every sample. This is extremely useful in the case of our Amchitka studies because of the possibility of seeps at particular locations on the ocean floor. Thus, benthic organisms may be exposed at particular sites, as well as through the movement of ocean currents. Further, it was essential to coordinate the geophysical and biological transects.

**METHODS:** During biological collection, hand held GPS units were used to record the exact location of all biota collected in the terrestrial environment (gull adults and chicks, gull eggs, eider females and eider eggs), and in the intertidal (kelp, other algae, mussels, limpets), as well as birds collected over the ocean (puffins, guillemots). For the diving transects, each station was located by its latitude and longitude obtained by plotting the transects with Garmin MapSource mapping software. Divers collected samples a small area around this point.

The latitudes and longitudes of all collection locations were converted into report maps by using GIS software (ESRI, 2004)

**RESULTS:** The maps included in this report show the collection locations for the biota from the Ocean Explorer and the Gladiator, as well as the locations of the transects for both the geophysical and the biological work during the summer of 2004.

Included in this report are the following:

Figure 1. Location of the CTD (concentration, temperature, density) transects and sample locations and the dive transects and stations on Amchitka and Kiska while on the Ocean Explorer.

Figure 2. Latitude and longitude locations of sample trawls from the Gladiator.

- Figure 3. Location of sample trawls from the Gladiator.
- Figure 4. Location of specific sampling sites on the transects for the Ocean Explorer.
- Figure 5. Specific locations of the sampling stations, by number, for the CTD and diver transects on the Ocean Explorer.
- Figure 6. Locations of water and sediment samples taken initially as a health screen for biological sampling personnel on Ocean Explorer.
- Figure 7. Locations of collection of kelp and invertebrates from the Ocean Explorer.
- Figure 8. Locations of collection of fish from the Ocean Explorer.
- Figure 9. Locations of collection of bird specimens from on land and from the sea from the Ocean Explorer.

References:

ESRI 2004: ArcGIS Users Manual, Environmental Systems Research Institute, Redlands, CA.

Figure 1. Location of the CTD (concentration, temperature, density) transects and sample locations and the dive transects and stations on Amchitka and Kiska while on the Ocean Explorer.

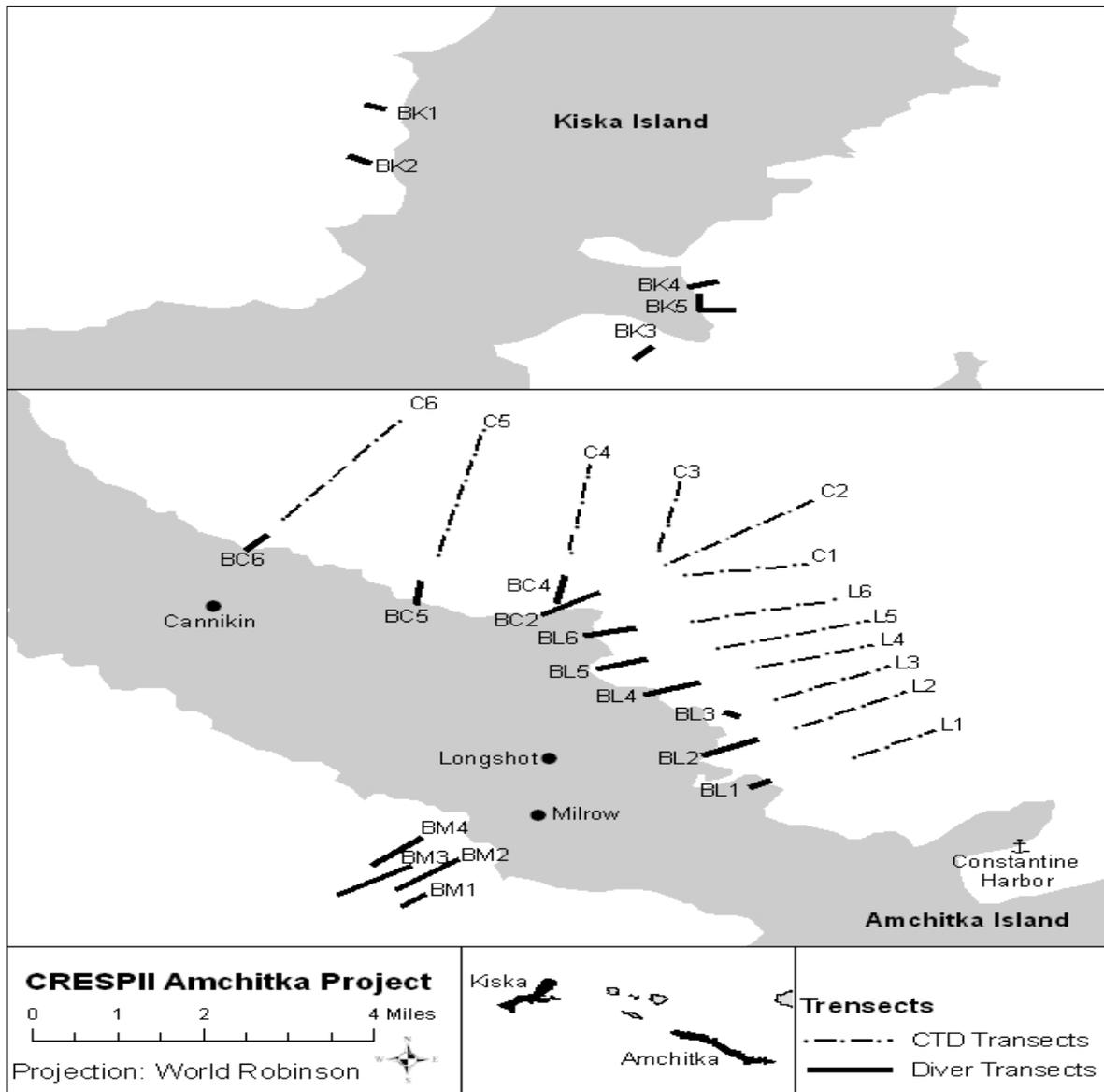


Figure 2. Latitude and longitude locations of sample trawls from the Gladiator.

DATE	CRESP	NOAA	DEPTH (m)	LATITUDE	LONGITUDE
07/19/04	TA1	168	140	51.2083	179.36259
07/19/04	TA2	169	140	51.29458	179.38989
07/20/04	TA3	170	157	51.25516	179.27679
07/20/04	TA5	172	151	51.25272	179.20081
07/21/04	TA6	174	388	51.45142	178.6024
07/21/04	TA7	175	217	51.48694	178.6351
07/21/04	R11	176	265	51.90917	178.255
07/21/04	R12	177	250	51.92241	178.25259
07/22/04	R13	178	93	51.95906	178.2681
07/22/04	R14	179	434	51.95679	178.06419
07/22/04	R15	180	327	52.01493	177.9897
07/23/04	K12	182	137	51.82148	177.629
07/23/04	K13	183	118	51.84936	177.6891
07/23/04	K14	184	117	51.83118	177.4958
07/23/04	K15	185	274	51.7458	177.3591

Figure 4. Location of specific sampling sites on the transects for the Ocean Explorer.

TA = Trawls near Amchitka Island

RI = Trawls near small Rat Islands (reference sites)

KI = Trawls near Kiska Island (reference sites)

Figure 3: Location of sample trawls from the Gladiator.

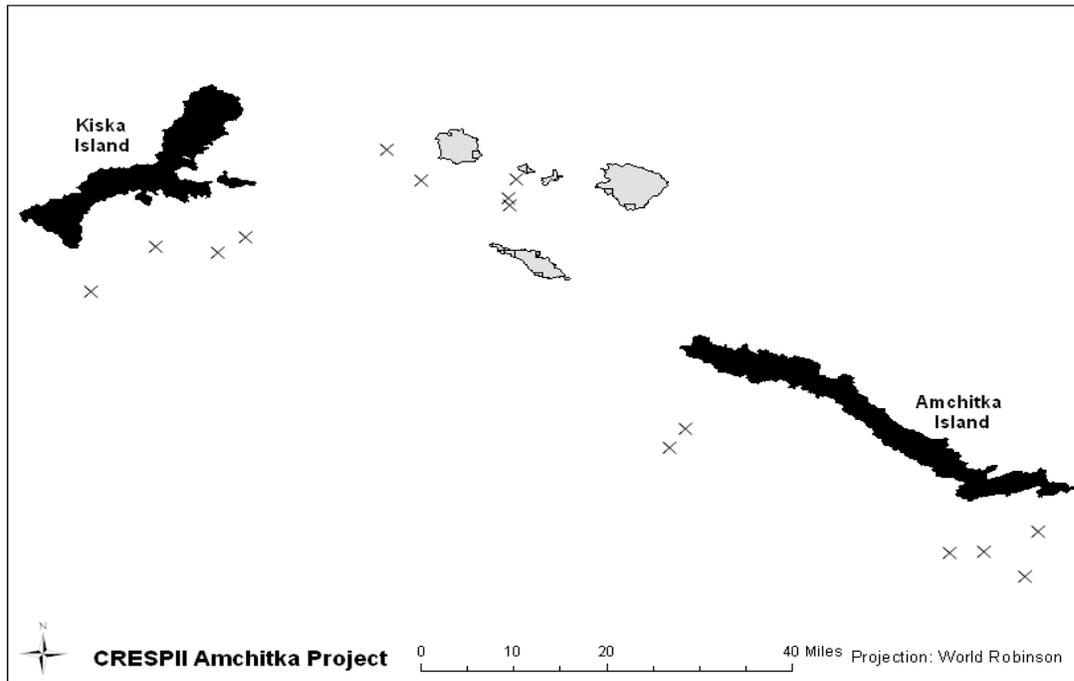


Figure 4. Location of specific sampling sites on the transects for the Ocean Explorer.



Figure 5. Specific locations of the sampling stations, by number, for the CTD and diver transects on the Ocean Explorer.



Figure 6. Locations of water and sediment samples taken initially as a health screen for biological sampling personnel on Ocean Explorer.

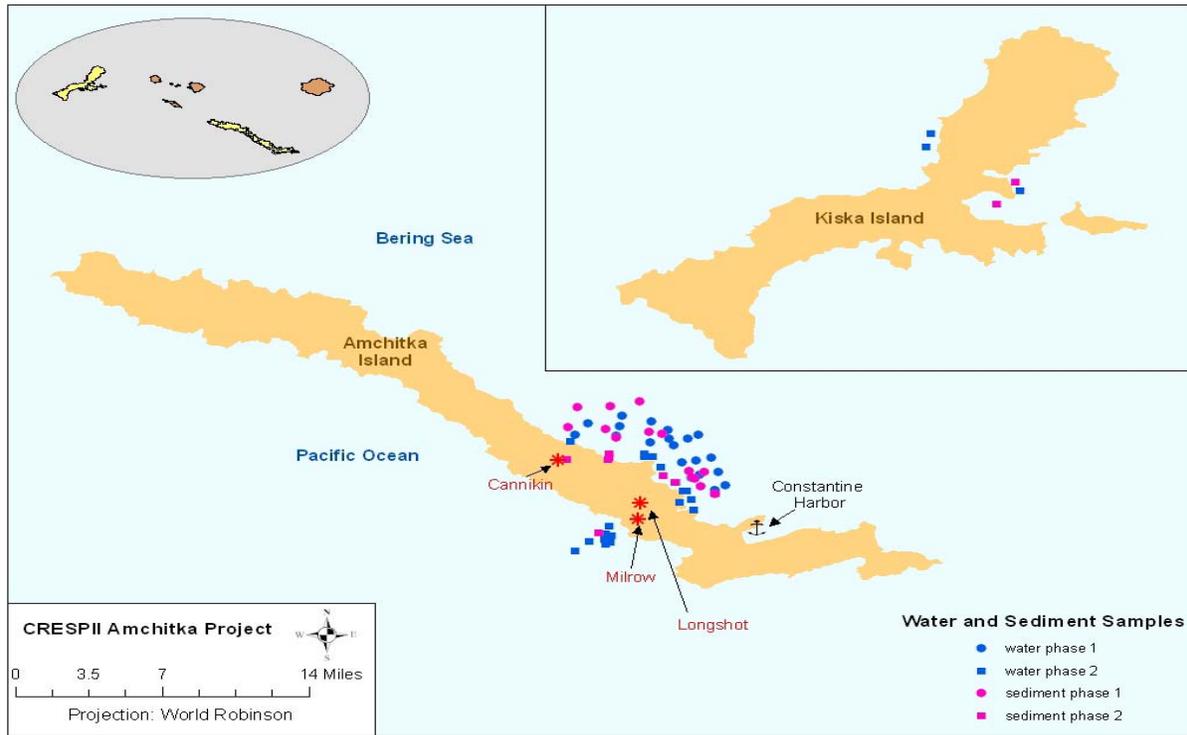


Figure 7. Locations of collection of kelp and invertebrates from the Ocean Explorer.

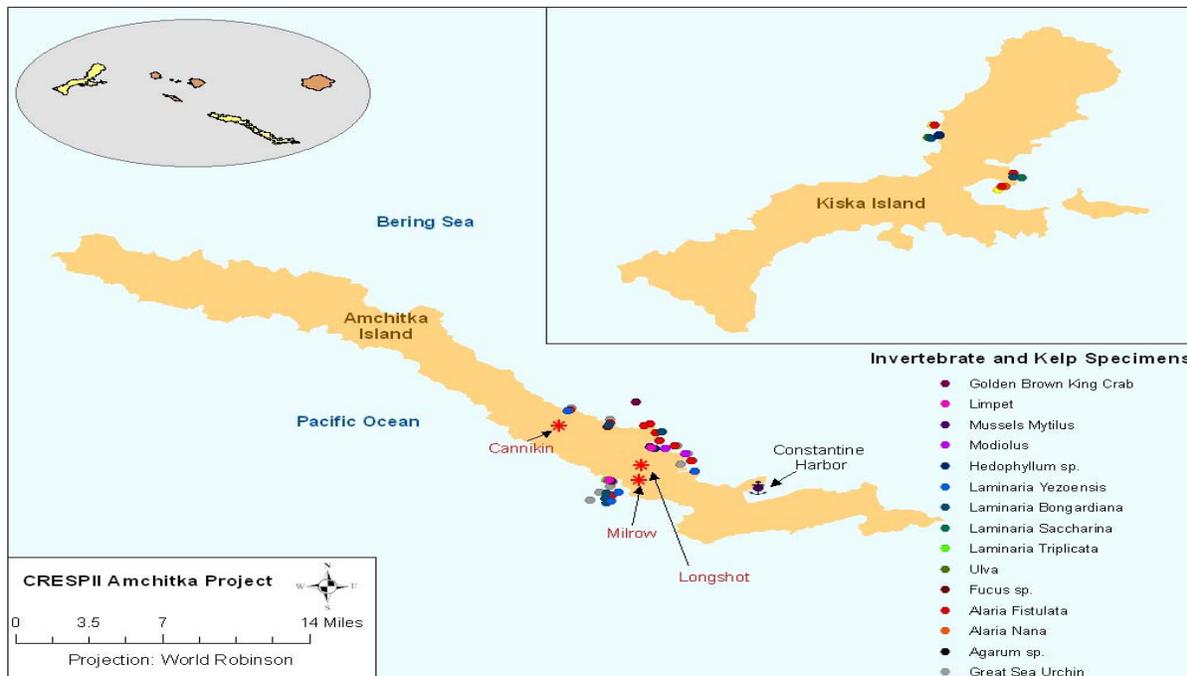


Figure 8. Locations of collection of fish from the Ocean Explorer.

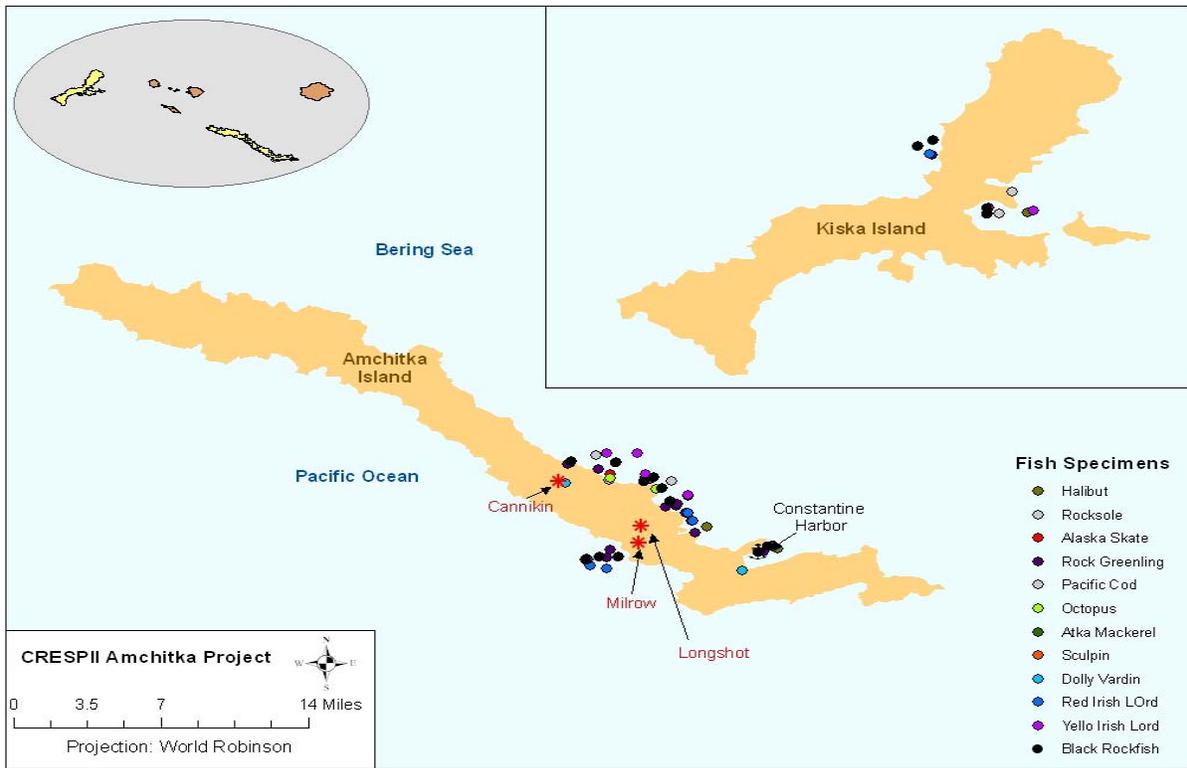


Figure 9. Locations of collection of bird specimens from on land and from the sea from the Ocean Explorer.

