

Coastal Alaska Monitoring and Assessment Program (AKMAP) Benthic Habitat Transect Methods – Aleutian Islands

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8th Environmental Monitoring and Assessment
Program (EMAP) Symposium

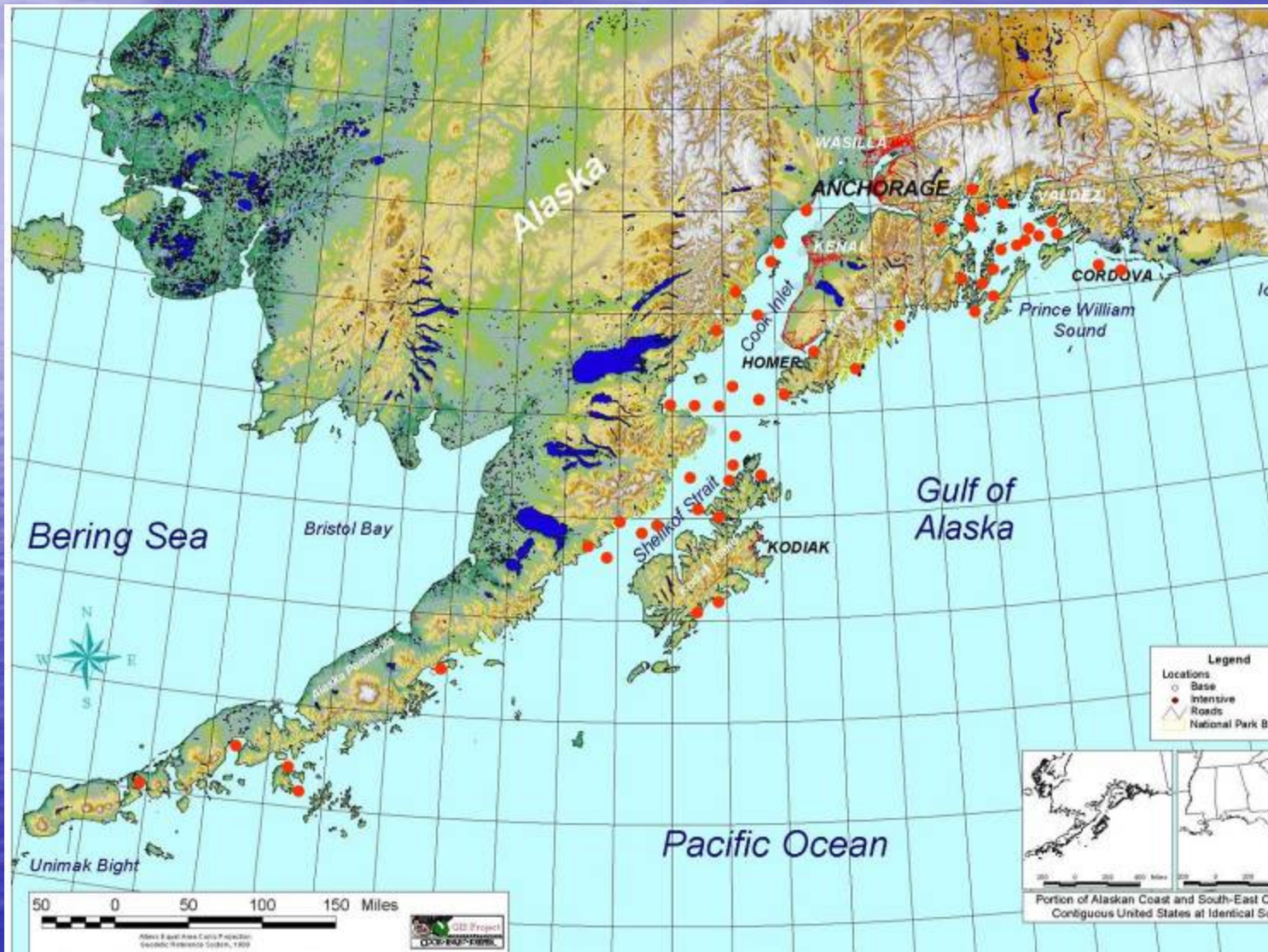
April 10-11, 2007

Coastal Alaska Monitoring and Assessment Program (AKMAP)

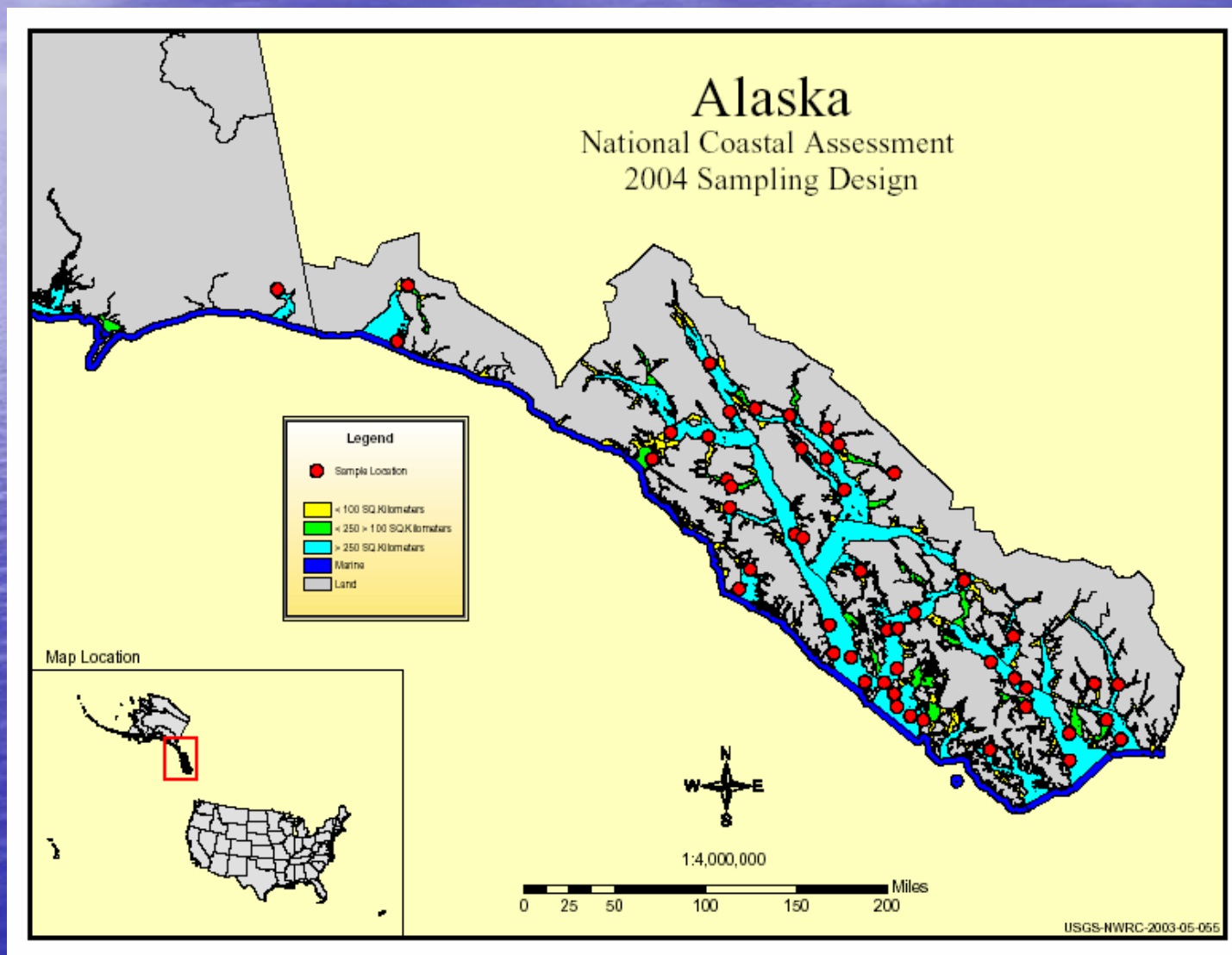
US Environmental Marine Assessment Program (EMAP) – National Coastal Assessment

- Focus:
- Regional coverage each decade
 - Benthic Environment
 - Contaminants
 - Biological assemblages

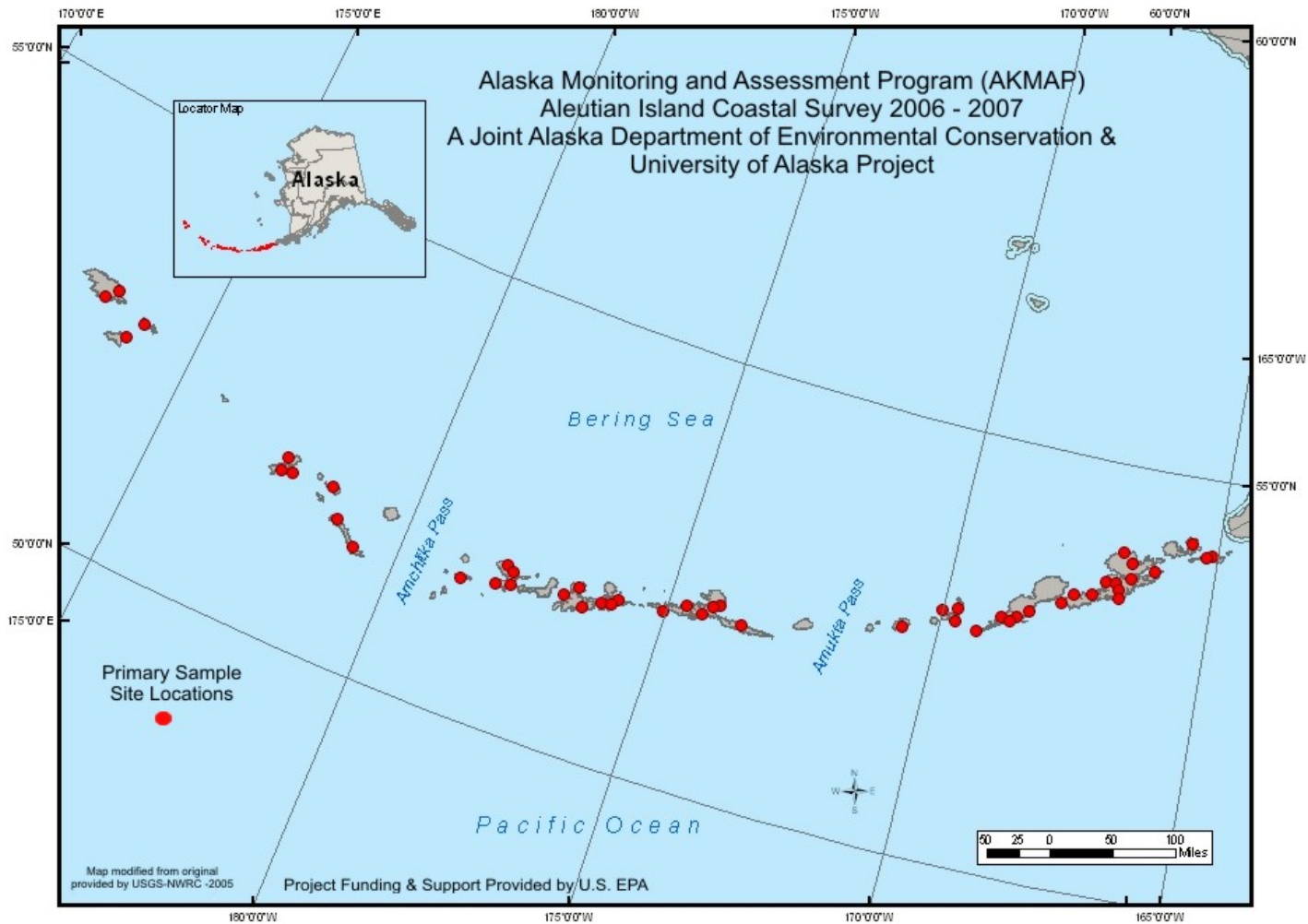
Southcentral Alaska Coastal AKMAP 2002



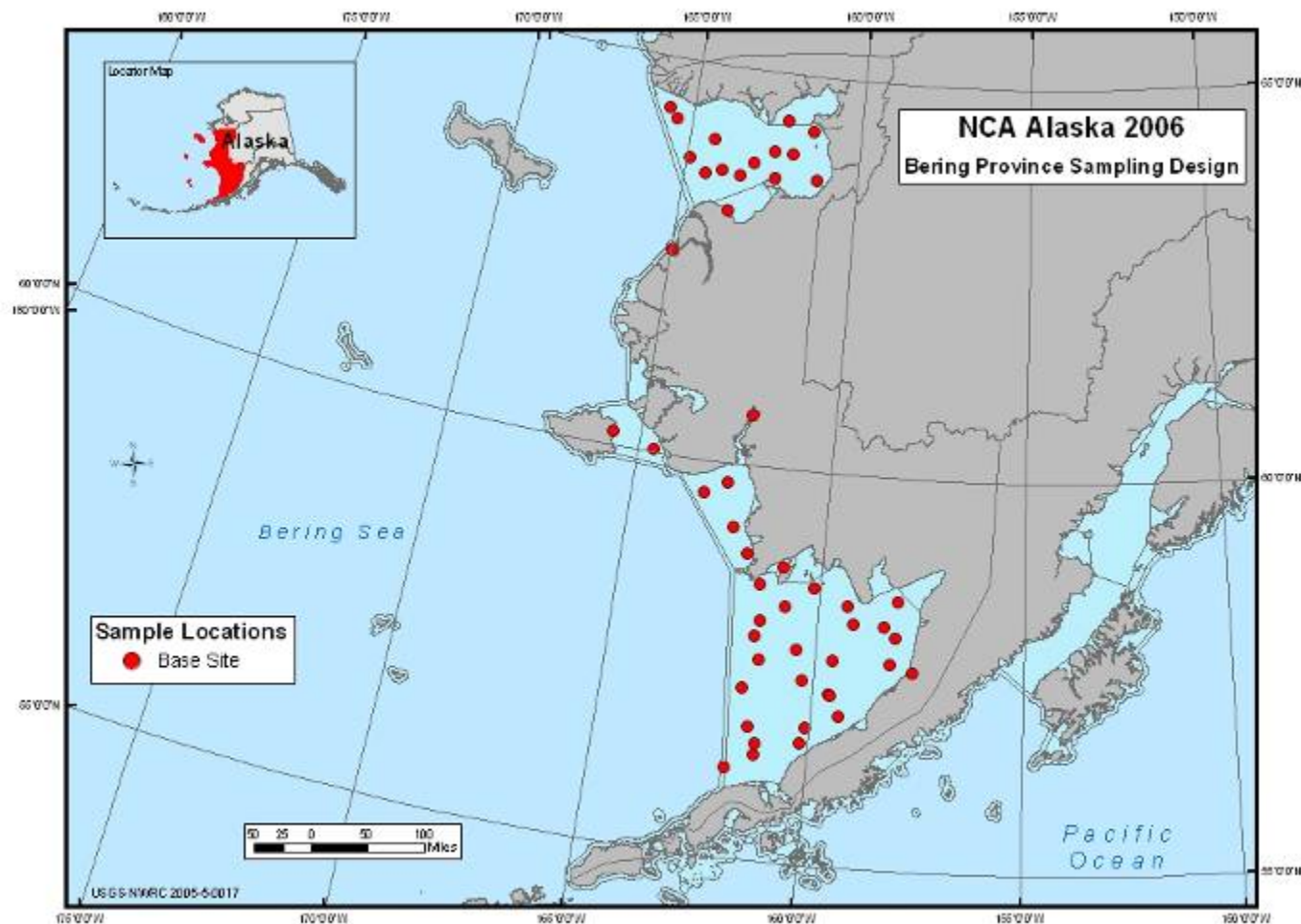
Southeast Alaska Coastal AKMAP 2004



Aleutian Islands Coastal AKMAP 2006-07

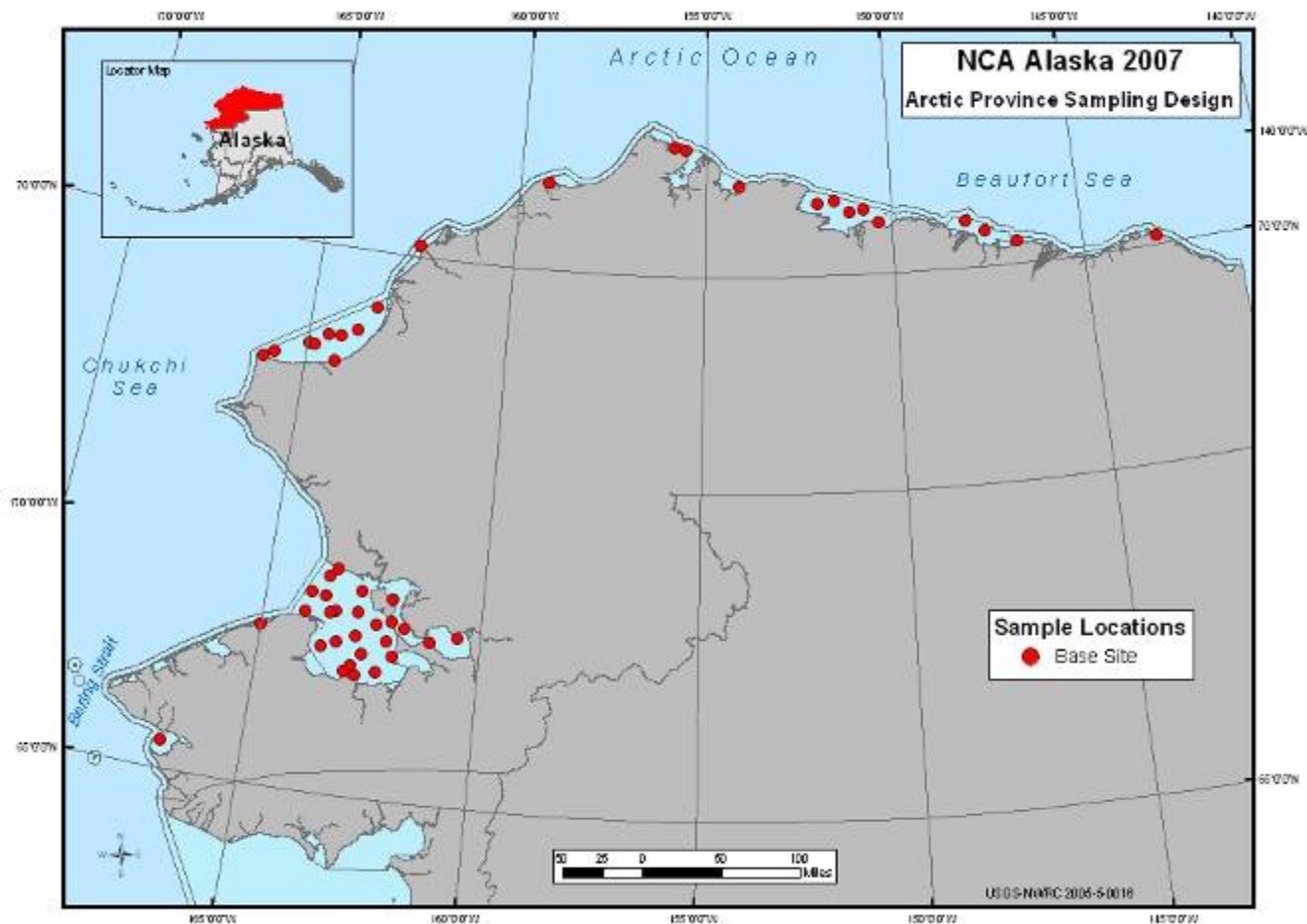


Alaska Eastern Bering Sea Coastal AKMAP

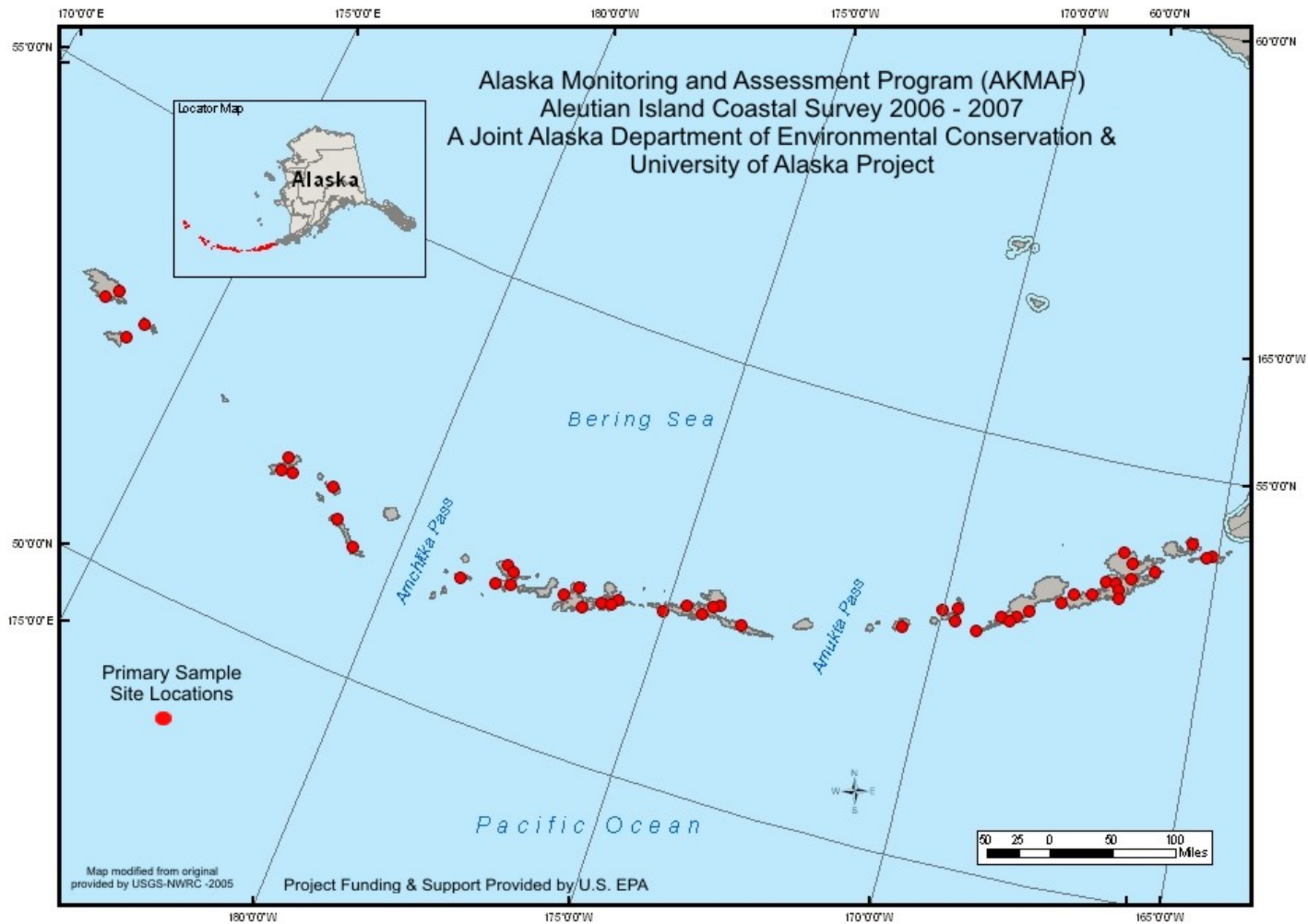


Alaska Arctic Coastal AKMAP IPY Project

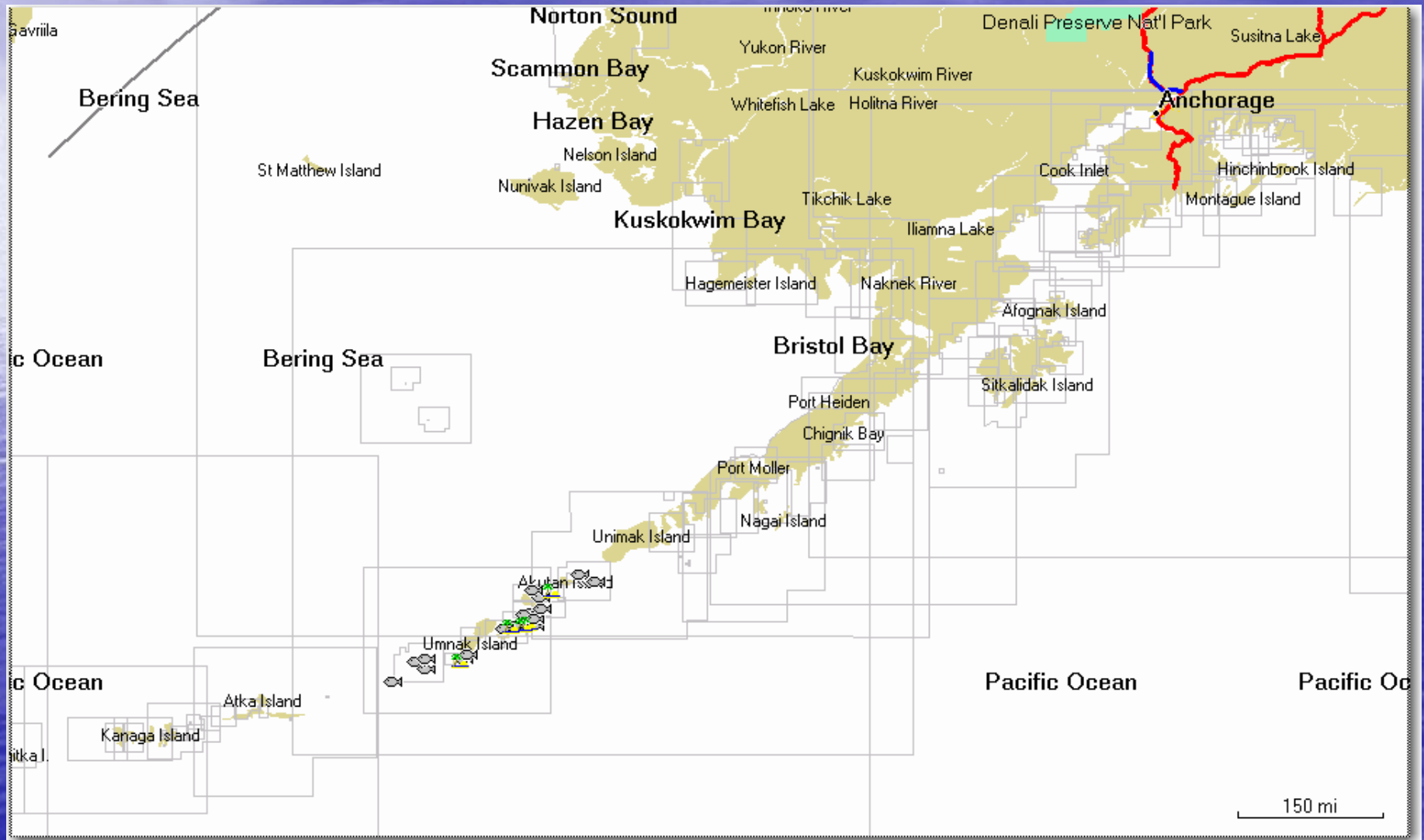
(Preliminary Sample Site Locations – Funding still pending for 2008)



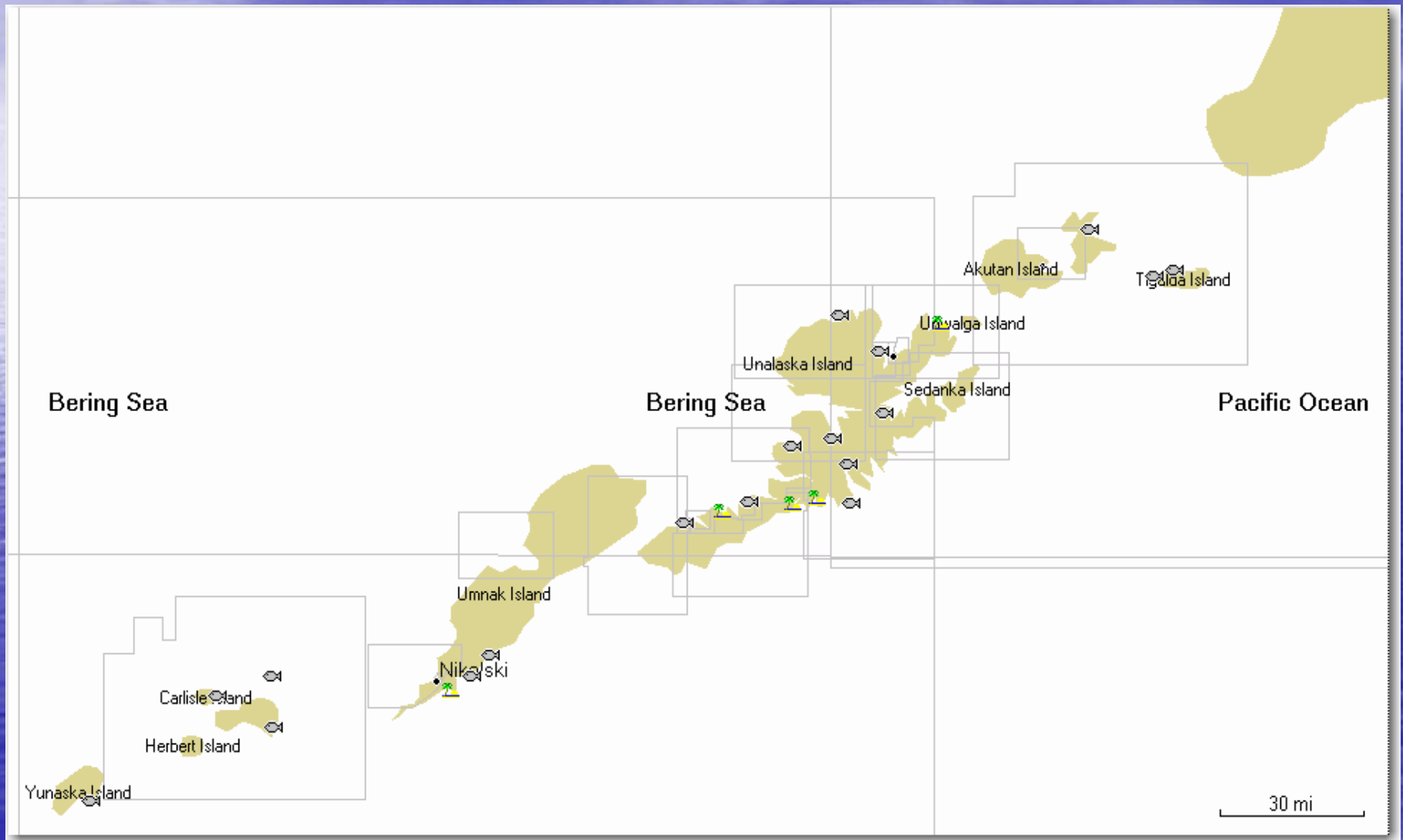
Aleutian Islands Coastal AKMAP 2006-07



2006 E. Aleutian Sampling Sites



2006 E. Aleutian Sampling Sites



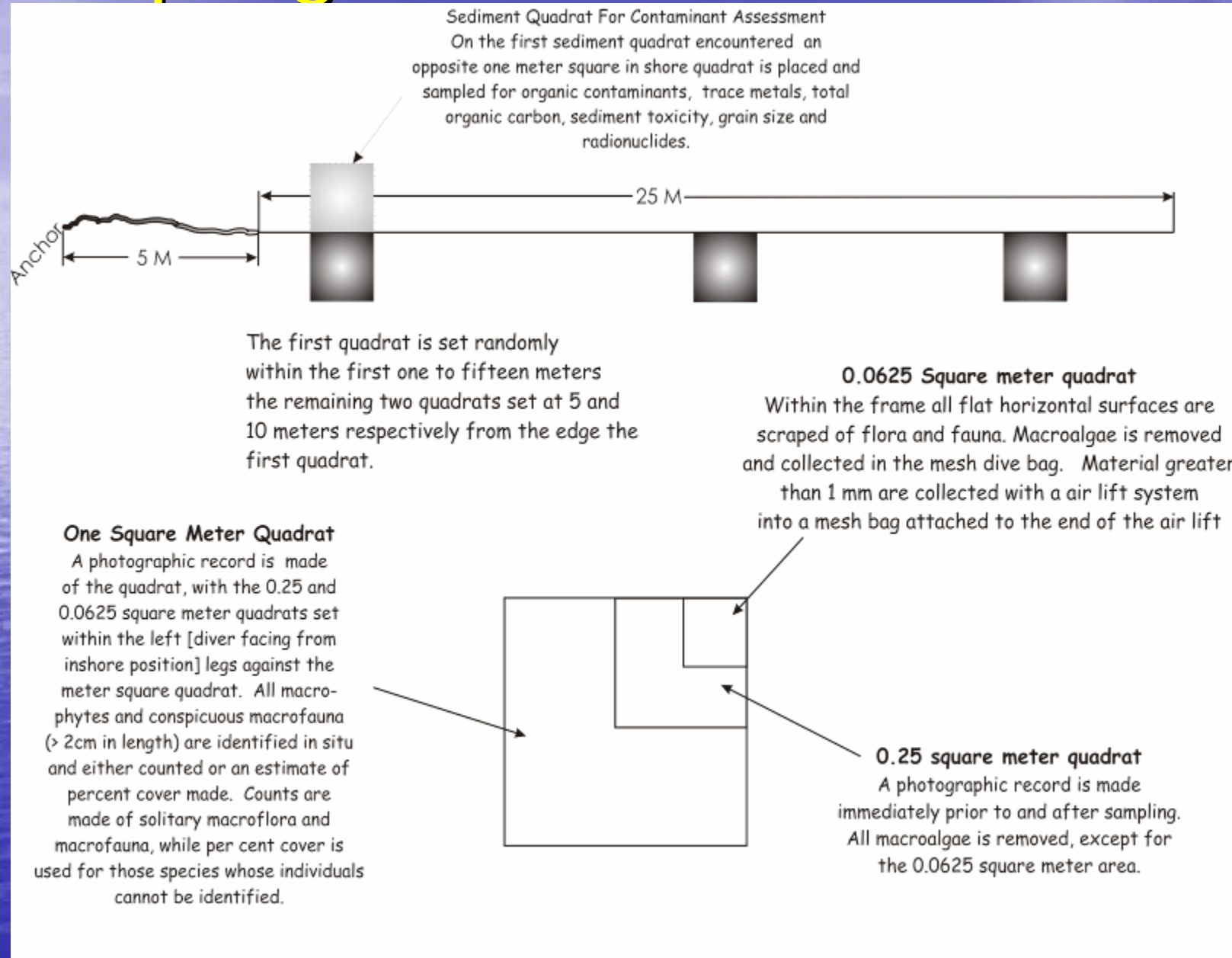


Is one methodology applicable to assess all coastlines?

- Sediment quality triad analysis is not applicable to nearly 50% of the Alaska coastal biogeographical provinces.
- Another methodology needed to be developed for sampling hard substrates.



Sampling Schematic via SCUBA





Sampling Soft Substrate via SCUBA



Sampling Hard Substrate via SCUBA

SITE	AKALE06-0026		
DATE	4-Jul-06		
1 x 1 m Quadrats	1	2	3
OVERSTORY % COVER - Kelps	70	60	55
Laminaria yezoensis	0	0	5
Laminaria longipi	0	0	5
Laminaria bongardiana*	65	50	35
Saccharina lamentisama*	0	0	0
Agarum sp.	5	10	10
Agarum clathratum	0	0	0
Thalassiophyllum sp.	0	0	0
Alaria fistulosa	0	0	0
Nereocystis luetkeana	0	0	0
Cymathere triplicata	0	0	0
Costaria costata	0	0	0
Desmarestia ligulata	0	0	0
Desmarestia viridis	0	0	0
Desmarestia aculeata	0	0	0

SITE	AKALE06-0026		
DATE	4-Jul-06		
1 x 1 m Quadrats	1	2	3
UNDERSTORY % COVER	100	100	100
Encrusting Brown	0	1	1
Greens	1	0	0
Bladed Reds	1	2	2
Branching Reds	10	9	9
Filamentous Reds	0	0	0
Encrusting Reds	2	2	5
Upright Coralline	0	2	1
Thin Encrusting Corallines	48	50	48
Thick Encrusting Corallines	0	5	1
Rhodoliths	0	0	0
Holdfast	10	10	9
Sponges	6	7	9
Anemones	0	1	0
Encrusting Bryozoans	0	0	0
Upright Bryozoans	3	5	9
Hydroids	0	0	0
Colonial Ascidians	0	6	5
Barnacles	0	0	0
Tube Worms	0	0	0
Bare Rock	14	0	1
Shell Hash	5	0	0
Sand/silt	0	0	0
Gravel/Pebbles	0	0	0

SITE	AKALE06-0026		
DATE	4-Jul-06		
1 x 1 m Quadrats	1	2	3
BENTHIC COUNTS - Kelps	61	29	103
Laminaria yezoensis	0	0	1
Laminaria longipi	5	0	55
Laminaria bongardiana*	39	21	36
Saccharina lamentisama*	7	3	6
Agarum sp.	5	5	5
Agarum clathratum	3	0	0
Thalassiophyllum sp.	2	0	0
Alaria fistulosa	0	0	0
Nereocystis luetkeana	0	0	0
Cymathere triplicata	0	0	0
Costaria costata	0	0	0
Desmarestia ligulata	0	0	0
Desmarestia viridis	0	0	0
Desmarestia aculeata	0	0	0
Jv Laminariales	20	9	21

SITE	AKALE06-0026		
DATE	4-Jul-06		
1 x 1 m Quadrats	1	2	3
BENTHIC COUNTS - Animals	11	13	8
Sponges	5	5	5
Anemones	0	2	0
Tube Worms	1	1	0
Snails	1	0	1
Limpets	1	1	0
Nudibranchs	0	0	0
Chitons	1	3	0
Bivalves	0	0	0
Octopus	0	0	0
Urchins	0	0	0
Sand Dollar	0	0	0
Holothurians	0	0	0
Asteriods	1	1	2
Ophiuroids	0	0	0
Solitary Ascidians	1	0	0
Crustaceans	0	0	0
Other	0	0	0
Fish	0	0	0

SITE CHARACTERIZATION

AKALE06-0026

July 4, 2006

This site is on the northwest side of Tigalda Island. The depth was 15 m on a substrate of kelp-covered boulders. There was no current at depth. Bottom temperature was 6 C. The dominant kelps were *Thalassiophyllum* sp., *Laminaria* spp., and *Agarum* sp. and the dominant macrofauna were *Tonicella lineata*, *Ophiopholus aculeata*, and *Ceramaster arcticus*.

Divers: R. Brewer, R. Clark, H. Chenelot, S. Harper,
M. Hoberg, S. Jewett

Aleutian AKMAP 2006 Summary of Samples Collected

Dissolved Oxygen	25
Nutrients	71
Salinity by refractometer	71
Chlorophyll a	71
Total Suspended Solids (TSS)	71
Tritium	71
Salinity	71
pH	71
Sediment Organics (SO)	7
Sediment Trace Metals (SM)	7
Sediment Radionuclides	7
Sediment Toxicity (ST)	7
Sediment Grain Size (SG)	7
Sediment Total Organic Carbon (TOC)	7
Biomass estimates quadrats	17
Macroalgae Trace Metals (MTM)	12
Macroalgae Radionuclides (MAR)	14
Fish	86
Benthic Epifauna & Infauna	66



Geothermal Vent

Possible new kelp species: Aleutian Islands 2006 - Family Alariaceae

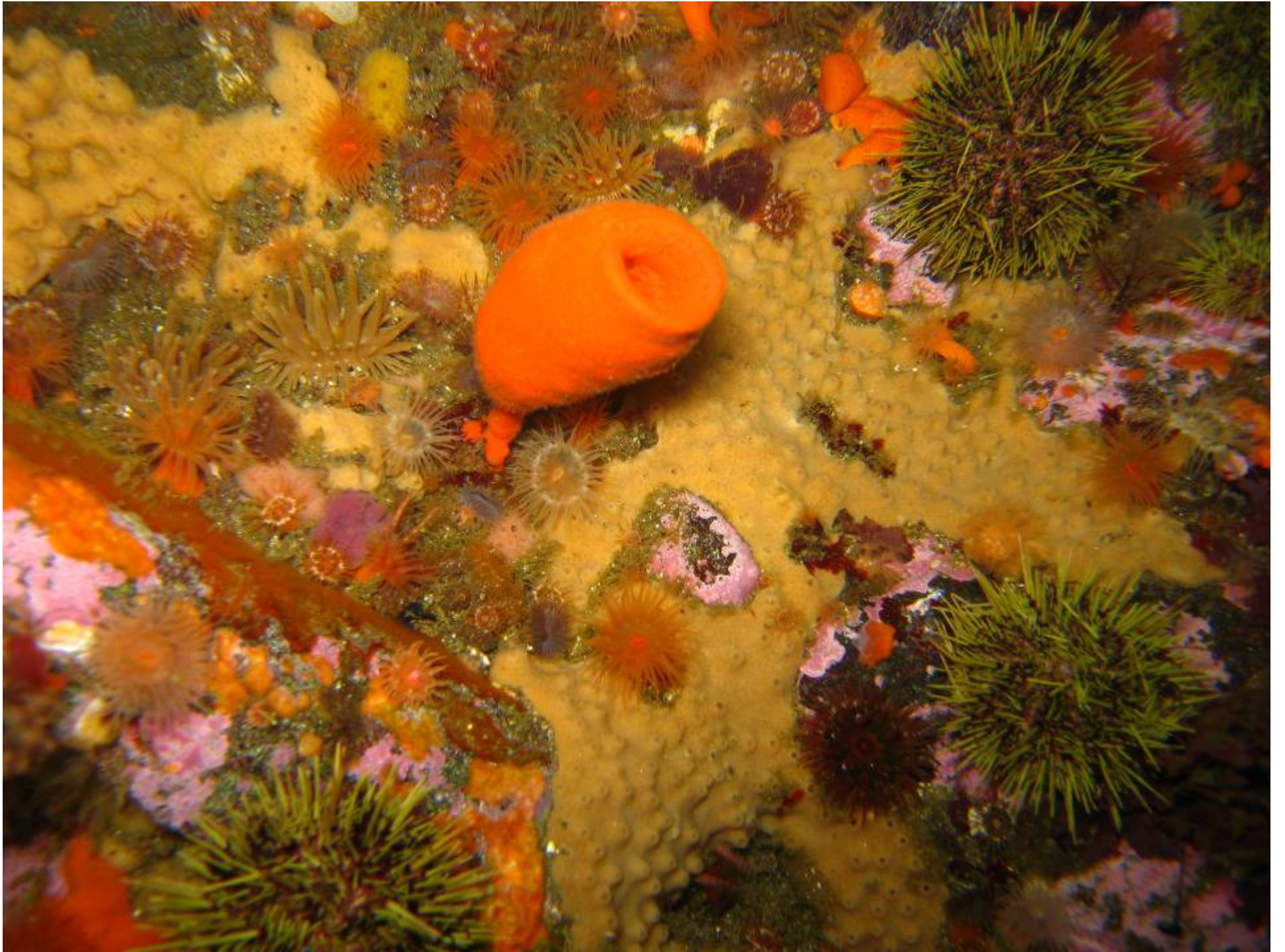






















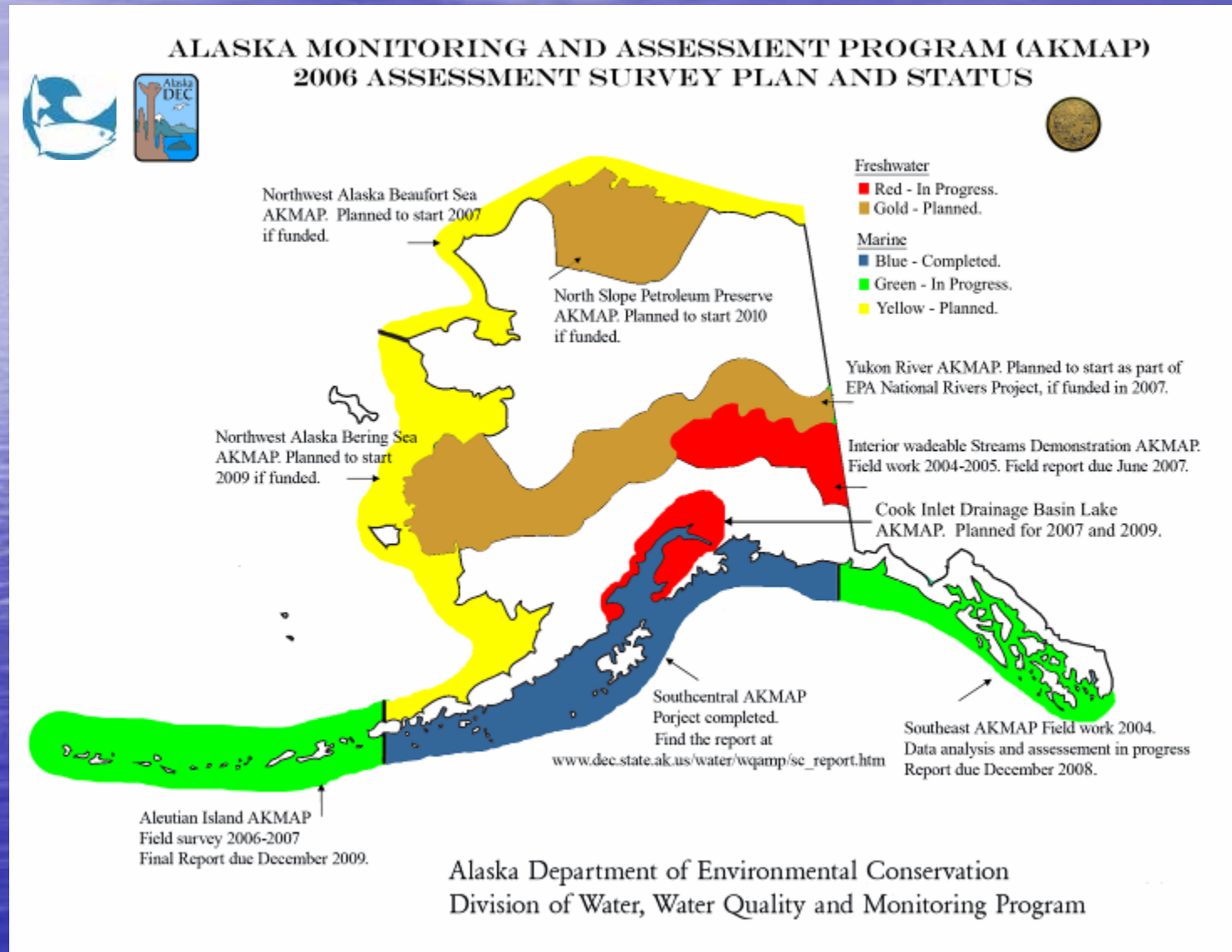




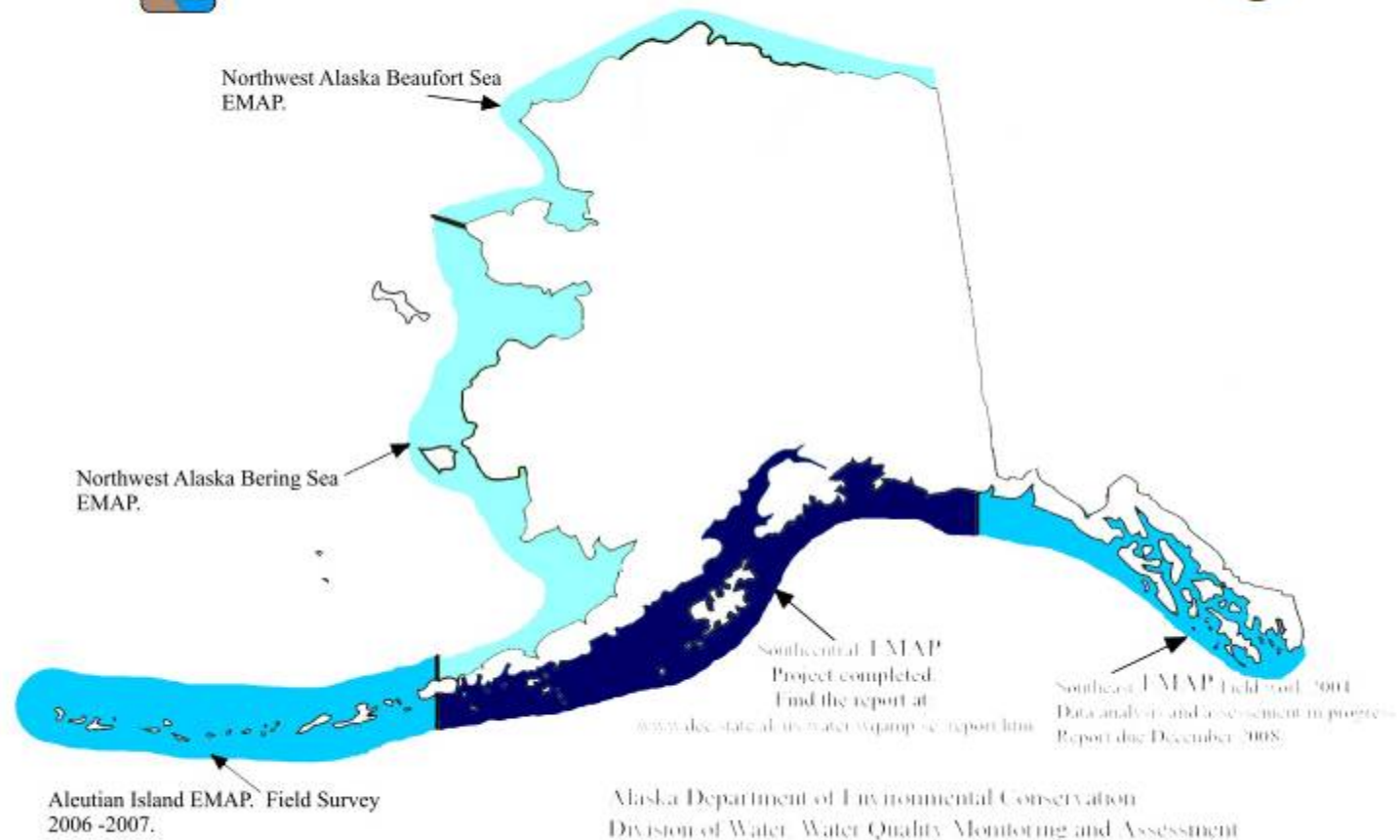
Motley Crew: 2006 E. Aleutian Islands AKMAP

AKMAP 2002 – 2020

Joint ADEC & UA AKMAP Survey Projects



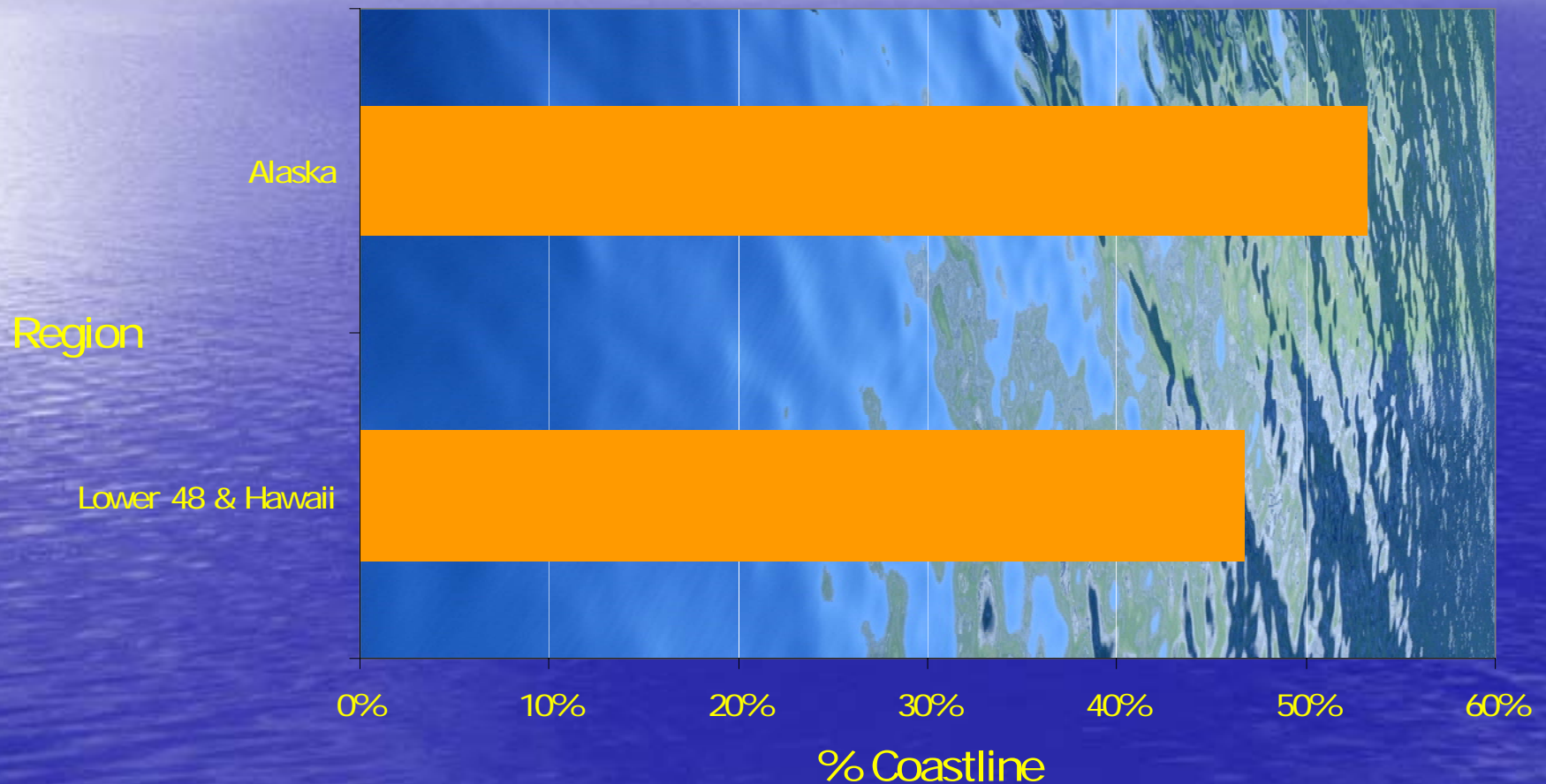
Alaska Monitoring and Assessment Program (AKMAP) NCA Biogeographical Provinces



Alaska Department of Environmental Conservation
Division of Water, Water Quality Monitoring and Assessment

Is there a NCA without Alaska?

Comparison of % Coastline (1)



NCA Importance

- Alaska Department of Environmental Conservation is a strong supporter of the NCA program and is incorporating the initial assessments into future 305 (b) reports.
- Yet, ADEC has major concerns in regards to the future viability of the NCA in that:
 - The NCA schedule of every 5 years means a complete survey of Alaska's coastal provinces would not occur to 2020;
 - Currently, inadequate funding means Alaska surveys will not occur;
 - Climate change may represent one of the major impacts to Alaska's water quality; and
 - Concern that NCA stressors and indicators may not be the relevant ones needed to assess climate change impacts.

Need for a Reassessment

- NCA survey (EMAP) methodology has not adequately considered:
 - Alaska's size in relation to the nations coastal resources; and
 - Adequacy of stressors and indicators for understanding climate change impacts.
- EPA needs to undertake a strong research effort to develop a survey methodology that can provide for adequate status and trends assessment of Alaska's coastal resources.

AKMAP Source of Funding

USEPA
Office of Research &
Development