SPECIAL PROJECT APPLICATION
2008 RACE BOTTOM TRAWL SURVEYS
EBS Bottom Trawl Survey

1. **Project Title:** Bitter Crab Syndrome in North Pacific *Chionoecetes* sp.
Principle Investigator (PI)/Point of Contact: Frank Morado
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2. **History of work with AFSC RACE Division**
   a. **Past Special Projects with RACE:** Monitoring of BCS in Bering Sea Tanner crabs, 1987 to present (Meyers, T.R., **Morado**, **J.F.**, Sparks, A.K., Bishop, G.H., Pearson, T., Urban, D. & Jackson, D. 1996. The distribution of bitter crab syndrome in Tanner crabs (*Chionoecetes bairdi, C. opilio*) from the Gulf of Alaska and the Bering Sea. Dis. Aquatic Org. 26: 221-227); DNA based identification of EBS fish and invertebrates, 2004 to present; parasite fauna of EBS fish 2004.

   b. Priorities: How proposed project relates to NOAA Fisheries Strategic Plan

Objective	Performance Measure	Strategy	Program Outcome
Maintain healthy stocks important to commercial, recreational and subsistence fisheries	Reduce the level of uncertainty associated with our estimates of stock status and biological potential below 1996 levels.	"periodically assess stocks to ascertain whether changes in their status due to natural or human-related causes have occurred"	To more accurately estimate natural mortality with respect to BCS and its potential impact on the abundance and distribution patterns of EBS snow and Tanner crabs.

   c. RACE collaboration: Pathobiology staff will collect and analyze samples.

3. General Description and Justification: Bitter Crab Syndrome (BCS) is a fatal disease of commercially important *Chionoecetes* species of the North Pacific and is emerging worldwide in other decapod hosts. In the Eastern Bering Sea, a major decline in the abundance of legal sized snow crabs has been observed in the last five years and the Tanner crab population has been depressed since 1996. This project is intended to prolong a rare long-term study on the potential impact of a specific disease on commercially exploited crustaceans. Specifically, this project is designed to monitor the impact of BCS on both mature and immature snow and Tanner crabs. Approximately 175 stations (Figure 1) were randomly pre-selected for sampling as part of an ongoing study on this disease. The sampler will collect hemolymph by syringe from 10-20 crabs of the dominant *Chionoecetes* species at each designated station completed by the vessel with Pathobiology staff (approximately half of the designated stations). Hemolymph will be preserved in 100% ethanol.

COLLECTION PROTOCOL

4. Detailed collection procedures: a specific collection form is required and attached (Appendix 1).

What: Crab hemolymph from the following species:
Priority: *Chionoecetes* spp. (*C. opilio, C. bairdi)*
When available: *Hyas* spp., *Pagurus ochotensis, P. aleuticus*
Where: Randomly pre-selected EBS stations (approx. half of 175 stations)

When: After routine haul duties at designated stations, all three legs of EBS survey
Collection methodology: Randomly select at least ten but up to twenty specimens of the dominant *Chionoecetes* species. Record crab species, sex, shell condition, morphometry, visual BCS status, plate #, vessel, cruise and haul. Using a syringe draw 0.2mL hemolymph from the arthrodial membrane. Preserve hemolymph sample in 100% ethanol stored in pre-filled 96-well plates.
Quantity: up to 2000 hemolymph samples (~650 per survey leg, one boat only)
Time Requirement: 20-30 min per sampled station, after other survey tasks are completed

5. **List of supplies:** We will provide 2200 1mL syringes, calipers, 20 96-well plates, sharps containers, biohazard bags, datasheets, shipping materials
6. **Data storage**: We do not require data storage in the Groundfish database, but would like to relate our data to haul level data.
7. **Hazardous materials:** 100% Ethanol (filled into 96-well plates prior to survey).

SHIPPING

8. **24/7 contacts:** Christie Shavey (206) 526.6715, Vanessa Lowe (206) 526.4107, Frank Morado (206) 526.6572

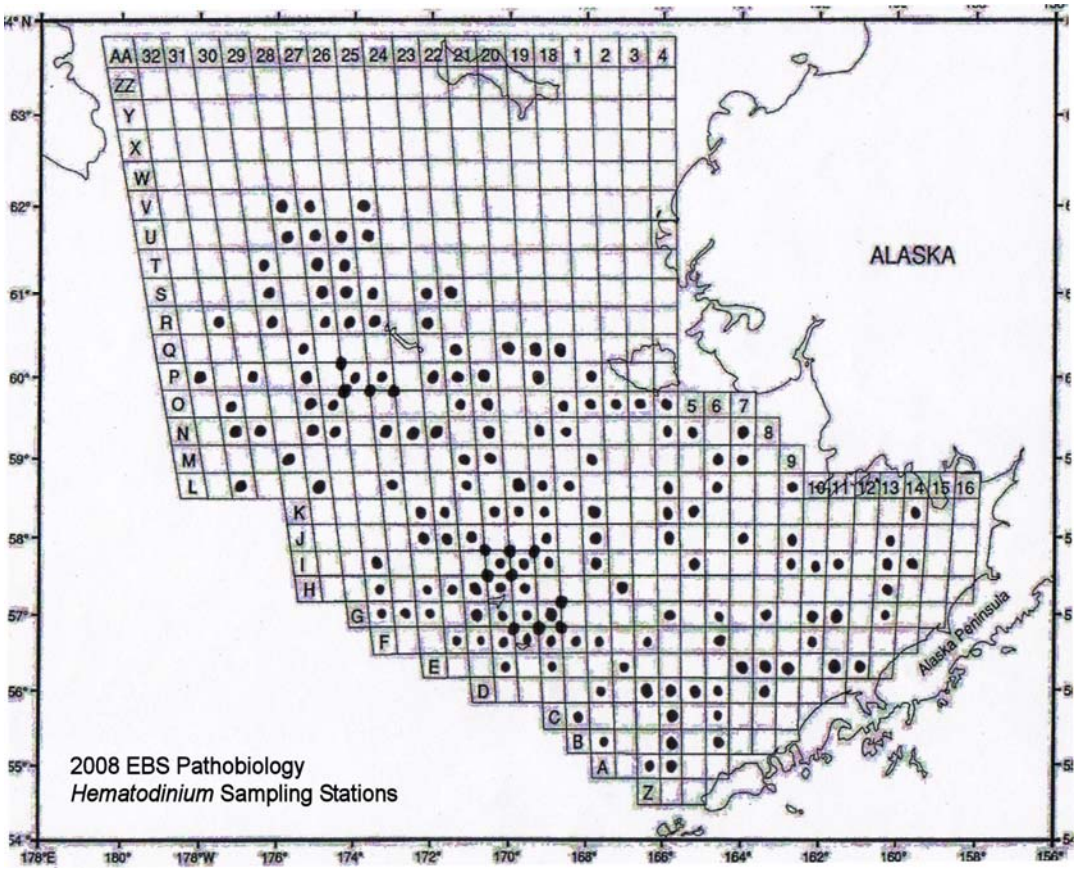
9. **Detailed shipping instructions:**

Shipping: Will use AFSC shipping van to and from Dutch Harbor. Ethanol packaging conforms to small quantity exception 49 CFR 173.4, proper shipping papers not required.
Shipping containers used: Outer container – DOT approved 5-gallon plastic twist top labeled buckets. Inner container - 96-well plates (1.2 ml wells) containing ethanol and sample individually contained in resealable plastic bags with absorbent spill pad. Used syringes will be transported in autoclave bags to be disposed of at AFSC. Used needles will be contained in sharps containers and disposed of at AFSC.

PERMITS

10. **Permits issued:** ADF&G Fish Resource Permit #

Figure 1.


ALASKA
Alaska Peninsula
2008 EBS Pathobiology
Hematodinium Sampling Stations

Cruise: 2008-01 **General Location:** EBS **Plate Number:** _____

Vessel: _____ **Leg:** _____ **Collected by:** _____

	1	2	3	4	5	6	7	8	9	10	11	12	
A	M F Sp Sz Sh C + − BCS												A
B										Do NOT Take SAMPLE			B
C													C
D			Do NOT Take SAMPLE										D
E													E
F								Do NOT Take SAMPLE					F
G													G
H													H
	1	2	3	4	5	6	7	8	9	10	11	12	

Appendix 1

Put * in BSC section when sample is NON-random

****Don't forget haul number! Write it on the end of the rows and mark the ending/starting box with:

Notes: (NON-random? Vacutainers? Mistakes? Anything Unusual?)