
2019 GF Eastern Bering Sea Shelf

repeat collection
Biological specimen

Bitter Crab Syndrome in Eastern Bering Sea Chionoecetes spp.

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Affiliation: AFSC - RACE

Project Funding Source: AFSC operational funds (part of my job, or funded activity plan)

Is this project funding extra sea days? no

Is this project funding fuel costs? no

Project Description and Justification: Bitter crab syndrome (BCS) is a potentially fatal disease of commercially important Chionoecetes spp. in the eastern Bering Sea (EBS) and is emerging worldwide in other decapod hosts, including king crabs in Russian waters. Efforts to monitor disease incidences and distribution in Chionoecetes spp. over the last 25 years have generated data to track possible trends in the North Pacific and may provide insight as to how climate conditions influence disease patterns. Such trends are important from an industry perspective considering affected Tanner crabs possess a bitter flavor, rendering the meat unmarketable. From 2014 through 2017 infection rates have steadily climbed to an all-time high of 49% & 53% in immature snow & Tanner crabs, respectively.

The primary goal of this project is to survey Chionoecetes bairdi and C. opilio for BCS at designated index sites within the Bering Sea. Any changes in intensity of disease within the index sites may provide information as to how the disease is affecting host populations or changing within EBS. To understand BCS trends, it is important to survey the index sites annually and with the same protocols as used in the past. In addition to collecting data on infection rates, our data is being used to develop a model to better understand variables involved in disease prevalence, and our data is used to guide future process studies.

DETAILED COLLECTION PROCEDURES

Detailed Collection Procedures:

SUBSAMPLE RANDOM STRATIFIED: specimens will be collected randomly from each of the strata you designate in the next question

Estimated time: Subsample random stratified. Six index sites are designated, three for *C. bairdi* and three for *C. opilio*. At the appropriate index site, either immature *C. bairdi* or *C. opilio* will be randomly selected for sampling, without regard to sex or shell condition. Maturity will be determined by carapace width in males and pleon shape in females. Each index site is composed of 10 stations.
hours

BIOLOGICAL COLLECTION DETAILS

Species To Be Collected: crab - *Chionoecetes bairdi*, *Chionoecetes opilio*, *Paralithodes camtschaticus*, *Paralithodes platypus*, *Lithodes aequispinus*

Type of specimen to collect: blood

Specimen-level data to collect: sex, maturity, haul number, width, shell condition

Specimen preservation method: 95% Ethanol

SAMPLING DESIGN DETAILS

Target Quantity: 1200 - 1200

Will the request still be useful if the requested amount or frequency of specimens collected is not achieved? yes

What is the sampling protocol: **SUBSAMPLE RANDOM STRATIFIED:** specimens will be collected randomly from each of the strata you designate in the next question

Criteria for subsampling if selective or stratified subsampling: Subsample random stratified. Six index sites are designated, three for *C. bairdi* and three for *C. opilio*. At the appropriate index site, either immature *C. bairdi* or *C. opilio* will be randomly selected for sampling, without regard to sex or shell condition. Maturity will be determined by carapace width in males and pleon shape in females. Each index site is composed of 10 stations.

Geographic Region of Collection

Survey: Eastern Bering Sea Shelf

Place keywords: Samples will be collected at 6 designated index sites within the standard EBS survey area.

Bounding coordinates

Northern Boundary:

Southern Boundary:

Eastern Boundary:

Western Boundary:

CHEMICALS, SUPPLIES, EQUIPMENT, & SHIPPING

Project Chemicals:

- **Formaldehyde solutions: none**
- **Ethanol solutions: >1 L**
- **glycerol/thymol: none**
- **DNA buffer (DMSO/EDTA/NaCl): none**
- **none**

Supplies provided by the AFSC: None

Supplies provided by the requester: calipers

syringes

prefilled ethanol plates

needle disposal container

datasheets

basket nets

Permits issued or pending: No

24/7 Contact Information: Christie Lang 206-554-1755