Alaska Invasive Species Partnership

European Green Crab
Community Monitoring Manual

Judy Hamilton 2006;
updated by Catie Bursch 2016
updated AKISP Marine Committee 2018

This manual provides detailed instructions on monitoring for invasive European green crabs with folding, minnow, and pit traps. Bring along the Molt Survey protocol as well.

SAFETY:

Please be aware that coastlines can be hazardous areas to work in. If you think an area is potentially hazardous and are uneasy about accessing it, DON'T DO IT! Be mindful of the tides and if possible, conduct your surveys during low tides. Be sure to let someone know where you are going and when you plan to return.

When accessing monitoring sites, please respect private property boundaries, and only access via private property if you have permission from the owner.

COLLECTION PERMITS:

An aquatic resources permit from the Department of Fish and Game is required to study and/or collect any live crab in the state of Alaska. Please make sure all traps are labeled with a permit number current for this year, and contact name and number. We will provide these to you each year.

EQUIPMENT:

Before leaving to check traps, make sure your kit includes all of the following:

Deployment equipment:

- Minnow traps (1)
- Bucket
- Hammer
- Folding traps (5)
- Bait/bait jars
- Stakes (if not attached to traps)

Monitoring equipment:

Thermometer	Salinity meter (refractometer)
Watch	Clipboard/pencil
Data sheets	Tide book
Bucket	Crab, invertebrate, fish ID cards
Ruler	Gloves
Camera w/GPS or GPS unit	

MONITORING SITE:

All monitoring sites should be identified as safe for you, the volunteers, ecologically important, and areas where equipment can be retrieved relatively easily.

DEPLOYING TRAPS:

Arrive at site at least ½ to 1 hour before desired time of deployment. All sites will deploy 5 folding traps and 1 minnow trap. For each trap you will need stakes (usually attached) and bait containers

Location: Deploy traps at a minimum of a -1 ft mean low tide.

Distance: Set traps far enough apart so they won't interfere with each others fishing range. Approximately 10 meters (30 feet) is effective. The longer the shoreline you are sampling, the farther apart the traps should be situated. If the habitat on the beach you're sampling varies widely, look for suitable habitat instead of placing traps a uniform distance apart. If eel grass is present, put at least one trap in that area. Be sure to place traps as low as possible, but not so low that they will not be uncovered at the following days low tide.

Securing traps: These traps are light and need to be anchored to the ground. Secure your traps to the beach by pounding the two plastic tent stakes, one on each side of the trap, all the way in. (you can also use a rebar stake or PVC pipe if ground is too rocky for the large tent stakes.

Time Period: Deploy gear for a minimum 24 hour soak period that covers a full tidal and day/night cycle. It is important to check and empty your traps after the designated soak period. The longer the trapped animals are unprotected from the effects of sun and air the less likely they will survive until they can be released.

Other details: All traps should have a tag with collection permit # and contact information in case of the unlikely event of a trap being washed away.

Frequency: The preferred minimum sampling frequency from April through September is at least three times. If monitors can survey more frequently, we encourage this, once a month per site if you have the time. Sampling more often increases the chances of finding an invasive green crab. ***If an invasive European green crab is found anywhere in Alaska, contact the Alaska Department of Fish and Game Invasive Species Program: (907) 465-6183. You may be asked to increase sampling frequency and trapping density.***

Baiting Traps: Specify type of bait used on data sheet. Currently we are only using herring. Place bait in supplied container.

Note: When walking to and from your monitoring site, it is important to do a visual scan of your beach for European green crab molts (exoskeletons) and carapaces (back shell). Frequently, the presence of European green crab is initially revealed through the discovery of a molt before a live animal sighting. (this is true of Willapa Bay, Washington)

MONITORING:

Traps should be checked only after being submerged for 24 hours, or a full tide cycle.

Having at least two people working a trap is best. Have one person assigned as data recorder. Have another person removing crabs from trap. One person should be measuring and sexing each crab. Any other monitors can be charged with releasing crabs into the water where they will not be preyed upon or accidently stepped on, and taking pictures.

1. Fill out monitoring information:

It is easier to fill out site information prior to pulling traps. Each site should have a documented site name and site description. Make sure all observer names are recorded.
List trap deployment date and time on the datasheet as well as the trap check date and start time on the datasheet Draw a sketch of the trap layout and habitat on the back of the datasheet. Check boxes for all appropriate habitat descriptions. Take temperature and salinity, enter results on back of data sheet.

2: Fill out crab information:

Crab Removal: Open trap and put all captured organisms into the bucket. This is most easily done by gently shaking the trap upside down and collecting crabs as they shake loose. Wear gloves so as not to get bit. Be gentle removing crabs from trap, and hold them gently by their main body cavity, not by claws or legs. If you turn them upside down when holding them they will hold still. If crabs are missing appendages or have parasites, be sure to note this on data sheet. **If the trap is empty, write "Empty" adjacent to trap number. For each individual crab, record the following:**

Assign each crab to a trap number. Record and list information for all crabs *individually*—each crab should be reported on a separate line. If more space is required, begin a new data sheet and be sure to number the pages.

Crab ID: Using the provided ID guides, all crabs captured in each trap should be identified if possible. Any crab that is not easily identified or is suspected of being an invasive crab should be photographed.

Crab Size: Measure carapace lengthwise using ruler. The size of a crab is determined by measuring its carapace (back) width. The carapace width is the distance across the crab's back at the widest point. (See Figure 1)

Crab Sex: The sex of a crab is determined by the width of its abdomen (shaded area) which curls around the crab's underside. The male crab has a narrow, triangular abdomen, while the female has a much broader abdomen. (See Figure 2)

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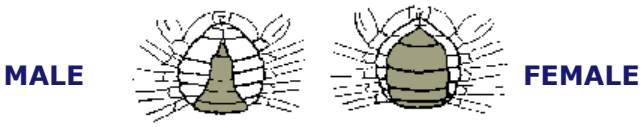

Figure 2

Unidentified Crabs: If a crab is not easily identified or if you suspect it may be an invasive species:

a. Hold crab on your data sheet so we can see your name and date in photo. This will give us an idea of the size and all the site information will be in the same photo.

Reporting Green Crabs: In the event that you catch a European green crab - or any other unidentifiable crab – after you have recorded the data, place the animal in a container marked "preserved specimen" and place it in your freezer. Fill out some kind of label with the date the trap was set, trap location (be specific, include GPS coordinates when available), the name of the surveyors and phone number, as well as the name of the organization and place in the container. IMMEDIATELY contact the Invasive Hotline at 1-877-INVASIV (1-877-468-2748). It is important to get identification confirmation as soon as possible.

Bycatch: Any other non-crab organisms caught in the trap should also be identified (or photographed), counted, and recorded at the bottom of the data sheet.

Check End Time: Note your finishing time on the data sheet.

Report data: The data sheet provided by the Reserve (see attached) should be filled out completely and returned to the Reserve at the end of the season, or mail it in sooner if you think you will misplace it.

TRAP REMOVAL:
Please be sure to clean all debris, plants, and animals out/off your traps between surveys. Remove stakes, clean traps and fold them flat. If continuing your monitoring during the next tide series, store in a safe place.

On-Site Checklist

Trap Deployment:

- ☐ Securely place number stakes in ground at least 30 feet apart. Stakes should be placed deep enough, that only 4 -5 inches are exposed.
- ☐ Enter the number of traps deployed on data sheet.
- ☐ All traps should have permits and be tied securely to numbered stakes.
- ☐ Weigh all traps down with either bricks or rocks.
- ☐ Place bait containers (with bait!) in each trap. Either attach containers to trap with zip ties, or weigh them down with water.
- ☐ Fill out date and time of deployment on data sheet.
- ☐ Draw a sketch of the traps and fill out the habitat description on data sheet.

Checking Traps:

- ☐ Enter all monitor names on data sheet.
- ☐ Enter date and time on data sheet.
- ☐ For each trap:
  - Removed crabs gently and place in holding bucket if necessary
  - If trap is empty:
    - Enter trap number and "empty" on data sheet.
  - For each crab enter on the data sheet:
    - trap number
    - crab species (use identification card)
    - sex (abdominal flap is pointed in males, rounded in females)
    - carapace length (widest part of carapace measured in mm using calipers)
    - any appropriate notes (parasites, broken appendages)
  - For any non-crab species enter on data sheet under bycatch:
    - trap number
    - species
    - any appropriate notes
  - For any unidentified crabs, take photo for identification. If you think it may be an invasive crab, take many photos from different angles with a standard sized item nearby. Collect sample in a labeled container.
  - Release all other crabs and bycatch back into the water.

- ☐ Make sure all data is easy to read.
- ☐ Remove bait from traps.
- ☐ Fold traps, remove any debris
- ☐ Remove stakes if not monitoring at next tide cycle.
- ☐ Include data in Aquatic Resource Permit Report when submitting to ADF&G.