August 1st, 2014

Dear Industry Member,

In order for the Maine Green Crab Taskforce to fully understand and effectively address the growing threat of invasive European green crabs to Maine fisheries and aquaculture, we are conducting a targeted mail survey of individual harvesters and growers throughout coastal Maine. To reach as many individuals as possible, this survey will be administered through the Lobster Zone Councils, the Maine Aquaculture Association, the Municipal Shellfish Committees, and the DMR Advisory Councils including the Shellfish Advisory Council. Your response is crucial to providing the necessary assessment of this issue and will aid the Taskforce in making sound recommendations to the Governor in the upcoming months.

The purpose of this survey is to assess the occurrence and recent impacts of growing European green crab (*Carcinus* maenas) populations in Maine. We would like to determine 1) how many harvesters and growers currently encounter green crabs, 2) whether harvesters and growers have observed changes in local populations over the last several years, and 3) whether there are ongoing impacts to marine resources that the taskforce should be aware of. Additionally, your unique assessment of experiences with green crabs will provide beneficial information that will aid the taskforce in developing solutions to this important problem.

To provide your response, please complete and return the following survey by **August 22nd, 2014**. All surveys can either be returned via email (jennifer.mchenry@maine.edu) or by mail to the address listed below.

Also, please feel free to copy and circulate this letter and questionnaire among as many people as possible, and provide any additional comments you deem necessary or relevant to addressing this issue.

Your response and time are greatly appreciated.

Sincerely,

Jennifer McHenry

Department of Marine Resources

PO Box 8, West Boothbay Harbor, ME 04575

Please fill out and return the following questionnaire by **August 22nd 2014.** Your participationwill help the Maine Green Crab Taskforce assess the status and potential impacts of invasive European green crabs to Maine fisheries and aquaculture.

**General Questions**: The following section will help us identify which 1) industries and 2) areas may be the most vulnerable to European green crabs (*Carcinus maenas*).

1. Please indicate which harvester license/permit/lease(s) you hold (**Please check all that apply**):

☐ Commercial Lobster License ☐ Aquaculture Lease

☐ Municipal Shellfish Permit­ ☐ Commercial Dive/Drag License\_

☐ Others (**please specify**):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­\_

1. Which species do you target? (**Please check all that apply**):

☐ American lobster ☐ Crabs species (including green crab) ☐ Clams

☐ Blue mussel ☐ Marine worms ☐ Sea cucumber

☐ Green sea urchin ☐ Sea scallop ☐ Seaweeds

☐ Others (**please specify**):

1. How long have you been an active harvester or grower?

☐ 1-5 years ☐ 5-10 years ☐ 10-20 years ☐ 20-40 years ☐ >40 years

1. In which area of the coast (town or lobster zone) do you operate? (**Please specify below**):

5. Where within that area do you typically harvest?

(**Please check all that apply**):

☐ Rivers/Estuaries ☐ Less than 3nm from mainland

☐ Greater than 3nm from mainland ☐ Lease site or grow out facility

**Status and Impact Questions:** The following section will help us both 1) document changes in green crab populations and 2) identify potential impacts to Maine fisheries.

1. Do you encounter green crabs while harvesting?

☐ Yes ☐ No

If yes, please **check all applicable boxes** to describe when and where you commonly encounter green crabs.

**Seasonally:**  **Bottom Type(s):** **Subtidal Habitat(s):**

☐ Winter (December- February) ☐ Ledge ☐ < 10ft

☐ Spring (March- May) ☐ Boulder ☐ 10 to 30ft

☐ Summer (June- August) ☐ Cobble or gravel ☐ 31 to 60ft

☐ Fall (September- November) ☐ Sand ☐ 61 to 100ft

 ☐ Soft mud or silt ☐ >100ft

**Intertidal Habitat(s):**

☐ Rocky intertidal ☐ Mud flat ☐ Sand beaches

☐ Salt marshes ☐ Eelgrass beds

**Other(s):**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. Please indicate how frequently you observed green crabs during the specified time periods.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Prior to 2012 | 2012 | 2013 | 2014 |
| Never | ☐ | ☐ | ☐ | ☐ |
| At least once per month | ☐ | ☐ | ☐ | ☐ |
| At least once per week | ☐ | ☐ | ☐ | ☐ |
| At least once per day | ☐ | ☐ | ☐ | ☐ |
| Multiple times per day | ☐ | ☐ | ☐ | ☐ |

1. Following the 2013-14 winter, have you observed significant changes to coastal habitats, green crab populations, shellfish, or other valued species? Please indicate your observations below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Decreased | Unchanged | Increased |
| Green crab populations | ☐ | ☐ | ☐ |
| Adult clam survival  | ☐ | ☐ | ☐ |
| Clam seed survival | ☐ | ☐ | ☐ |
| Adult mussel survival | ☐ | ☐ | ☐ |
| Mussel seed survival | ☐ | ☐ | ☐ |
| Eelgrass beds | ☐ | ☐ | ☐ |
| Bank erosion | ☐ | ☐ | ☐ |
| Other species population:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | ☐ | ☐ | ☐ |

1. Have you observed negative impacts to your target species or habitat from green crab populations?

☐ Yes ☐ No ☐ I am not sure

 If yes, please describe the kind(s) of impact(s) you have observed.

1. Have you observed positive impacts to your target species or habitat from green crab populations?

☐ Yes ☐ No ☐ I am not sure

If yes, please describe the kind(s) of impact(s) you have observed.

1. Have you altered your harvesting or growing practices in response to changes in green crab populations?

 ☐ Yes ☐ No

If yes, please **check all applicable boxes** to describe how you altered practices.

☐ Changed target area ☐ Shifted inshore (<3nm) ☐ Shifted offshore (>3nm) ☐ Shifted shallower ☐ Shifted deeper ☐ Shifted bottom type

☐ Altered time of day ☐ Altered season ☐ Increased control measures

☐ Diversified activities (e.g. other fisheries)

☐ Other (**Please specify**):**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Do you have other comments or observations about green crabs in your area? If so, please describe:

**Decision-making Questions:** The following section will help us 1) gauge the level of concern among harvesters and growers in Maine and 2) assess the need for developing solutions to this problem.

1. Based on your knowledge and experience with this issue, do you think that European green crabs pose a significant risk to your target species or other marine resources in coastal Maine?

☐ Yes ☐ No ☐ I am not sure

1. Relative to other threats, how concerned are you about invasive green crabs? Below, please rank your level of concern for the following potential threats to coastal Marine resources, ranging from unconcerned to very concerned.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Unconcerned  | Somewhat Concerned | Concerned | Very Concerned |
| Invasive Green Crabs | ☐ | ☐ | ☐ | ☐ |
| Ocean Acidification | ☐ | ☐ | ☐ | ☐ |
| Warming Ocean Temperatures  | ☐ | ☐ | ☐ | ☐ |
| Habitat loss  | ☐ | ☐ | ☐ | ☐ |
| Overharvesting  | ☐ | ☐ | ☐ | ☐ |

1. Are you in favor of Maine agencies and/or industries taking steps to address the impacts(s) of green crabs?

☐ Yes ☐ No ☐ I am unsure.

1. Do you think such steps could be successful?

☐ Yes ☐ No ☐ I am unsure.

1. Do you have any specific suggestions for dealing with or controlling green crab populations in Maine?

☐ Yes ☐ No

If yes, please describe your suggestions below.

1. Are you actively engaged in trying to harvest or control green crabs populations in your area or zone?

 ☐ Yes ☐ No

If yes, please describe your efforts below and indicate whether your activities have been successful.

1. If monitoring program(s) were developed (e.g. for crab populations, your target species etc.), would you be interested in participating?

 ☐ Yes ☐ No

If yes, please feel free to provide your contact information below.

Thank you for your time!