Predation on fishery resources by blue catfish and flathead catfish in Chesapeake Bay and its tributaries

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Chesapeake Bay Program
A Watershed Partnership

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- *Rationale*: Assess the effect of predation by introduced catfish predators (blue catfish and flathead catfish) on key fishery resources *and* develop new tools for the management of invasive catfish predators in the Chesapeake Bay region.

- *Objectives*: 1.) estimate predation mortality across temporal and spatial scales for specific fishery resources; 2.) develop a GIS-based risk assessment & decision support tool for managers; 3.) evaluate the utility of simple predator control structures deployed in tidal creeks.

Predation on selected fishery resources by blue catfish and flathead catfish in Chesapeake Bay tidal tributaries

Approaches:

1.) we will employ a range of sampling gears, published predator daily consumption models, and GIS analysis to generate estimates of total predation mortality for key fishery resources during Spring and Fall periods and in selected habitats; 2.) we will use new and existing geo-spatial data and GIS analysis to identify high-risk/high-value areas as candidates for surveillance and/or management of invasive catfish predators; 3.) we will conduct experimental deployments of in-stream predator exclusion structures in a tidal creek system and assess efficacy for blue catfish and flathead catfish predators (>300 mm TL).

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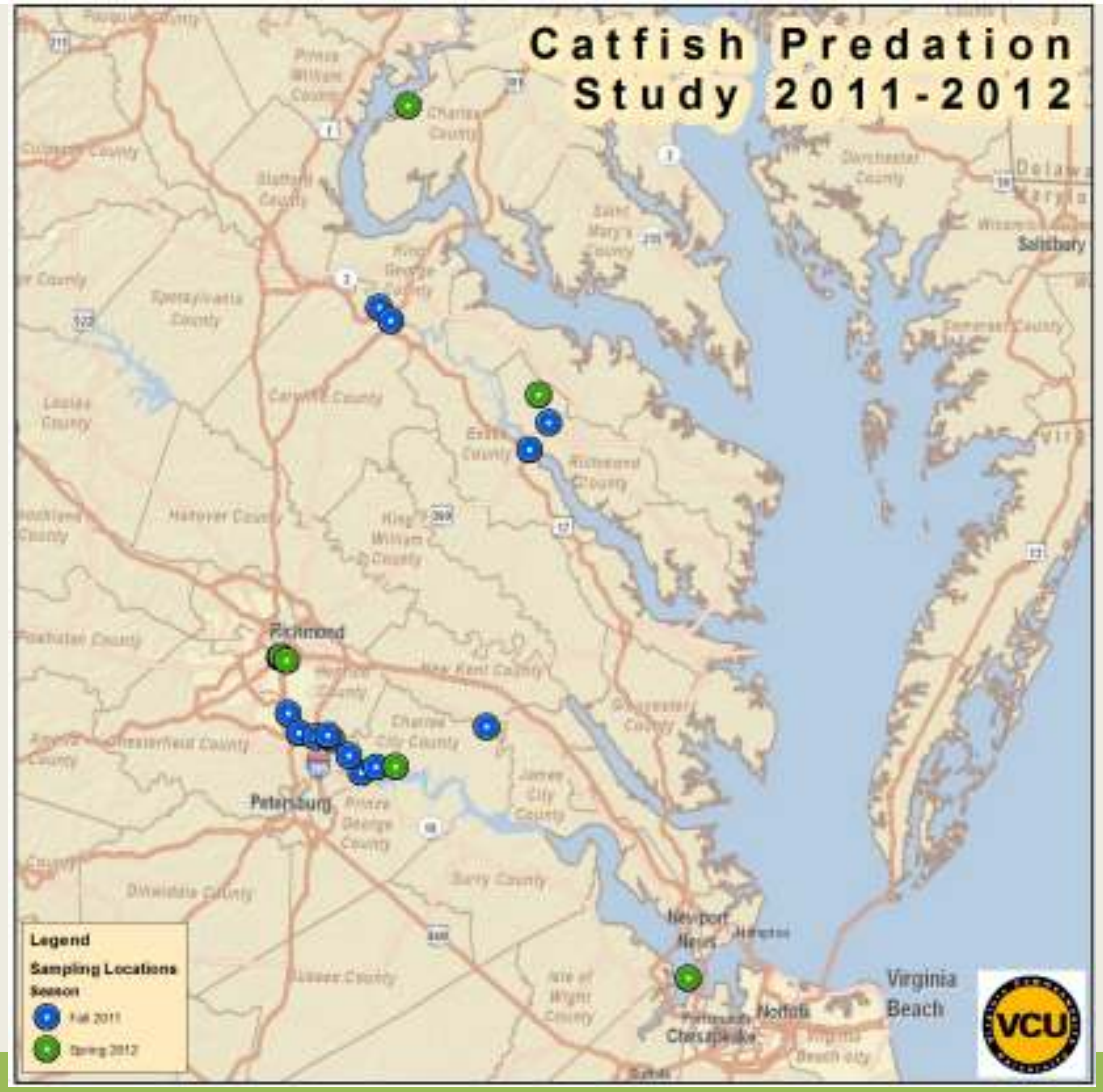

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Frequency of occurrence (%) of commercially significant prey in blue catfish (n=596) during the period March-May 2012 in the vicinity of Burwell Bay, James River (near Newport News, Virginia); water temperatures ranged between 15 and 20 and salinity ranged up to 6.2 ppt during sampling.

Date	N	TL (cm) range	Atlantic menhaden	Blue crab	American eel	Spot or Croaker	White perch	Percent empty guts
Mar 20	29	55-74	41	7	1		2	30
Mar 22	31	52-68	71	10		1		13
Mar 23	45	53-72	58	11	2		1	38
Apr 1	82	49-71	41	11				30
Apr 19	70	42-63	33	29				27
Apr 20	87	44-60	24	26		1		40
May 1	60	44-60	38	40		2		50
May 2	48	47-61	23	25	1	1		30
May 4	57	42-60	14	11				28
May 8	87	40-57	20	17				50

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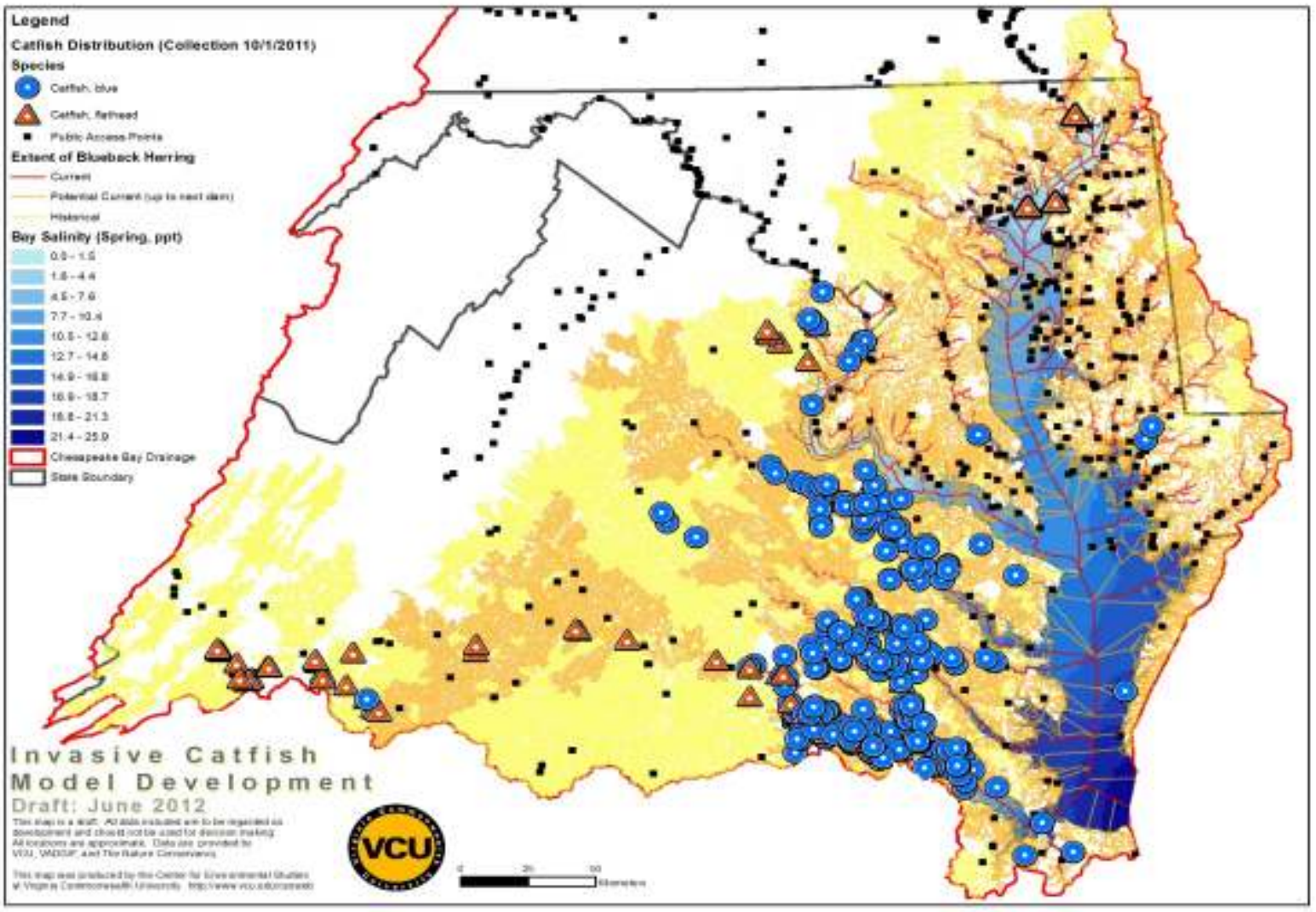

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- *Potential relevance/impacts*:
  - Document and quantify the extent of predation by invasive catfishes on key fishery resources in specific locations; findings will help to parameterize multi-species fishery management models used by CBPO and other resource managers.
  - Provide fishery managers and other stakeholders with an online decision support tool for the effective allocation of surveillance effort to high-risk locations; identify potential refugia for native species conservation or outreach programs.
  - Evaluate the feasibility of predator exclusion/control measures in certain situations.

Questions? ggarman@vcu.edu