

Atlantic Sturgeon Conservation

Initial Commercial Fishery Evaluation and Emergency Management Response in Connecticut Waters

to

Federal listing of Atlantic Sturgeon under
the Endangered Species Act (ESA)
effective April 6, 2012



Connecticut Department of Energy and Environmental Protection

Management Objectives

- **Objective 1.**
 - Substantially reduce interactions between ESA Endangered Atlantic sturgeon, *otter trawl gear and sink (anchored) gillnets**.
- **Objective 2.**
 - Minimize impact of new measures on existing commercial fisheries

* These gears are thought to have the greatest potential for serious injury or lethal interactions with sturgeon



Management Approach

- Close the smallest area that protects the greatest number of Atlantic sturgeon
- Establish *Gear Restricted Areas* (GRA): Areas closed to trawls/anchored gillnets *only*:
 - *Consider CT state waters only (limit of state authority)*
 - Consider impacts on other commercially valuable trawl or gillnet caught species, notably the more valuable species: summer flounder, scup and black sea bass
 - Acknowledge potential interaction with bait fishery for windowpane flounder, and little/winter skate species in Falkner Island sturgeon concentration area. All three species are below average in abundance presently (LIS Trawl Survey).



Gear Restricted Area Analysis

- Geographic Information System (GIS)
 - Iterative spatial analysis of potential GRA's targeting 50%, 75%, 80%, 95% "enclosure" rates of Atl. Sturgeon observed in CT State Waters.
 - Focus on two concentration areas, one at mouth of CT River, another off Falkner Island, Guilford.
- Data Used
 - LIS Trawl Survey Distribution of Atl. Sturgeon 1984-2011.
 - Atl. Sturgeon Research Gillnet Sampling 2006-2011
 - Sonic Tracking data on Atlantic sturgeon 2009-2011
 - LIS Trawl Survey Distribution of selected commercially important (quota managed) species in relation to proposed Atl. Sturgeon closed areas (Summer flounder, scup, black sea bass).

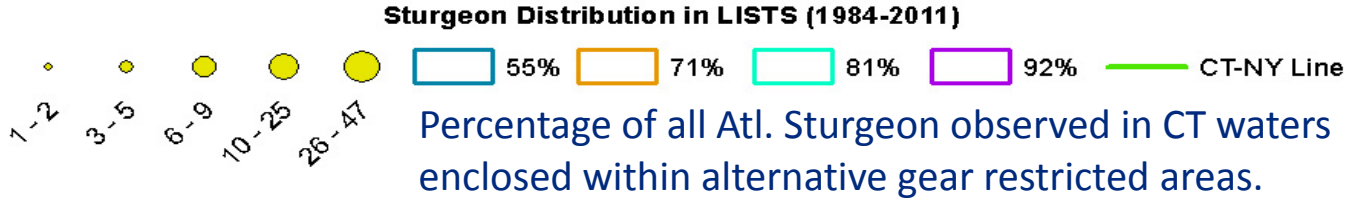
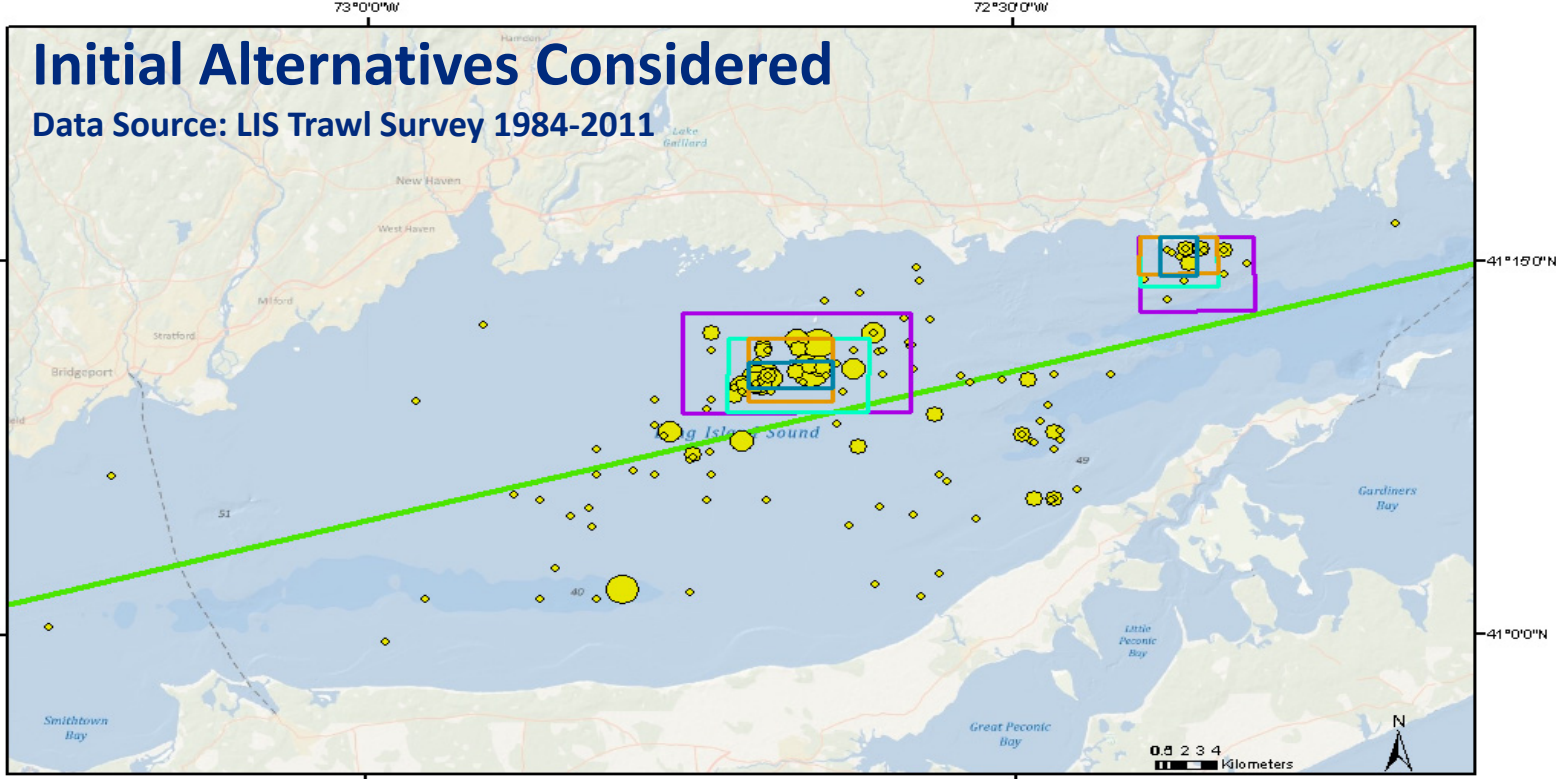


Gear Restricted Area Site Selection Process

- **CT State Waters:** Initial Target Enclosure Percentage: 80%
 - With 50%,75%,and 95% alternatives examined
 - Initial target selected based on highly aggregated distribution of Atl. sturgeon within two concentration areas observed in LIS Trawl Survey
 - Aggregations suggest this level was achievable with minimal impact on existing fisheries.
 - High percentage targeted reflects need to provide *substantial* protection.
- Realized Trial Percentages
 - 50%(55%), 75%(71%), 80%(81%), 95%(92%)
 - Gear Restricted Area: 87% chosen as best visual fit to the sturgeon catch density plots, drawn on lat/lon for easy compliance/enforcement.

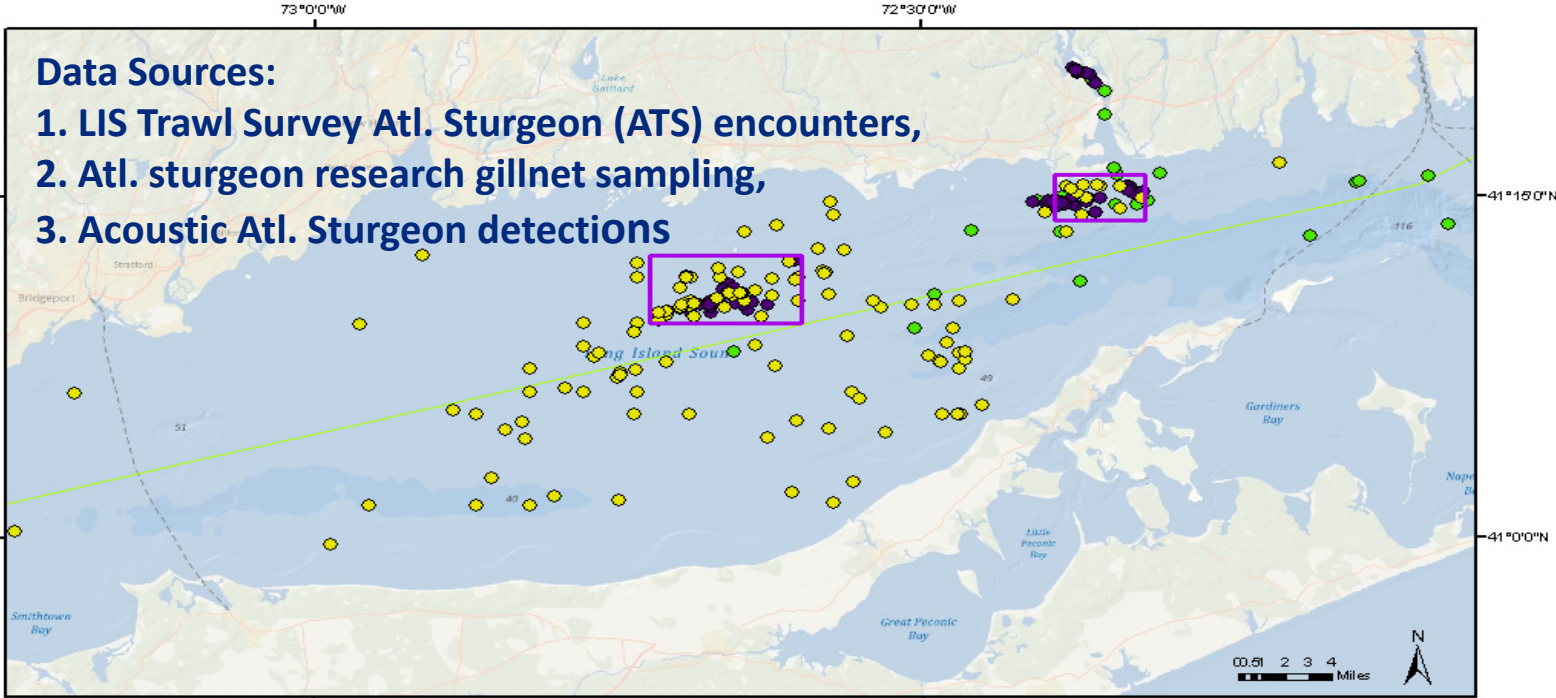


Gear Restricted Area



Gear Restricted Areas

Sturgeon Data Sources



Sturgeon Distribution and Detections in LIS

- ATS Trawl Survey (1984-2011)
- Sturgeon Gillnet (2006-2011)
- Sturgeon Acoustic Receiver Detections (2009-2011)
- Sturgeon Area 87.5%
- CT-NY Line

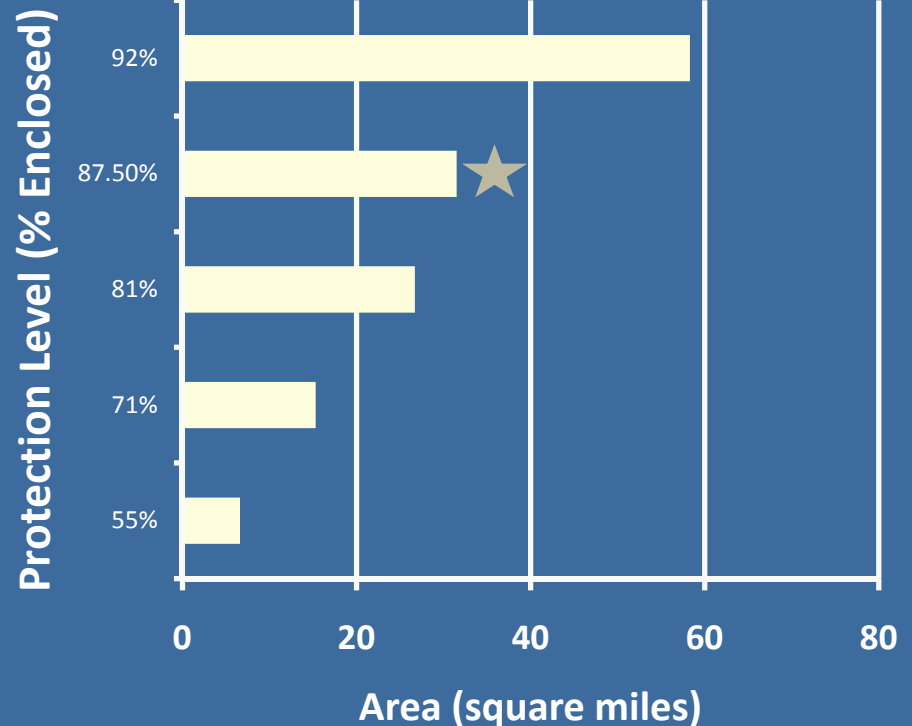


Gear Restricted Area Alternatives

Percent Sturgeon Enclosed vs. Size of GRA (sq mi)

% of LISTS CT Waters Sturgeon Catch Occurring within the closure area	Long Sand Shoal Area (sq. mi.)	Falkner Island Area (sq. mi.)	Combined Area (sq. mi.)
55%	2.6	4.0	6.6
71%	5.3	9.9	15.3
81%	7.2	19.5	26.7
★ 87.5%	9.0	22.5	31.5
92%	15.9	42.4	58.3

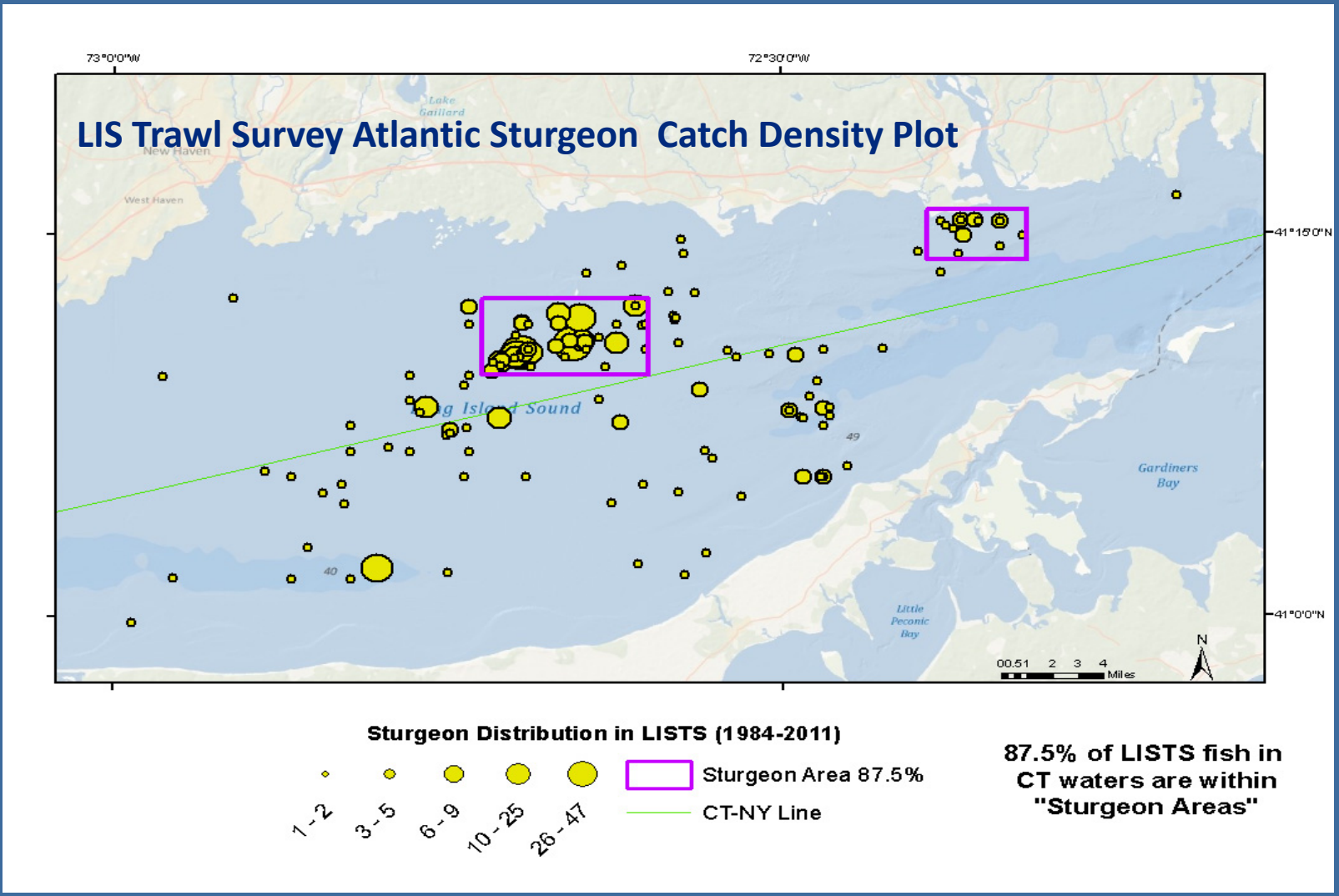
Comparison of Closure Alternatives
Percent Sturgeon Included vs. Area (sq mi)



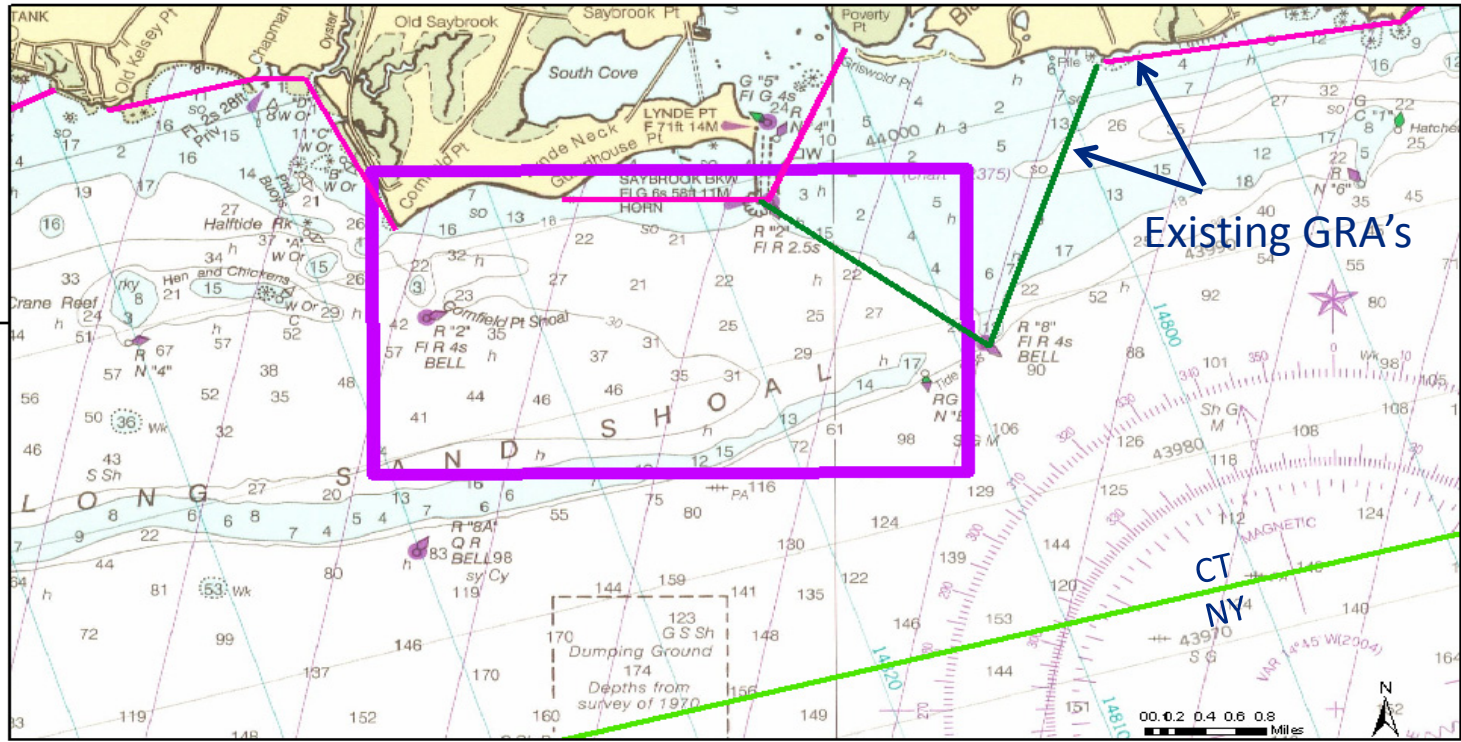
★ GRA's adopted

Total CT State LIS Waters= 580 mi²

Gear Restricted Areas Adopted April 19, 2012



Gear Restricted Areas CT River Mouth

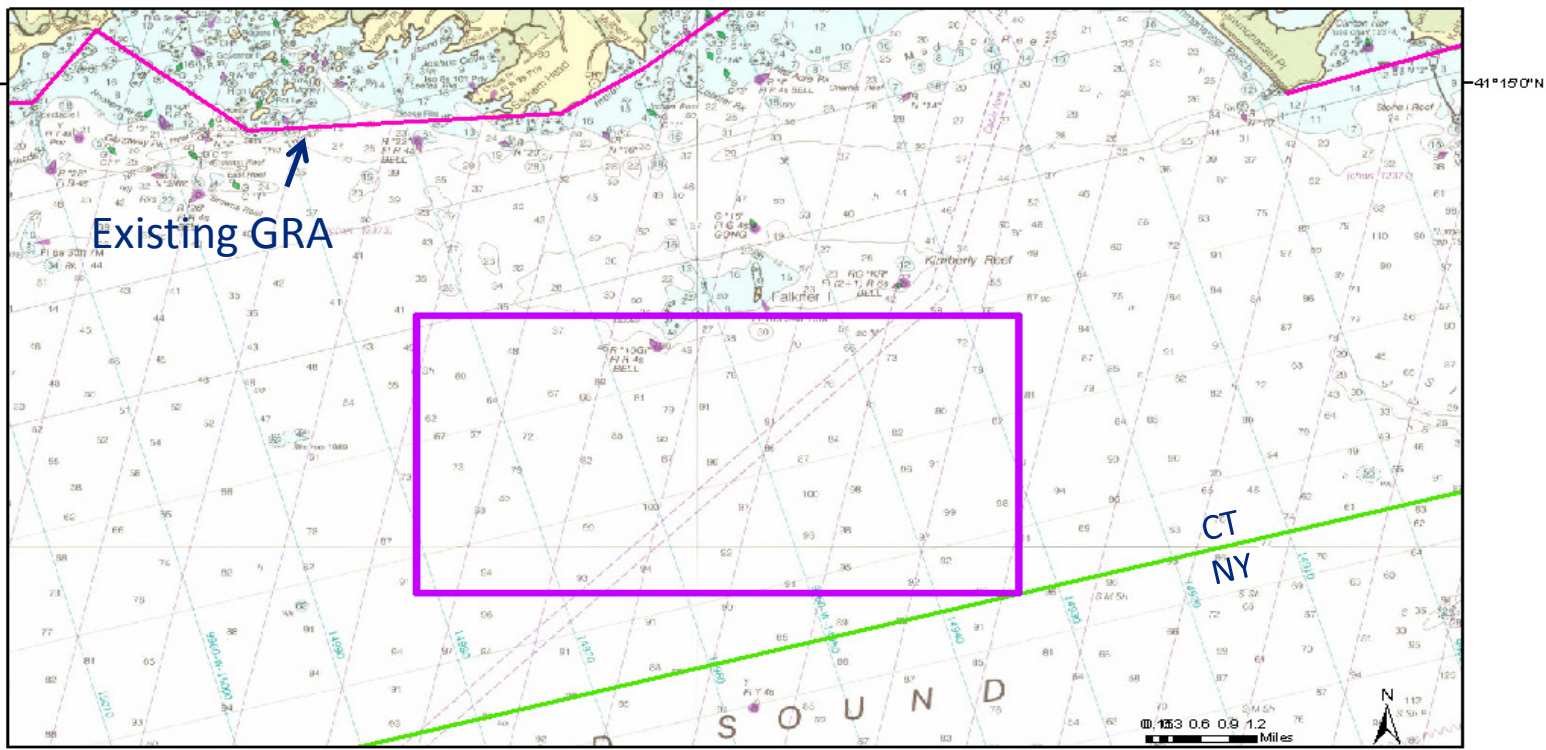


Long Sand Shoal Area

41 16, -72 23.5	41 16, -72 19
41 14, -72 23.5	41 14, -72 19



Gear Restricted Areas Falkner Island



Falkner Island Area

- 41 12.5, -72 43.5
- 41 12.5, -72 36
- 41 9.5, -72 43.5
- 41 9.5 -72 36



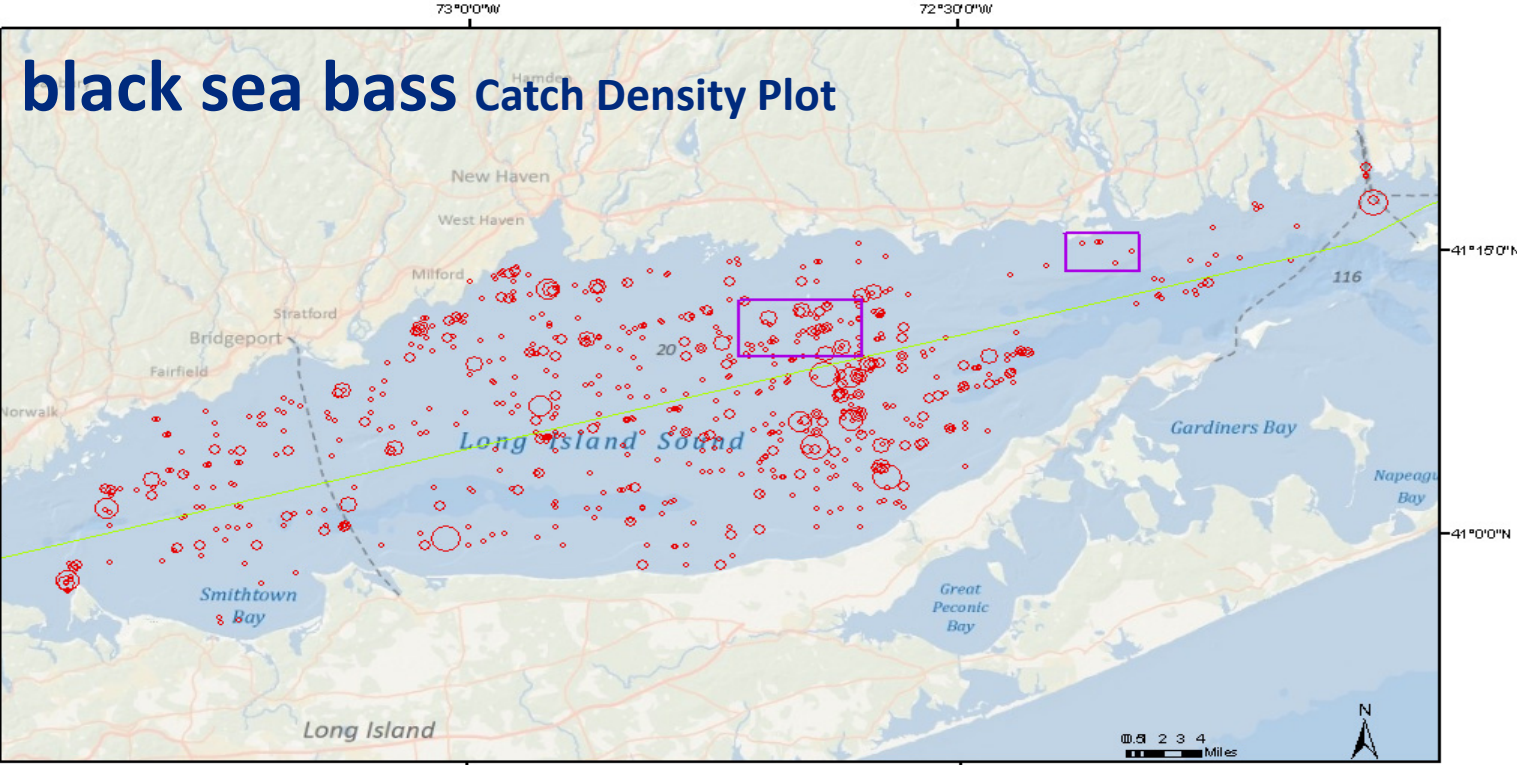
Concentration of Sturgeon vs. Selected Species

Percent Occurring within Gear Restricted Areas

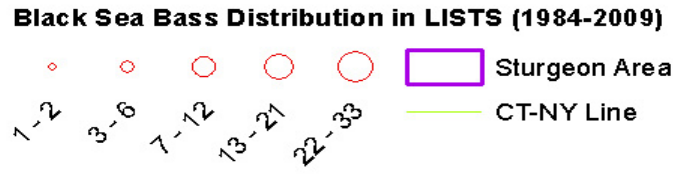
(LIS Trawl Survey data within CT State Waters)

Species	Years	Count in CT Waters	Count in Sturgeon GRA	Percent in Sturgeon GRA
Atlantic sturgeon	1984 – 2011	327.8	286.8	87.5%
black sea bass	1984 – 2009	778	124	15.9%
scup	1984 – 2009	501,668	44,054	8.8%
summer flounder	1984-2009	7,271	1,075	14.8%

Gear Restricted Areas



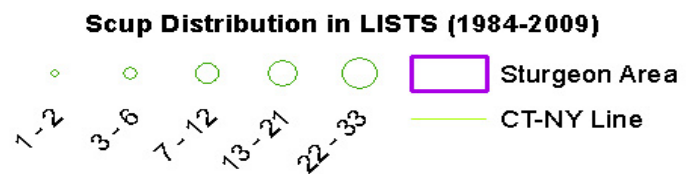
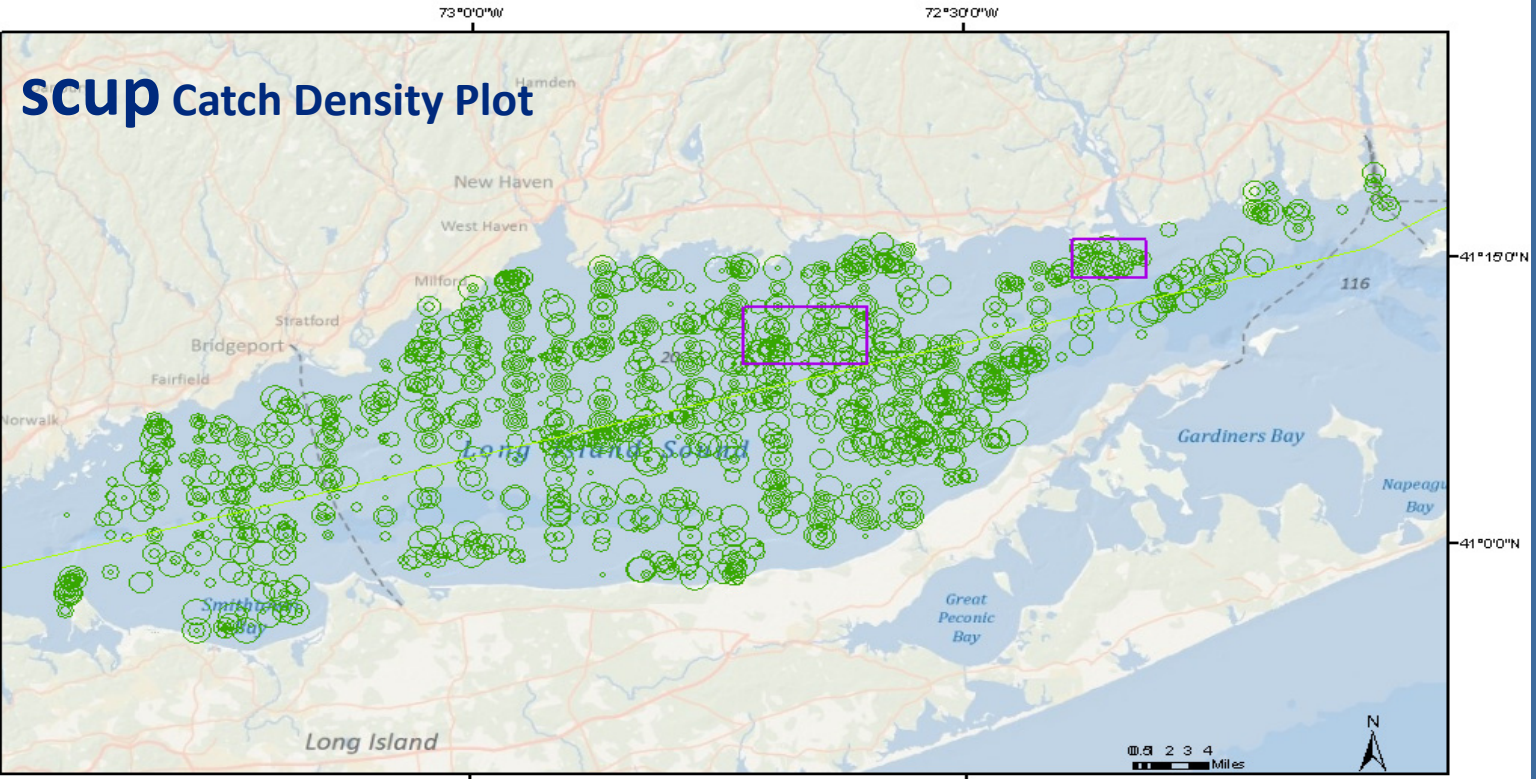
black sea bass Catch Density Plot



15.9% of LISTS fish in CT waters are within "Sturgeon Area"



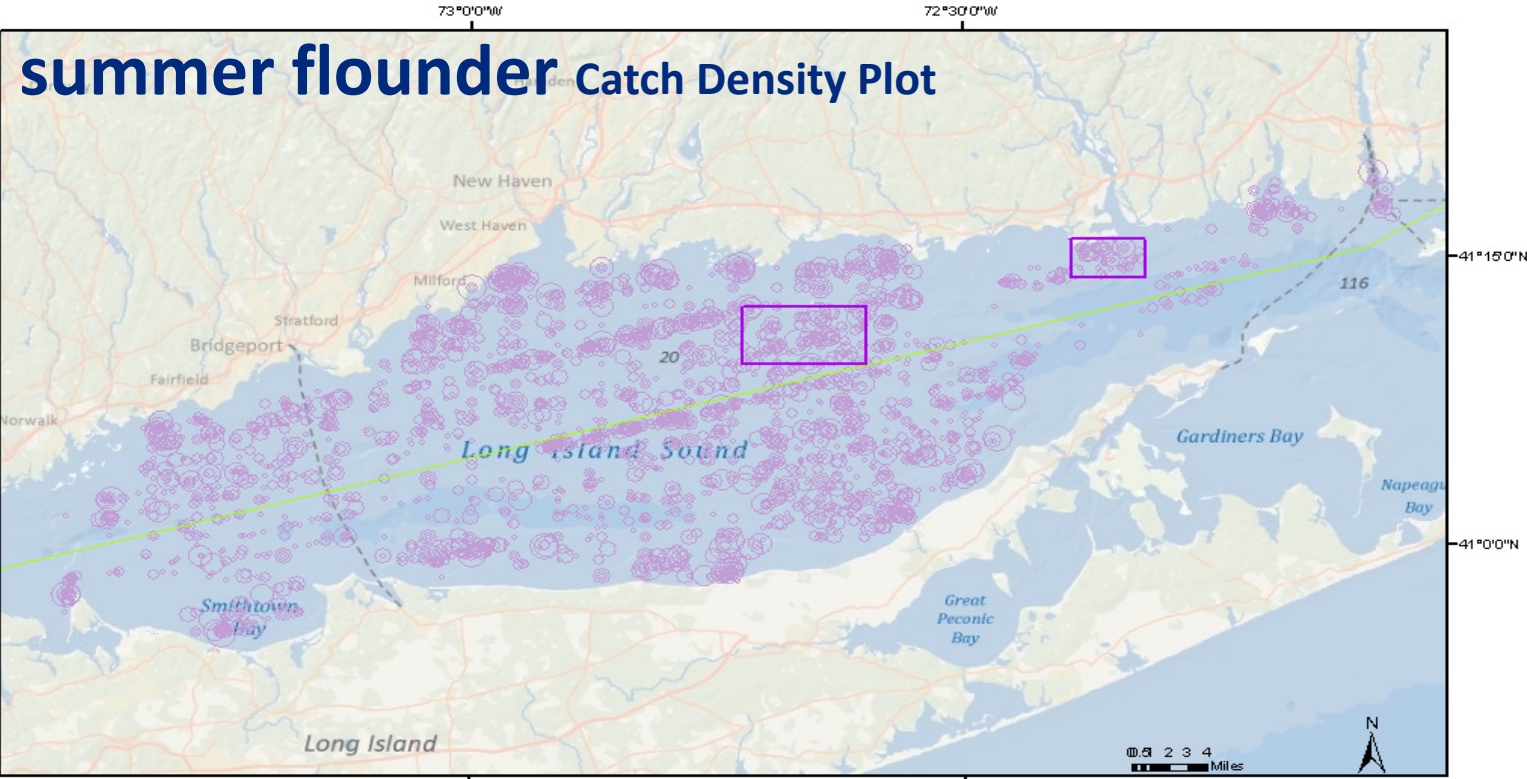
Gear Restricted Areas



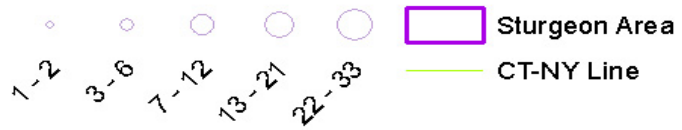
8.8% of LISTS fish in CT waters are within "Sturgeon Area"



Gear Restricted Areas



Summer Flounder Distribution in LISTS (1984-2009)



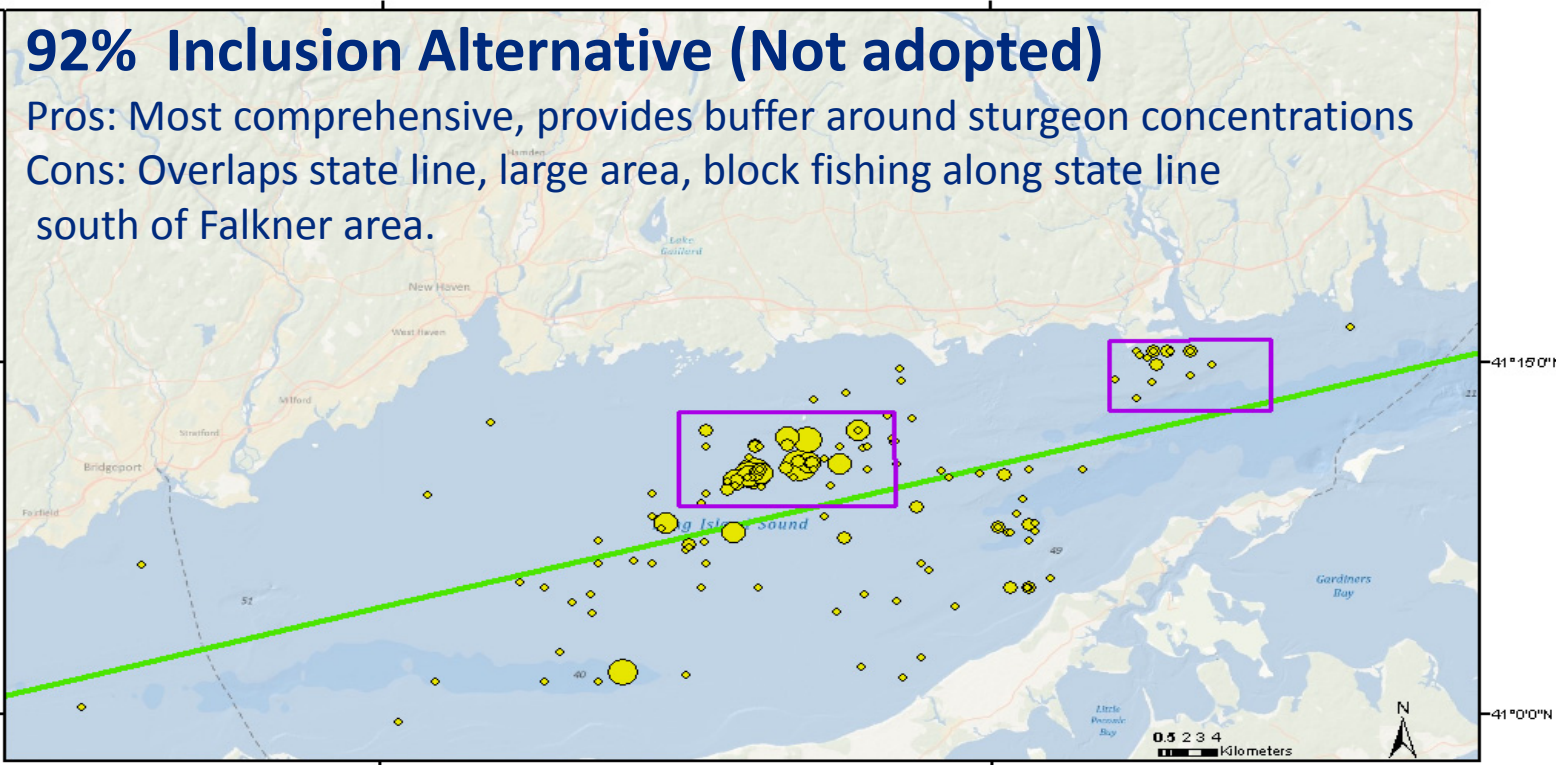
14.8% of LISTS fish in CT waters are within "Sturgeon Area"



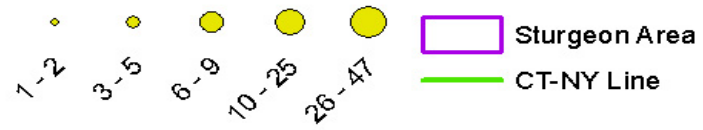
Gear Restricted Areas

92% Inclusion Alternative (Not adopted)

Pros: Most comprehensive, provides buffer around sturgeon concentrations
Cons: Overlaps state line, large area, block fishing along state line south of Falkner area.



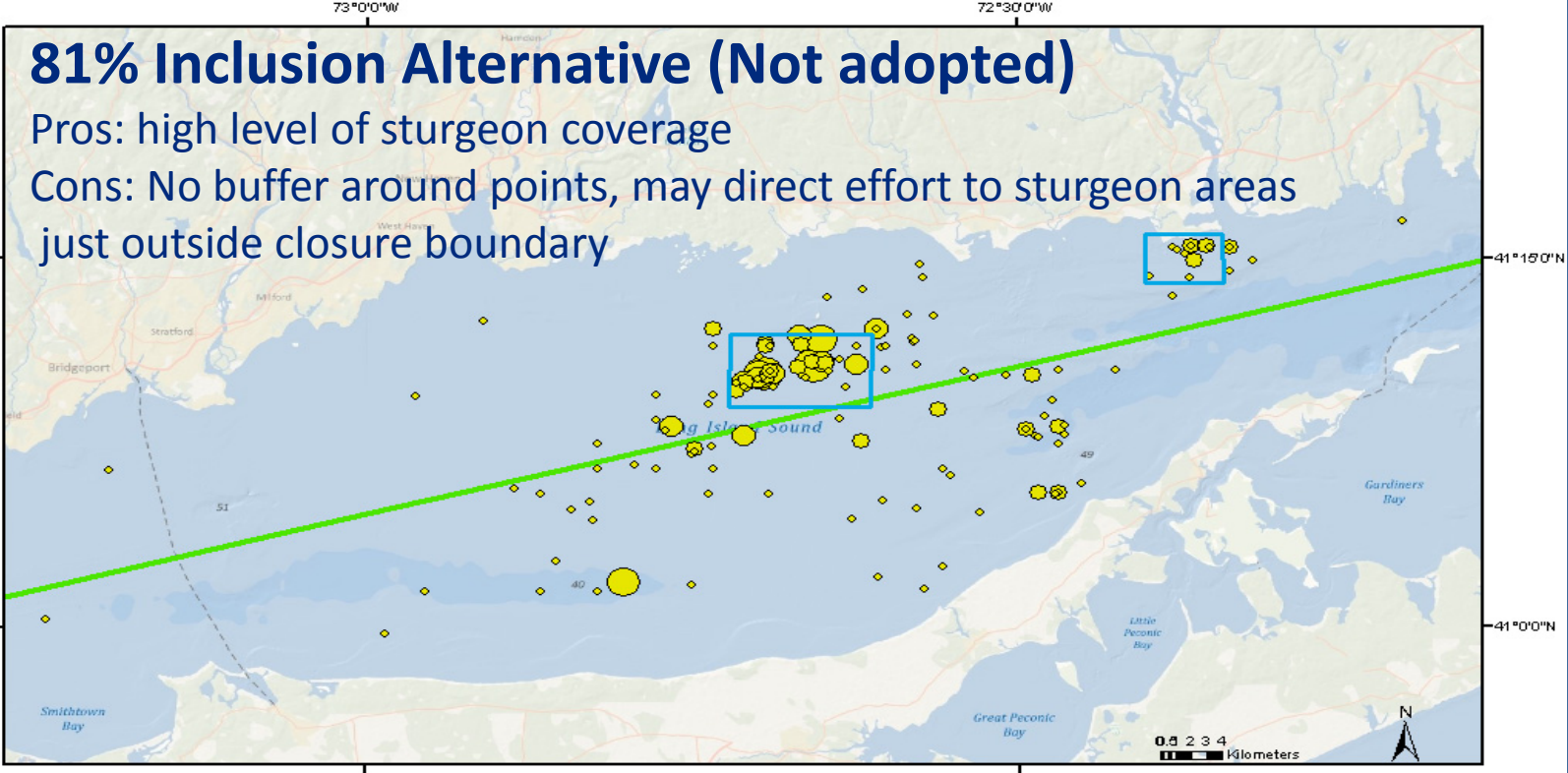
Sturgeon Distribution in LISTS (1984-2011)



92% of LISTS fish in CT waters are within "Sturgeon Areas"



Gear Restricted Areas



81% Inclusion Alternative (Not adopted)

Pros: high level of sturgeon coverage

Cons: No buffer around points, may direct effort to sturgeon areas just outside closure boundary

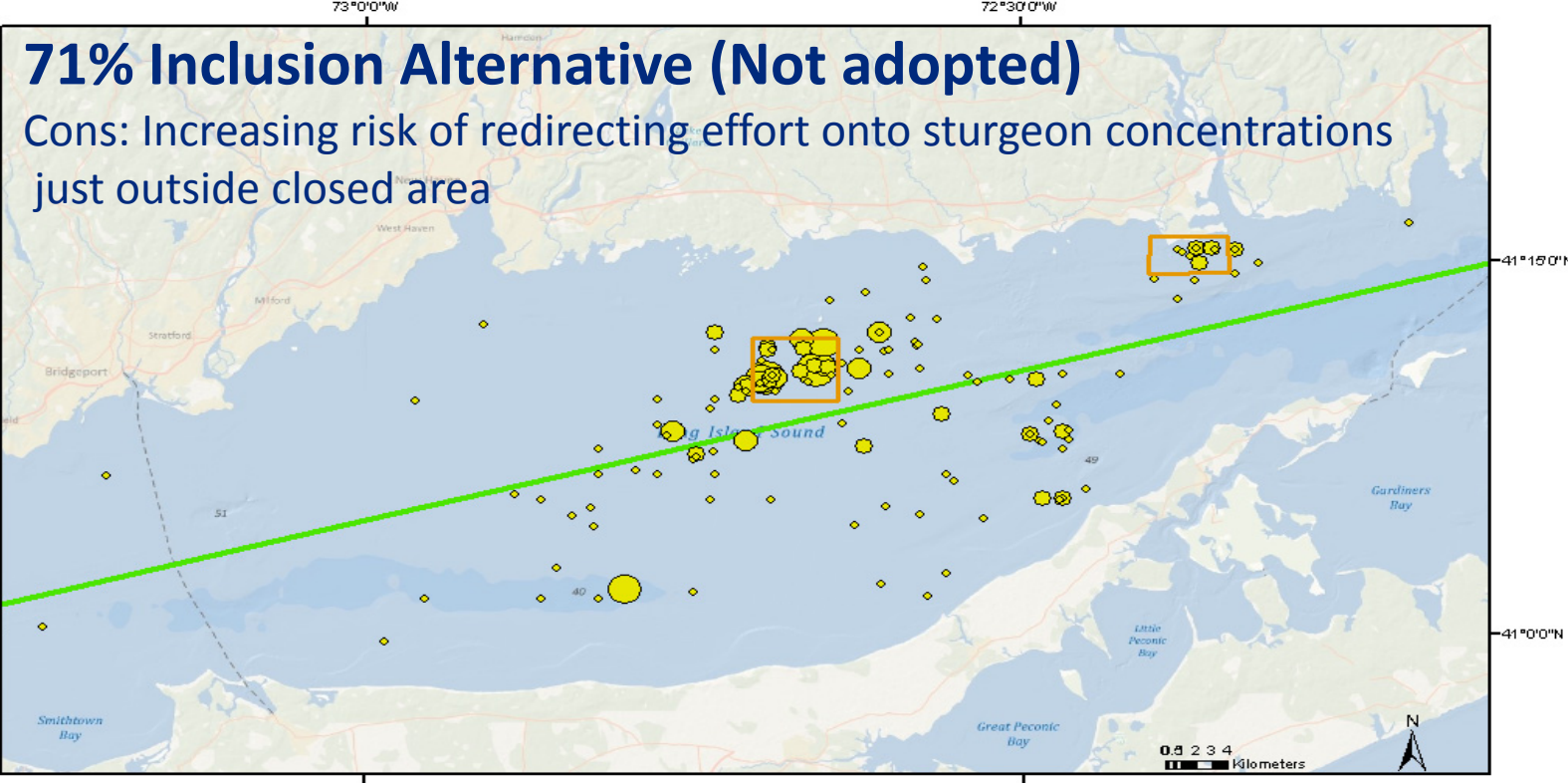
Sturgeon Distribution in LISTS (1984-2011)



81% of LISTS fish in CT waters are within "Sturgeon Areas"



Gear Restricted Areas



71% Inclusion Alternative (Not adopted)

Cons: Increasing risk of redirecting effort onto sturgeon concentrations just outside closed area

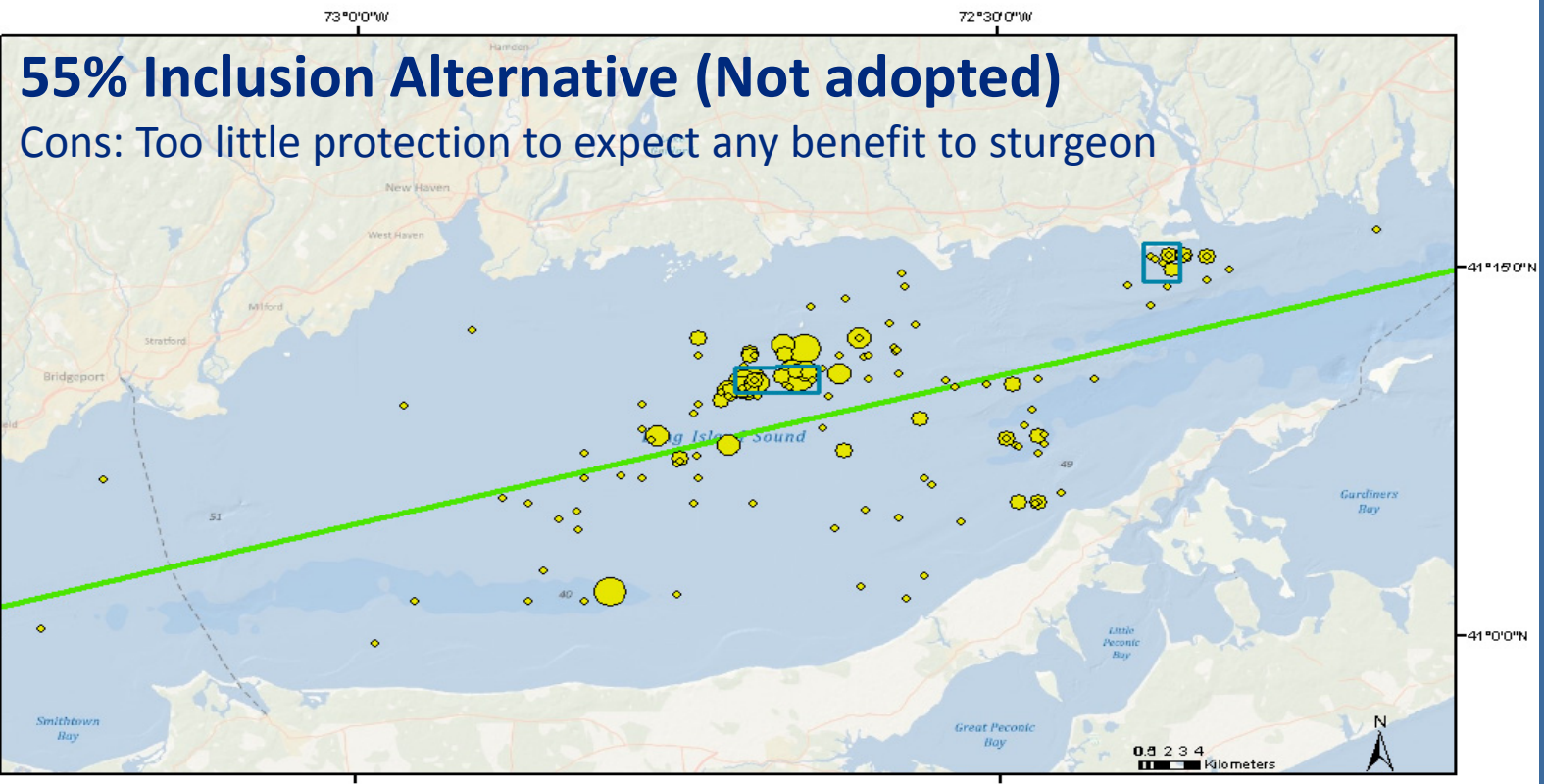
Sturgeon Distribution in LISTs (1984-2011)



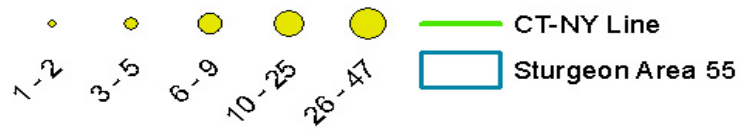
71% of LISTs fish in CT waters are within "Sturgeon Areas"



Gear Restricted Areas



Sturgeon Distribution in LISTS (1984-2011)



55% of LISTS fish in CT waters are within "Sturgeon Areas"

