Fishery Management Plan for Pelagic *Sargassum* *Habitat of the South Atlantic Region*

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SECOND REVISED FINAL

FISHERY MANAGEMENT PLAN FOR PELAGIC *SARGASSUM* HABITAT OF THE SOUTH ATLANTIC REGION

INCLUDING A FINAL ENVIRONMENTAL IMPACT STATEMENT, INITIAL REGULATORY FLEXIBILITY ANALYSIS, REGULATORY IMPACT REVIEW, & SOCIAL IMPACT ASSESSMENT/FISHERY IMPACT STATEMENT

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Pelagic Sargassum Regulations

§ 622.35 South Atlantic EEZ seasonal and/or area closures.
(g) *Pelagic sargassum area and seasonal restrictions*—(1) *Area limitations.*
(i) No person may harvest pelagic sargassum in the South Atlantic EEZ between 36°34′55 ″ N. lat. (directly east from the Virginia/North Carolina boundary) and 34° N. lat., within 100 nautical miles east of the North Carolina coast.
(ii) No person may harvest or possess pelagic sargassum in or from the South Atlantic EEZ south of 34° N. lat.

(2) *Seasonal limitation.* No person may harvest or possess pelagic sargassum in or from the South Atlantic EEZ during the months of July through October. This prohibition on possession does not apply to pelagic sargassum that was harvested and landed ashore prior to the closed period.

§ 622.41 Species specific limitations.
(k) *Pelagic sargassum.* The minimum allowable mesh size for a net used to fish for pelagic sargassum in the South Atlantic EEZ is 4.0 inches (10.2 cm), stretched mesh, and such net must be attached to a frame no larger than 4 ft by 6 ft (1.2 m by 1.8 m). A vessel in the South Atlantic EEZ with a net on board that does not meet these requirements may not possess any pelagic sargassum.

§ 622.42 Quotas.
(g) *Pelagic sargassum.* The quota for all persons who harvest pelagic sargassum in the South Atlantic EEZ is 5,000 lb (2,268 kg), wet, landed weight.

§ 622.43 Closures.
(7) *Pelagic sargassum.* Pelagic sargassum may not be fished for or possessed in the South Atlantic EEZ and the sale or purchase of pelagic sargassum in or from the South Atlantic
EEZ is prohibited.

Sargassum Habitat Research

Comparisons of Open Ocean, Surface Fish Communities off North Carolina in Two Habitats: *Sargassum* versus Open Water

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INTRODUCTION

In the western North Atlantic pelagic *Sargassum* forms a dynamic floating habitat that supports a diverse assemblage of marine organisms, including fishes, invertebrates, sea turtles, marine birds and marine mammals. *Sargassum* habitat serves as a primary nursery area for many juvenile fishes, some of which are commercially important species (dolphinfish, jacks, amberjacks). Several studies have documented fishes associated with pelagic *Sargassum*, yet most of these studies were descriptive surveys and lacked data on ecological aspects of the community. Additionally, no studies have compared *Sargassum* and adjacent open water communities. Although diets have been documented for a few *Sargassum*-associated fish species, data are lacking for the majority of fish species in this community. The objectives of this study are to acquire a more complete picture of the community structure, feeding habits and behaviors of fishes collected in *Sargassum* and open water habitats using multiple sampling methods.

METHODS

- Surface waters in or near the Gulf Stream off NC were sampled for fishes during summers of 1999-2003; 2 underwater video stations in 1999
- Specimens collected by small mesh neuston net (1 x 3 m), dip net, hook & line, long line
- Fishes sorted from algae and preserved at sea, algae weighed and discarded
- Fishes identified, measured, weighed and preserved
- Mean # of individuals and spp. compared in open water and *Sargassum* habitats
- Stomachs removed from dominant spp., commercially important spp. and endemic spp.
- Stomach contents identified to lowest practical taxa, enumerated, measured volumetrically
- Diet composition analyzed for %N, %V, %F
- Stomach contents supplemented with stable $\delta^{13}C$ & $\delta^{15}N$ isotope data for selected spp.

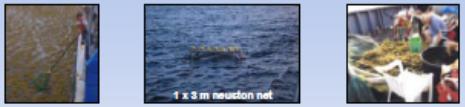
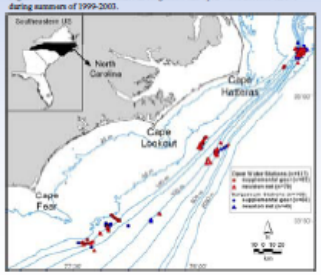


Figure 1. Collection sites for fishes in *Sargassum* and open water habitats off NC during summers of 1999-2003.




Stephanolepis hispidus


Caranx crysos


Chaetopogon melanurus


Seriola fasciata

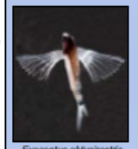

Coryphaena hippurus


Histio histio


Balistes capriscus


Parexocoetus brachypterus


Hippocampus erectus


Exocoetus obtusirostris


Canthidermis sufflamen


Lobotes surinamensis

Table 1. Numbers of individuals collected in *Sargassum* and open water habitats off North Carolina during summers of 1999-2003.

Species	S	OW	Species	S	OW
Abalistes stellatus	11	0	Hyporhamphus unifasciatus	0	1
Aluterus heudelotii	71	8	Istiophorus platypterus	4	44
Aluterus monoceros	38	4	Katsuwonus pelamis	0	3
Aluterus schoepfii	18	15	Kyphosus incisor	6	1
Aluterus scriptus	32	18	Kyphosus sectatrix	30	2
Aspasmogaster costata	1	0	Lagocephalus laevigatus	1	0
Auxis thazard	2	0	Lobotes surinamensis	13	1
Balistes capriscus	323	47	Melichthys niger	0	1
Bryx dunnei	6	1	Monacanthus ciliatus	164	68
Canthidermis maculata	16	3	Monacanthus hispidus	11	7
Canthidermis sufflamen	21	7	Mugil curema	1	6
Caranx bartholomaei	4	0	Naucrates ductor	1	0
Caranx crysos	1865	521	Nealotus tripes	1	0
Caranx latus	3	0	Oligoplites saliens	3	2
Caranx ruber	51	8	Oligoplites saurus	2	20
Carcharhinus falciformis	1	0	Oligoplites stilbe	0	10
Chaetodipterus faber	13	0	Oligoplites stilbe	1	4
Chaetodon aculeatus	1	0	Oligoplites stilbe	0	1
Chaetodon ocellatus	21	7	Oligoplites stilbe	0	1
Chaetodon sedentarius	1	0	Oxyporhamphus micropterus	73	55
Coryphaena equiselis	18	2	Parexocoetus brachypterus	203	201
Coryphaena hippurus	147	33	Peprilus alepidotus	3	2
Cyclichthys sp.	1	0	Peprilus burti	66	61
Cyclichthys orbicularis	1	0	Peprilus paru	0	0
Decapterus punctatus	164	133	Pomacanthus paru	3	1
Diodon holocanthus	1	0	Pomacanthus arcuatus	1	0
Diodon hystrix	5	2	Remora remora	0	27
Echeneis naucrates	2	1	Scomberomorus cavalla	0	6
Elagatis bipinnulata	22	2	Scomberomorus maculatus	0	1
Euthynnus alletteratus	12	17	Selene brevoortii	4	0
Exocoetus obtusirostris	1	3	Selene setapinnis	1	1
Fistularia tabacaria	1	0	Seriola dumerili	1	0
Gempylus serpens	0	3	Seriola fasciata	62	6
Hemiramphus balao	27	0	Seriola rivoliana	38	2
Hemiramphus brasiliensis	10	10	Seriola sp.	265	36
Hippocampus erectus	7	7	Sphyraena barracuda	4	1
Hyporhamphus meeki	1	0	Sphyraena borealis	0	1
Hyporhamphus unifasciatus	36	25	Stephanolepis hispidus	13655	1655
Istiophorus albicans	1	0	Stephanolepis setifer	1	0
Istiophorus platypterus	23	7	Synagrops bellus	1	0
Katsuwonus pelamis	0	1	Synagrops bellus	1	0
			Synagrops spinosus	1	0
			Synodus foetens	118	1
			Synodus synodus	0	1
			Trachinocephalus myops	0	2
			Trachinotus falcatus	0	1
			Tylosurus acus	32	6
			Tylosurus crocodilus	1	0
			Vinciguerria poweriae	0	1
			Xanthichthys ringens	0	2
			Total n	17905	3603

Table 2. Catch data for fishes collected off NC during summers of 1999-2003. *=significant.

All Catch Data	S	OW
# of samples	109	137
# of species	73	76
# of individuals	17905	3603
NN Catch Data (2000-2003)		
# of samples	43	75
# of species	55	54
# of individuals	13275	2240
mean # of spp.	10*	4
mean # of indiv.	309*	30

Figure 2. Numbers of individual fish per kilogram *Sargassum* for neuston net collections off NC.

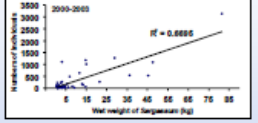
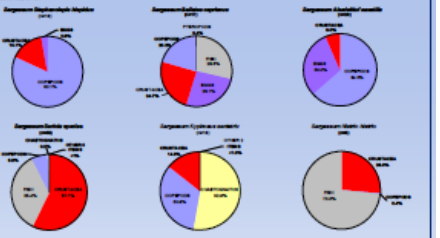


Figure 3. Pie charts of the percent volumes of food items found in the stomachs of dominant fish species collected in *Sargassum* and open water habitats off NC. Additional data are being analyzed.

Figure 4. Pie charts of the percent volumes of food items found in the stomachs of fish species collected in *Sargassum* habitat off NC.



DIET DATA

- 484 stomachs analyzed to date representing 23 fish species
- 88% of all stomachs analyzed contained food items, 53 total food items identified
- Overall: 13 spp. of copepods, 3 spp. of shrimp, 10 spp. of fish were identified
- Parasites (digenean trematodes & nematodes) observed in 44% of all stomachs

FOOD ITEMS


Leander tenuicornis | *Portunus sayi* | copepods | eggs

COMMUNITY STRUCTURE DATA

- 17,905 fishes (73 spp.) collected from 109 *Sargassum* stations, 13,276 fishes (55 spp.) from 43 neuston tows
- 3603 fishes (76 spp.) collected from 137 open water stations, 2240 fishes (54 spp.) from 75 neuston tows
- For neuston net collections, #s of individuals & #s of spp. significantly higher in *Sargassum* habitat
- Positive relationship between quantity of *Sargassum* and #s of individuals

ACKNOWLEDGEMENTS

This research was partially funded by grants from the NOAA Office of Ocean Exploration (to S.W. Ross, lead Principle Investigator) and the North Carolina State Legislature. We would like to thank USGS for field support.

Sargassum Removals

Last removal occurred in 1997: 12,000 lbs wet weight

No *Sargassum* landed in 13 years: 1998-2010

SSC Recommendations for Pelagic *Sargassum* Habitat

- ***OFL: 0***
- ***ABC: 0***

If the Council wishes to allow harvest in the future, the Council should approach the SSC to reestablish the ABC. Until such time the ABC will remain 0.