APPENDIX F.

Descriptions of some representative habitats as presented by Dr. Page Valentine, USGS.
Note: This is not a complete listing of habitats of the Northeastern United States

A. GEORGES BANK – Northeastern Edge

HABITAT CHARACTER	DESCRIPTION
A. Topography	**Featureless gravel except for few large sand ridges**
B. Sediment texture and hardness	**Gravel pavement (hard bottom); small areas of gravel with sand veneer; sand**
C. Substrate roughness and surface area (undisturbed)	
• **Physical**	**Gravel pavement: pebbles, scattered cobbles and boulders; little rippled sand Sand ridges with ripples**
• **Biological**	**Gravel pavement: calcareous worm tubes, bryozoa/hydrozoa, sponges, and anemones attached to gravel Sand:**
D. Substrate dynamics	**Strong tidal and storm currents winnow sand from gravel pavement, move shells, and move surfaces of sand deposits;**
E. Water column	**Generally mixed; high productivity; shallow**
F. Possible fishing impacts	**Disturb gravel pavement, reduce hard bottom and expose sand for movement; move cobbles and boulders; disturb epifauna; alter biodiversity**

B. GEORGES BANK – Central Part

HABITAT CHARACTER	DESCRIPTION
A. Topography	**Sand bedforms ranging from small ripples to very large sand ridges**
B. Sediment texture and hardness	**Sand; shell beds; small areas of gravel between sand ridges**
C. Substrate roughness and surface area (undisturbed)	
• **Physical**	**Sand bedforms of varying sizes; associated shell beds Gravel: pebbles, cobbles, boulders**
• **Biological**	**Sand bedforms: amphipod tubes, sand dollar concentrations and burrowing anemones Gravel: minimal epifauna due to sand movement**
D. Substrate dynamics	**Strong tidal and storm currents build bedforms and shell beds; daily sand transport; large stable sand ridges are oriented parallel to direction of current flow; bi-directional sand movement**
E. Water column	**Mixed; high productivity; shallow**
F. Possible fishing impacts	**Disturb sand bedforms and shell beds; disturb amphipod tubes and burrowing anemones and expose sand for movement**

C. GEORGES BANK – Southern Part

HABITAT CHARACTER	DESCRIPTION
A. Topography	Featureless sand except for patches of ripples from intermittent storms
B. Sediment texture and hardness	Sand
C. Substrate roughness and surface area (undisturbed)	
• Physical	Depressions in sand formed by benthic fauna; scattered shells
• Biological	Erect yellow sponges attached to shell fragments; amphipod tubes
D. Substrate dynamics	Weak tidal currents do not move sediment; intermittent strong storm currents form sand ripples
E. Water column	Mixed or seasonally stratified; high productivity; shallow
F. Possible fishing impacts	Disturb sand depressions, erect sponges, and amphipod tubesl break shells

D: GEORGES BANK – Large Submarine Canyons on Southern Margin

HABITAT CHARACTER	DESCRIPTION
A. Topography	Deep incision into continental shelf edge; gentle to steeply sloping canyon walls; sand bedforms in canyon axis
B. Sediment texture and hardness	Sand and gravel on canyon rims and in axis; gravel pavement common on eastern rims; clay layer and rock outcrops on canyon walls
C. Substrate roughness (undisturbed)	
• Physical	On canyon rims: depressions in sand formed by benthic fauna; scattered shells; sand bedforms; gravel pavement of pebbles and scattered cobbles and boulders In canyon: sand bedforms; scattered pebbles, cobbles, and boulders; clay burrows (formed by crustaceans, fish, worms …); irregular rock outcrops
• Biological	Sponges, bryozoa/hydrozoa, soft corals attached to gravel and rock outcrops; burrowing anemones; …
D. Substrate dynamics	Moderate currents move sand from shelf onto canyon walls; strong tidal currents form sand bedforms in canyon axis
E. Water column	Stratified; low productivity; shallow to deep
F. Possible fishing impacts	Disturb gravel pavement, reduce hard bottom and expose sand for movement; move cobbles and boulders; disturb hardbottom epifauna; disturb clay burrows; disturb burrowing anemones

E. GULF OF MAINE – Central Deep Water Banks

HABITAT CHARACTER	DESCRIPTION
A. Topography	Banks, ridges, hills, mounds
B. Sediment texture and hardness	Gravel and bedrock with intermittent thin veneer of mud; patches of mud; hard and soft bottom
C. Substrate roughness and surface area (undisturbed)	
• Physical	Gravel: pebbles, cobbles, boulders, and bedrock outcrops; scour depressions around cobbles and boulders Mud: mud burrows (crustaceans, fish, worms, …)
• Biological	Gravel: sponges, brachiopods, and anemones attached to gravel Mud: burrowing anemones, sea pens
D. Substrate dynamics	Very weak currents; little or no sediment transport
E. Water column	Stratified; low productivity; deep
F. Possible fishing impacts	Flatten small gravel mounds; move cobbles and boulders; re-suspend fine sediment and increase turbidity; disturb epifauna; disturb mud burrows; disturb burrowing anemones and sea pens

F. GULF OF MAINE – Central Deep Water Basins

HABITAT CHARACTER	DESCRIPTION
A. Topography	Featureless mud except for small mounds
B. Sediment texture and hardness	Mud; soft bottom
C. Substrate roughness and surface area (undisturbed)	
• Physical	Mud: mud burrows (crustaceans, fish, worms, …)
• Biological	Mud: burrowing anemones; sea pens, “amphipod” tubes
D. Substrate dynamics	Very weak currents; little or no sediment transport
E. Water column	Stratified; low productivity; deep
F. Possible fishing impacts	Disturb burrows; re-suspend fine sediment and increase turbidity; disturb burrowing anemones and sea pens

G: GREAT SOUTH CHANNEL REGION – Central Part

HABITAT CHARACTER	DESCRIPTION
A. Topography	Featureless gravel; gravel mounds; bedforms ranging from small ripples to very large sand ridges
B. Sediment texture and hardness	Gravel pavement; gravel between large sand ridges; gravel with thin veneer of sand; sand
C. Substrate roughness and surface area (undisturbed)	
• Physical	Gravel pavement and mounds: pebbles, scattered cobbles and boulders; shell beds Sand bedforms of varying sizes
• Biological	Gravel: bryozoa/hydrozoa, sponges, attached anemones Sand:
D. Substrate dynamics	Strong tidal and storm currents; daily sand transport; sand ridges relatively stable and oriented normal to direction of current flow; bi-directional sand movement
E. Water column	Mixed; high productivity; shallow
F. Possible fishing impacts	Disturb gravel pavement, expose sand for movement; flatten small gravel mounds; move cobbles and boulders; disturb gravel epifauna; disturb small bedforms and shell beds

H. GREAT SOUTH CHANNEL REGION – Northern Part

HABITAT CHARACTER	DESCRIPTION
A. Topography	Featureless gravel with veneer of rippled sand
B. Sediment texture and hardness	Gravel with mobile patchy sand veneer
C. Substrate roughness and surface area (undisturbed)	
• Physical	Gravel: Pebbles, cobbles, and boulders; current scours around boulders Sand: rippled sand patches; rippled sand deposits streaming downcurrent from boulders
• Biological	Gravel: little attached epifauna due to sand movment Sand:
D. Substrate dynamics	Strong tidal and storm currents; sand moving through gravel
E. Water column	Generally mixed; high productivity; shallow
F. Possible fishing impacts	Move cobbles and boulders; disturb attached epifauna; disturb sand ripples

I. GREAT SOUTH CHANNEL REGION – Northeastern Part

HABITAT CHARACTER	DESCRIPTION
A. Topography	**Featureless except for storm sand ripples**
B. Sediment texture and hardness	**Coarse sand and gravel**
C. Substrate roughness and surface area (undisturbed)	
• **Physical**	**Sand: storm-generated ripples** **Gravel: pebble gravel pavement in ripple troughs; scattered cobbles and boulders**
• **Biological**	**Gravel: sponges and bryozoa/hydrozoa attached to gravel** **Sand:**
D. Substrate dynamics	**Moderate tidal currents; strong storm currents transport sand and form ripples**
E. Water column	**Mixed or seasonally stratified; high productivity; shallow**
F. Fishing impacts possible	**Disturb sand ripples and gravel pavement; move cobbles and boulders; disturb gravel epifauna**

J. GREAT SOUTH CHANNEL REGION – Southwestern Part

HABITAT CHARACTER	DESCRIPTION
A. Topography	**Featureless gravelly sand except for widely spaced very large sand ridges**
B. Sediment texture and hardness	**Gravelly coarse sand between sand ridges; sand on ridges**
C. Substrate roughness and surface area (undisturbed)	
• **Physical**	**Gravelly coarse sand: depressions in sand formed by benthic fauna; scattered shells** **Sand ridges with ripples**
• **Biological**	**Gravelly coarse sand: erect yellow sponges, attached anemones, amphipod tubes** **Sand:**
D. Substrate dynamics	**Moderate tidal currents; strong storm currents transport surfaces of relatively stable sand ridges; bi-directional sand movement**
E. Water column	**Generally mixed; high productivity; shallow**
F. Fishing impacts possible	**Disturb depressions in gravelly coarse sand, erect sponges, attached anemones, and amphipod tubes**

K. GREAT SOUTH CHANNEL REGION – Western Part

HABITAT CHARACTER	DESCRIPTION
A. Topography	**Featureless**
B. Sediment texture and hardness	**Mussel bed; hard bottom**
C. Substrate roughness and surface area (undisturbed)	
• **Physical**	**Mussel shells**
• **Biological**	**Mussel bed with attached epifauna**
D. Substrate dynamics	**Strong tidal and storm currents**
E. Water column	**Mixed; high productivity; shallow**
F. Possible fishing impacts	**Disturb living mussels, shells, and attached epifauna; expose underlying sediment to strong currents**