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OMNIBUS ESSENTIAL FISH HABITAT AMENDMENT 2 DRAFT ENVIRONMENTAL IMPACT STATEMENT

Appendix C: EFH designation map representations as approved in June 2007, with corrections

Updated March 2011

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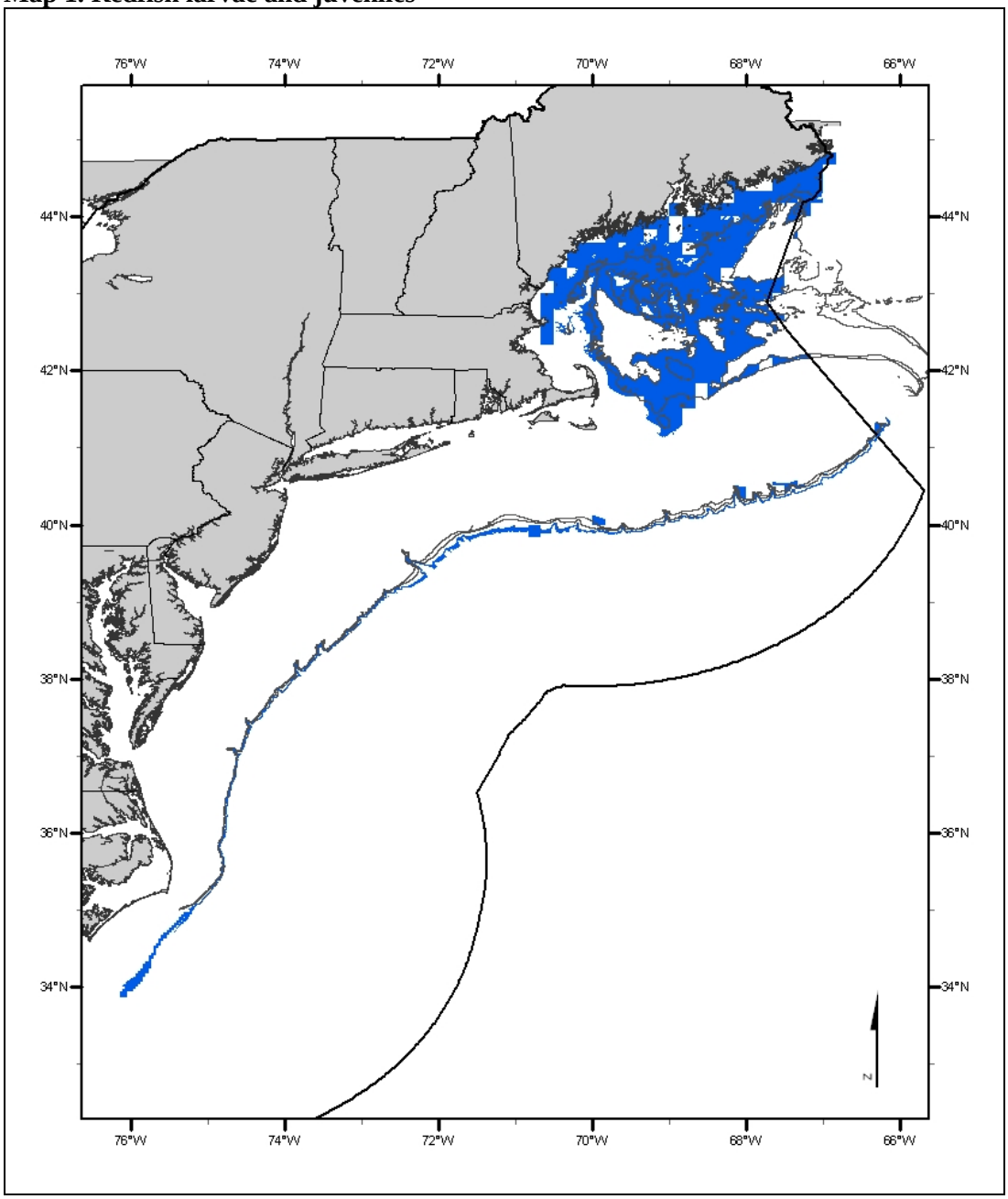
1.0 Northeast multispecies

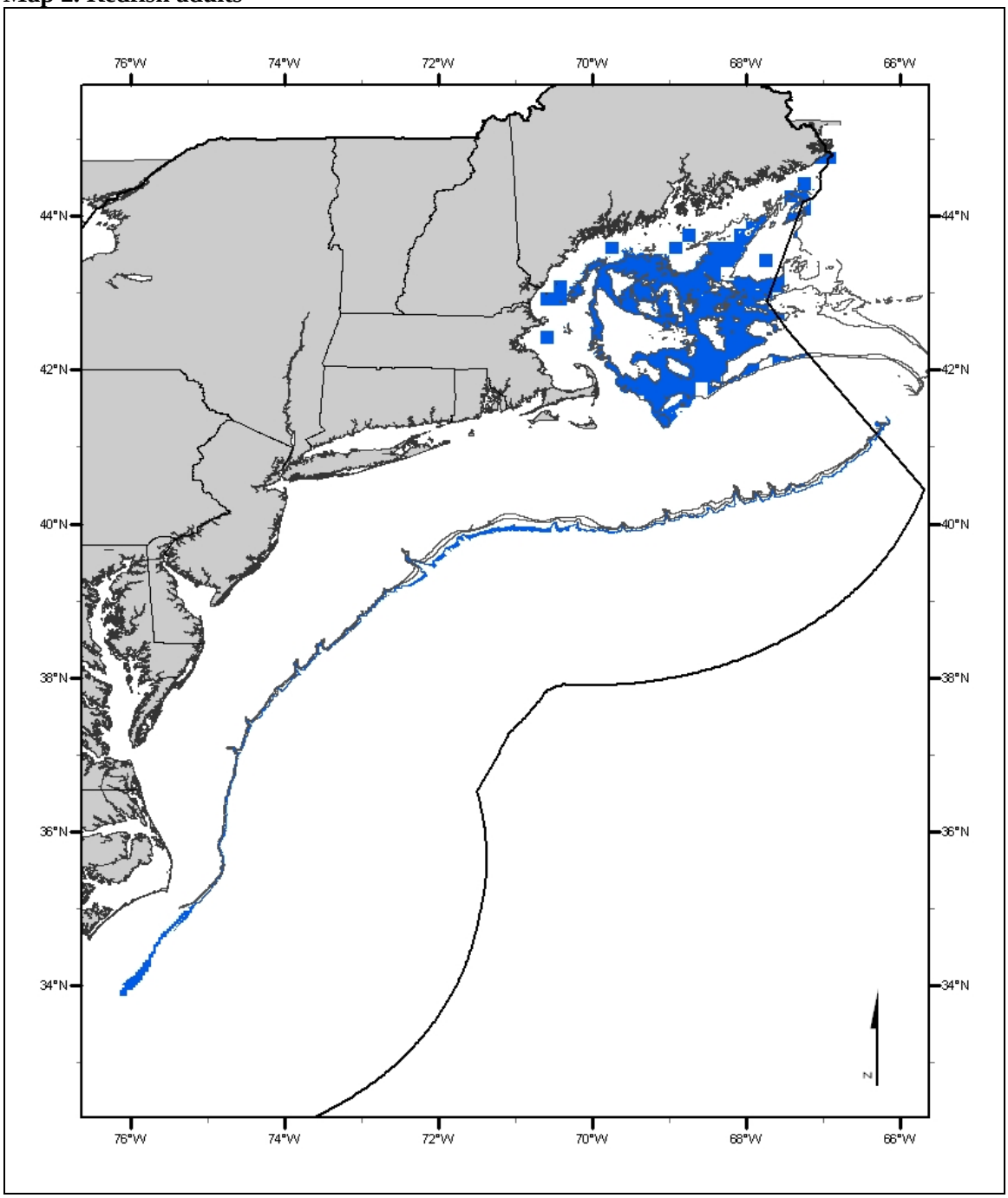
1.1 Acadian redfish

Map 1. Redfish larvae and juveniles



The Alternative 3D EFH designation for redfish larvae and juveniles on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore and off-shelf areas where juvenile redfish were determined to be present, based on 10% frequency of occurrence in state trawl surveys and off-shelf depth and geographic ranges.

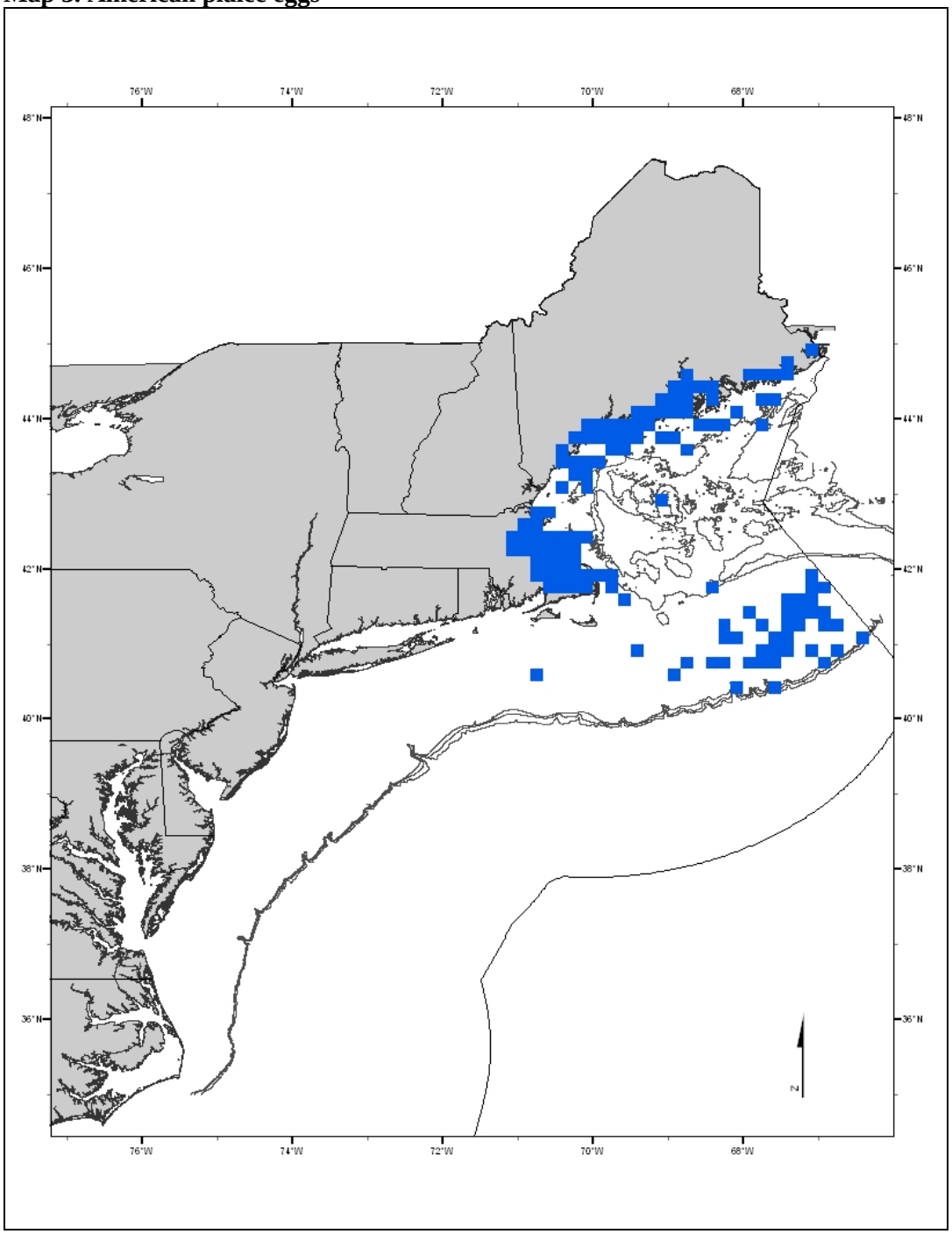
Map 2. Redfish adults



The Alternative 3D EFH designation for redfish adults on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore and off-shelf areas where adult redfish were determined to be present, based on 10% frequency of occurrence in state trawl surveys and off-shelf depth and geographic ranges.

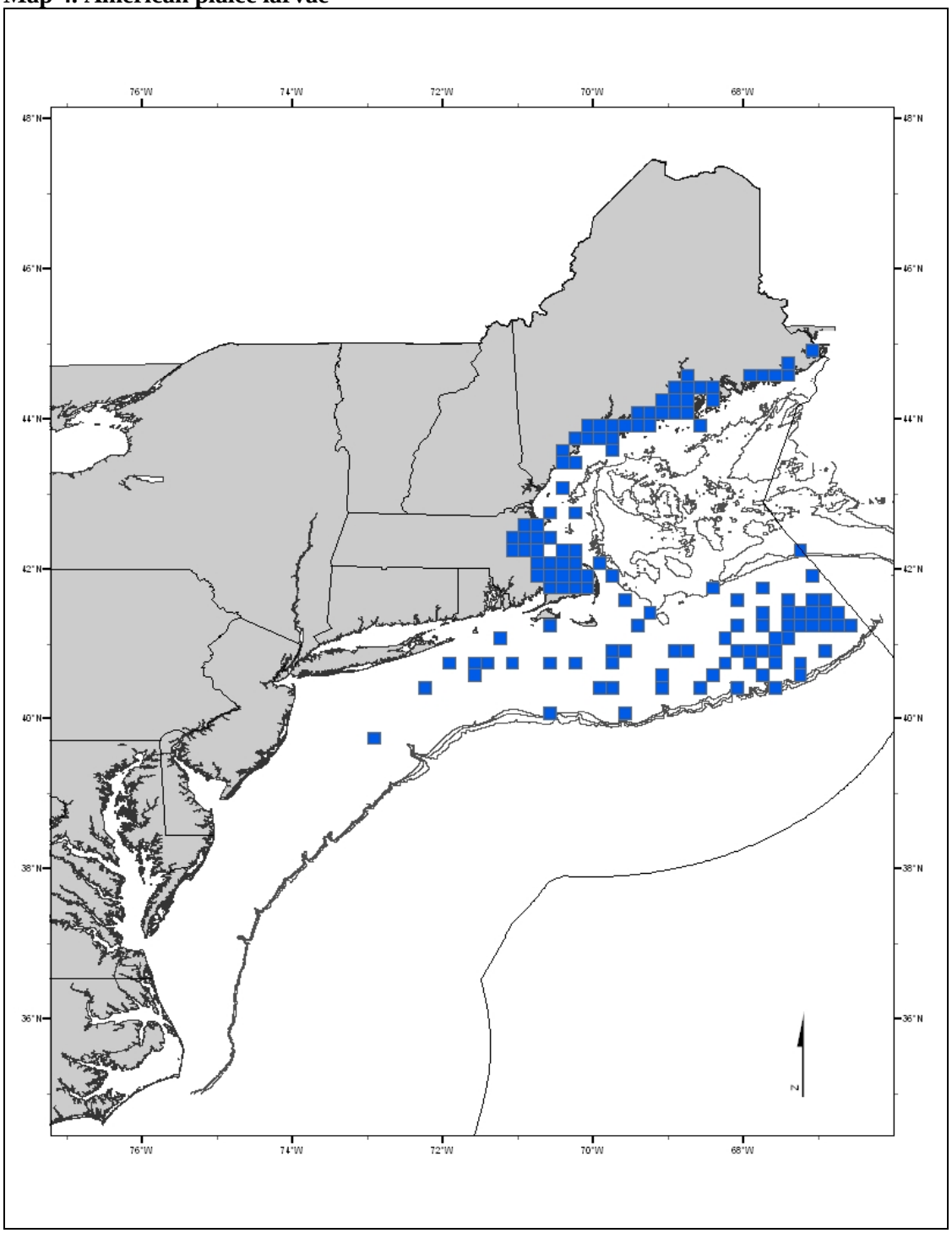
1.2 American plaice

Map 3. American plaice eggs



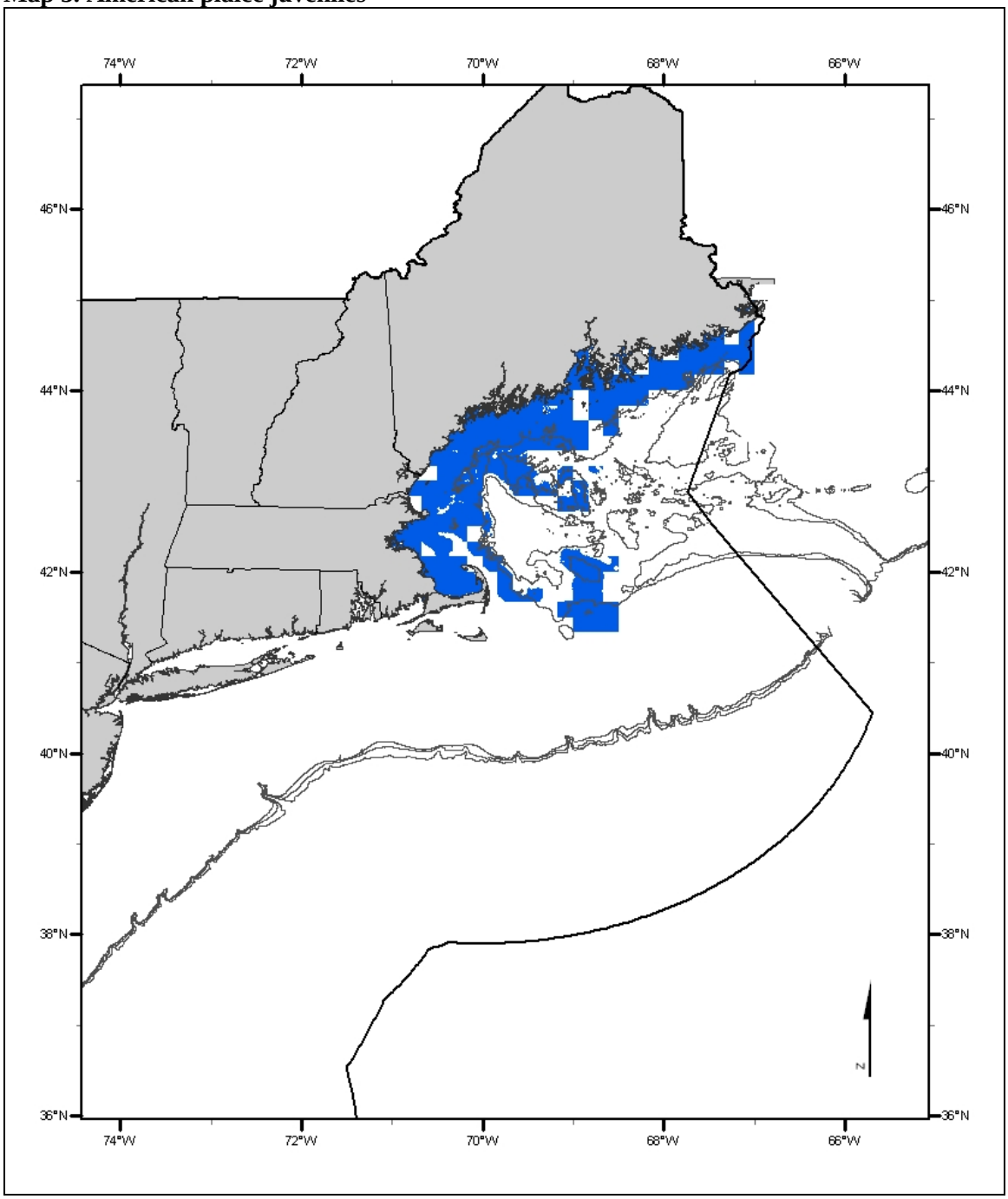
The EFH designation for American plaice eggs is the status quo designation, which was based on the ten minute squares corresponding to the top 75% of the observed range in the 1978-1987 MARMAP survey data. This designation also includes those bays and estuaries identified by the NOAA ELMR program as supporting American plaice eggs at the "common" or "abundant" level. .

Map 4. American plaice larvae



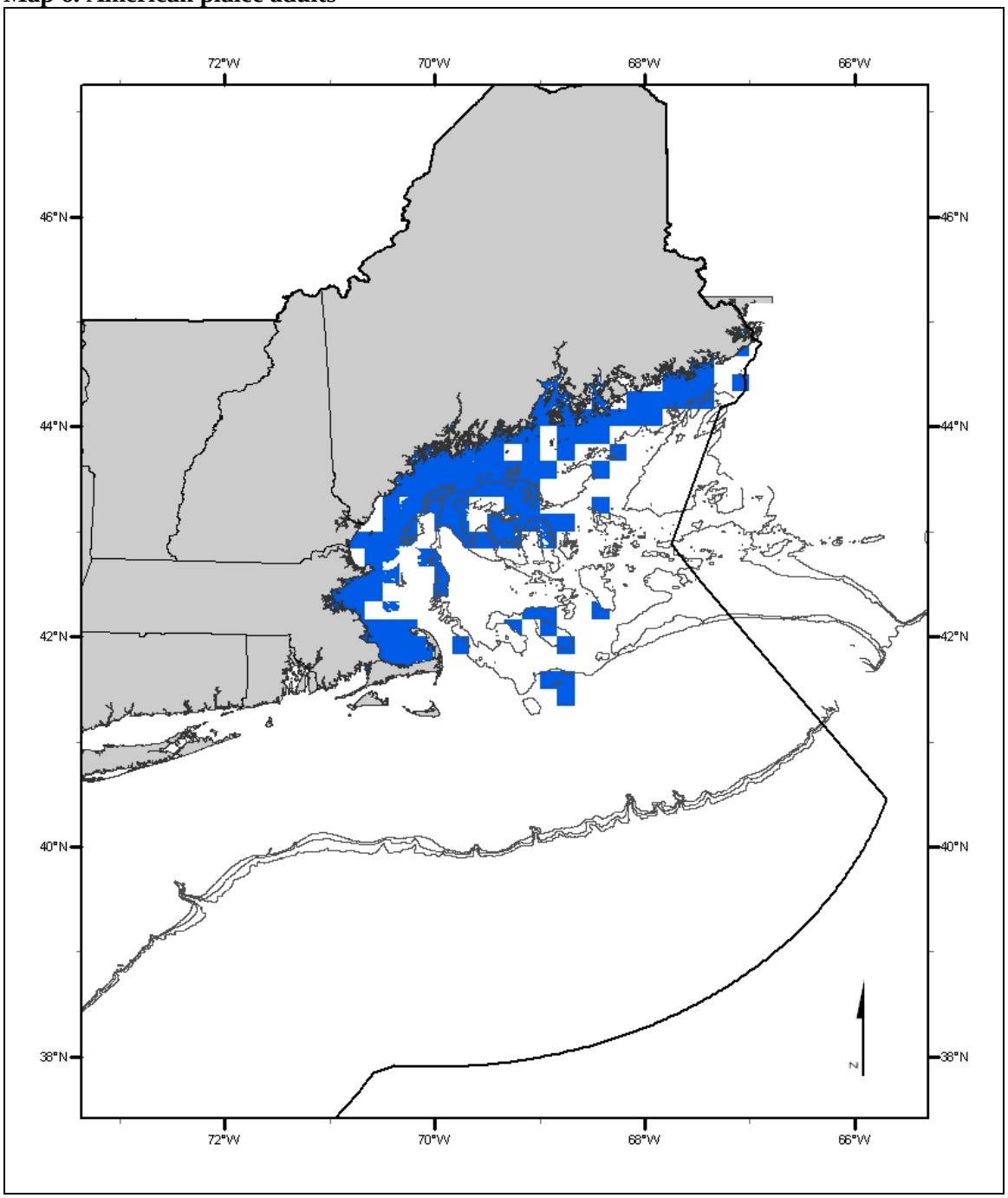
The EFH designation for American plaice larvae is the status quo designation, which was based on the ten minute squares corresponding to the top 75% of the observed range in the 1978-1987 MARMAP survey data. *This designation also includes those bays and estuaries identified by the NOAA ELMR program as supporting American plaice larvae at the "common" or "abundant" level.*

Map 5. American plaice juveniles



The EFH designation for juvenile American plaice on the continental shelf is based on the distribution of substrate types, depths, and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore areas where juvenile American plaice were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

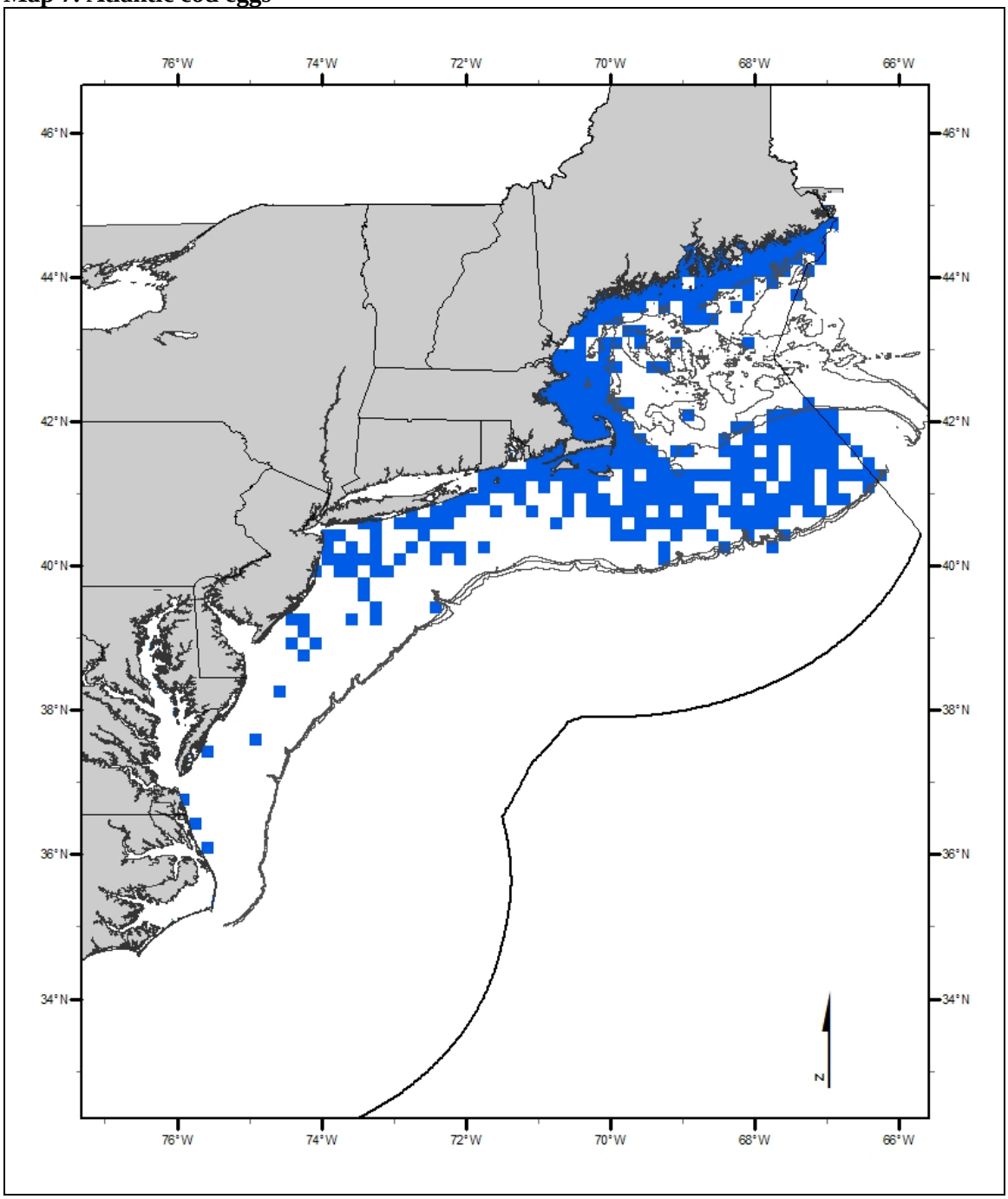
Map 6. American plaice adults



The Alternative 3C EFH designation for adult American plaice on the continental shelf is based on the distribution of substrate types, depths, and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore areas where adult American plaice were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

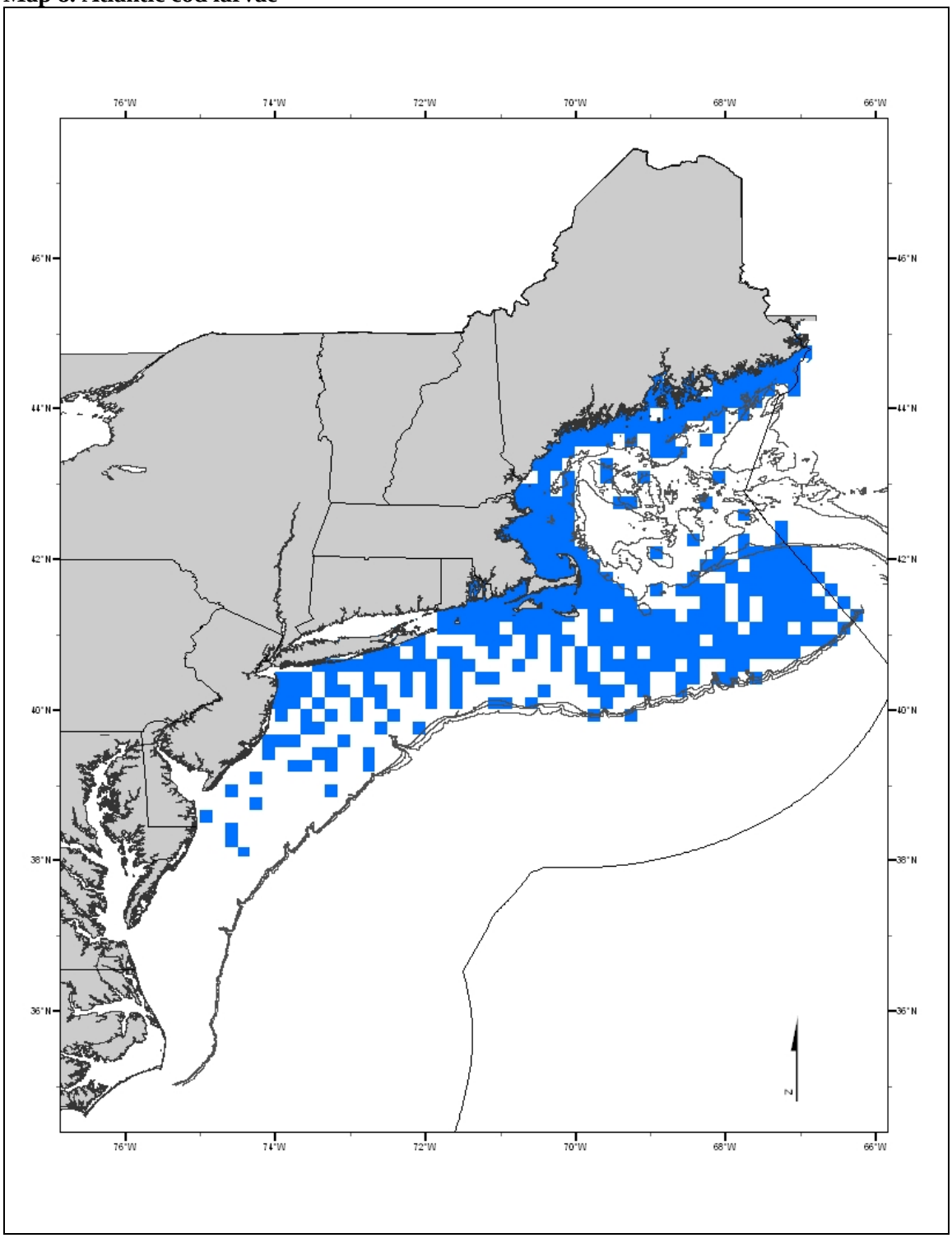
1.3 Atlantic cod

Map 7. Atlantic cod eggs



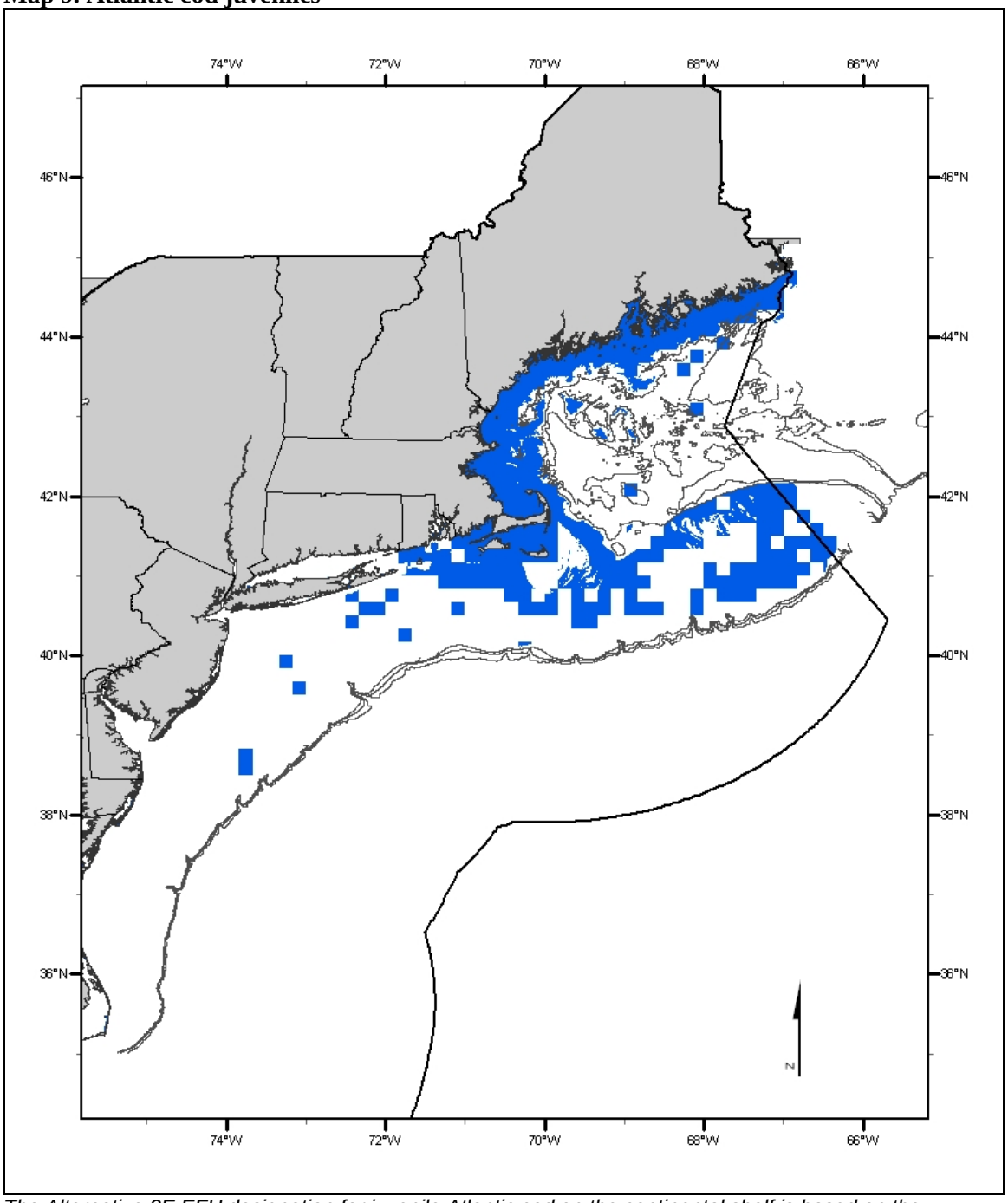
The Alternative 2E EFH designation for Atlantic cod eggs on the continental shelf is based upon the relative abundance of juveniles during 1968-2005 in the fall and spring NMFS trawl survey at the 90% cumulative percentage catch level and the relative abundance of eggs during 1978-1987 in the NMFS MARMAP ichthyoplankton survey at the 90% cumulative percentage area level. Ten minute squares located south of 38°N latitude were not included. This alternative also includes those bays and estuaries identified by the NOAA ELMR program where Atlantic cod eggs were "common" or "abundant."

Map 8. Atlantic cod larvae



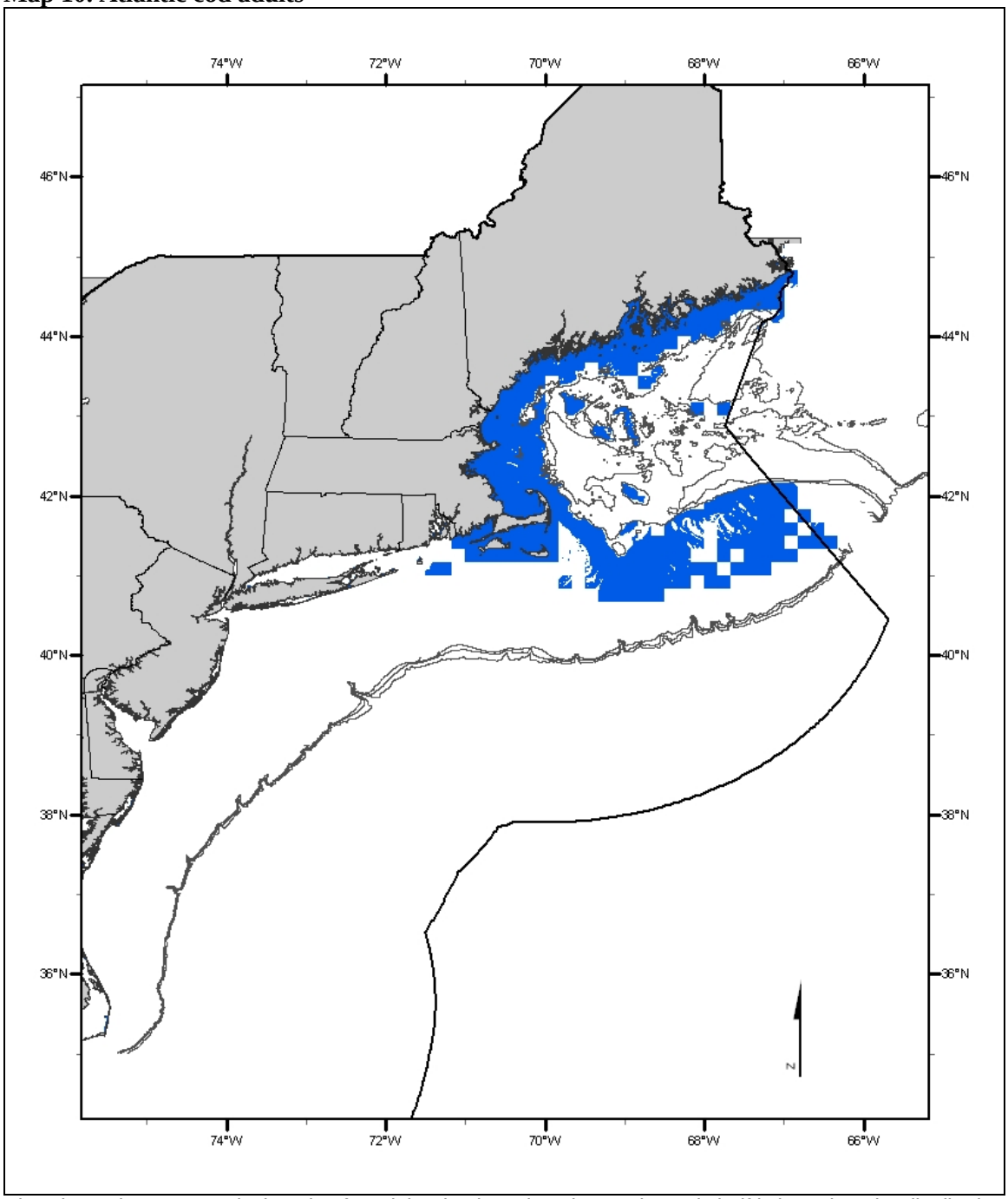
The Alternative 2E EFH designation for Atlantic cod larvae on the continental shelf is based upon the relative abundance of juveniles during 1968-2005 in the fall and spring NMFS trawl survey at the 90% cumulative percentage catch level and the relative abundance of larvae during 1978-1987 in the NMFS MARMAP ichthyoplankton survey at the 90% cumulative percentage area level. Ten minute squares located south of 38°N latitude were not included. This alternative also includes those bays and estuaries identified by the NOAA ELMR program where Atlantic cod larvae were "common" or "abundant."

Map 9. Atlantic cod juveniles



The Alternative 3E EFH designation for juvenile Atlantic cod on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore areas where juvenile Atlantic cod were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information. In addition, 3E includes ten minute squares that were "filled in" along the MA, NH, and ME coasts, including the islands and portions of the Stellwagen Bank National Marine Sanctuary.

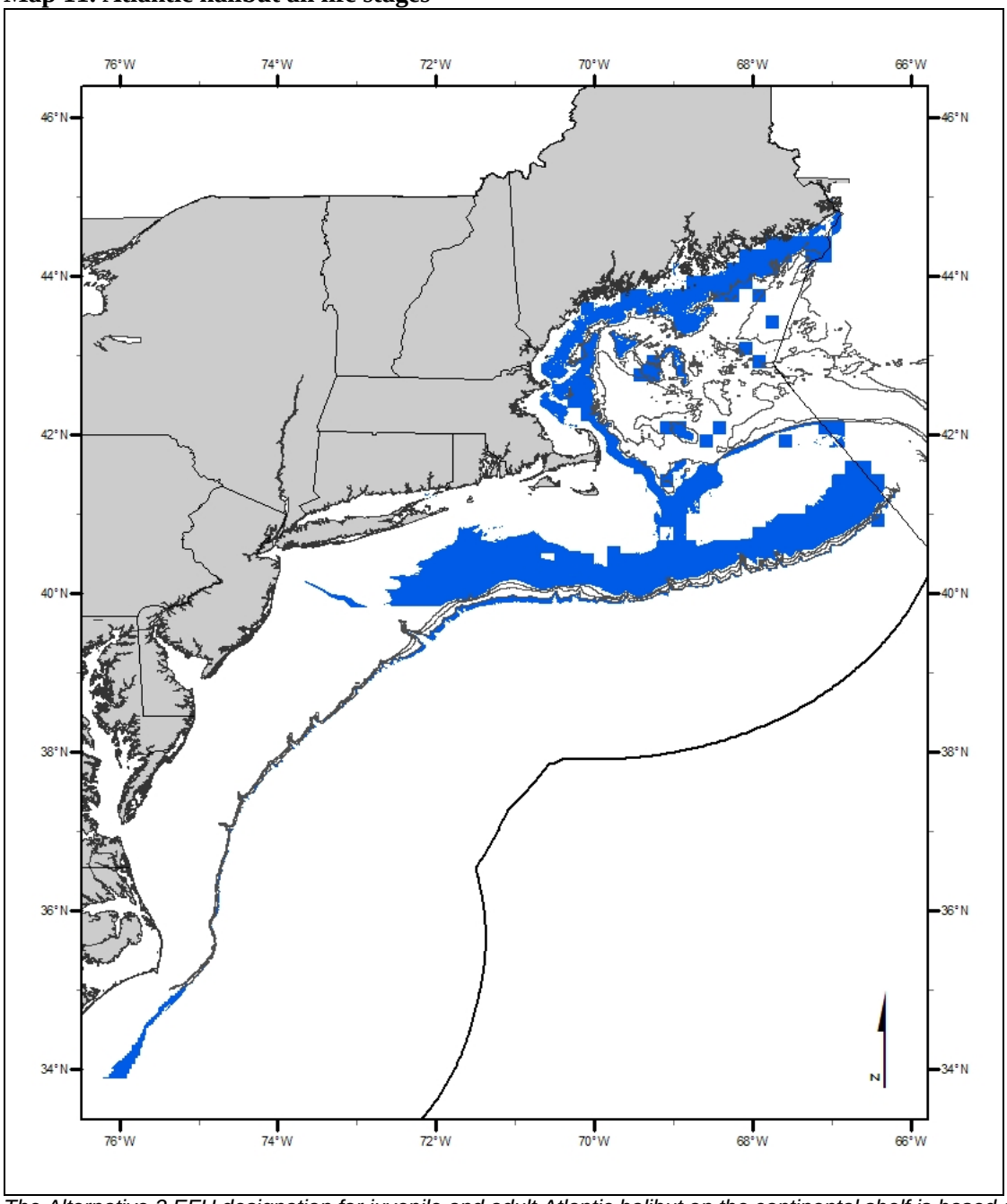
Map 10. Atlantic cod adults



The Alternative 3E EFH designation for adult Atlantic cod on the continental shelf is based on the distribution of substrate types, depths, and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore areas where adult Atlantic cod were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information. In addition, 3E includes ten minute squares that were "filled in" along the MA, NH, and ME coasts, including the islands and portions of the Stellwagen Bank National Marine Sanctuary.

1.4 Atlantic halibut

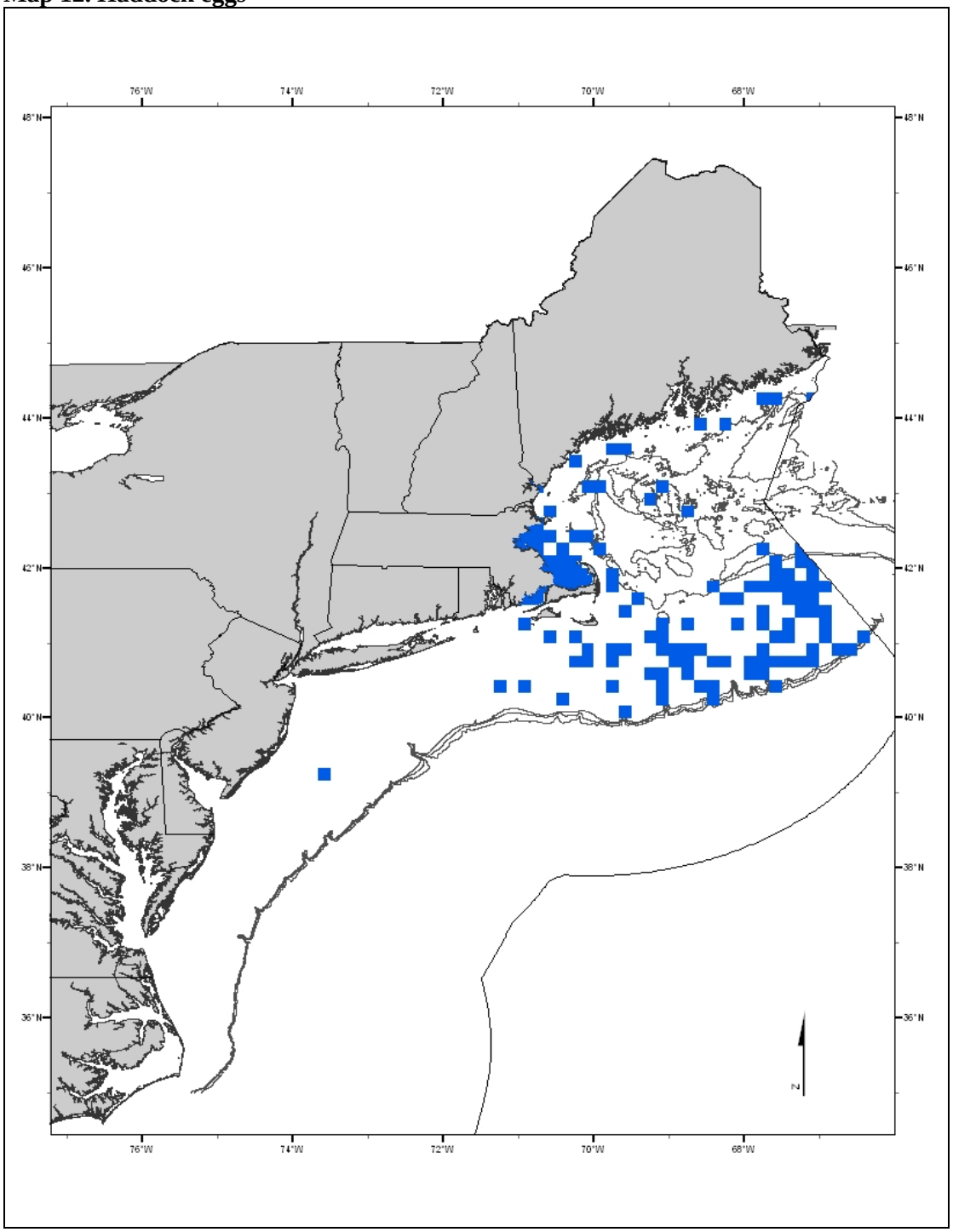
Map 11. Atlantic halibut all life stages



The Alternative 3 EFH designation for juvenile and adult Atlantic halibut on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles or adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles or adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore and off-shelf areas where juvenile or adult Atlantic halibut were determined to be present, based on 10% frequency of occurrence in state trawl surveys, ELMR information, and off-shelf depth and geographic ranges.

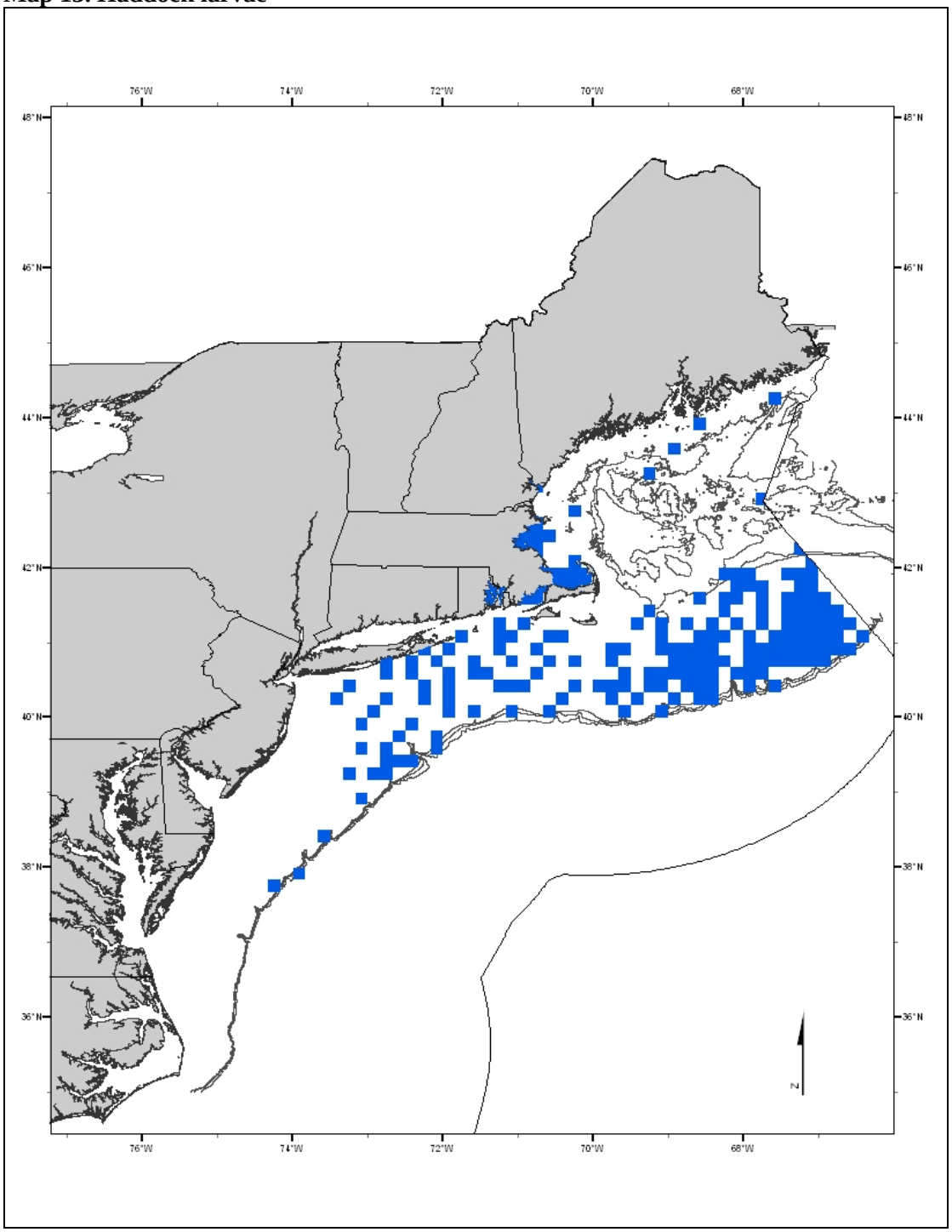
1.5 Haddock

Map 12. Haddock eggs



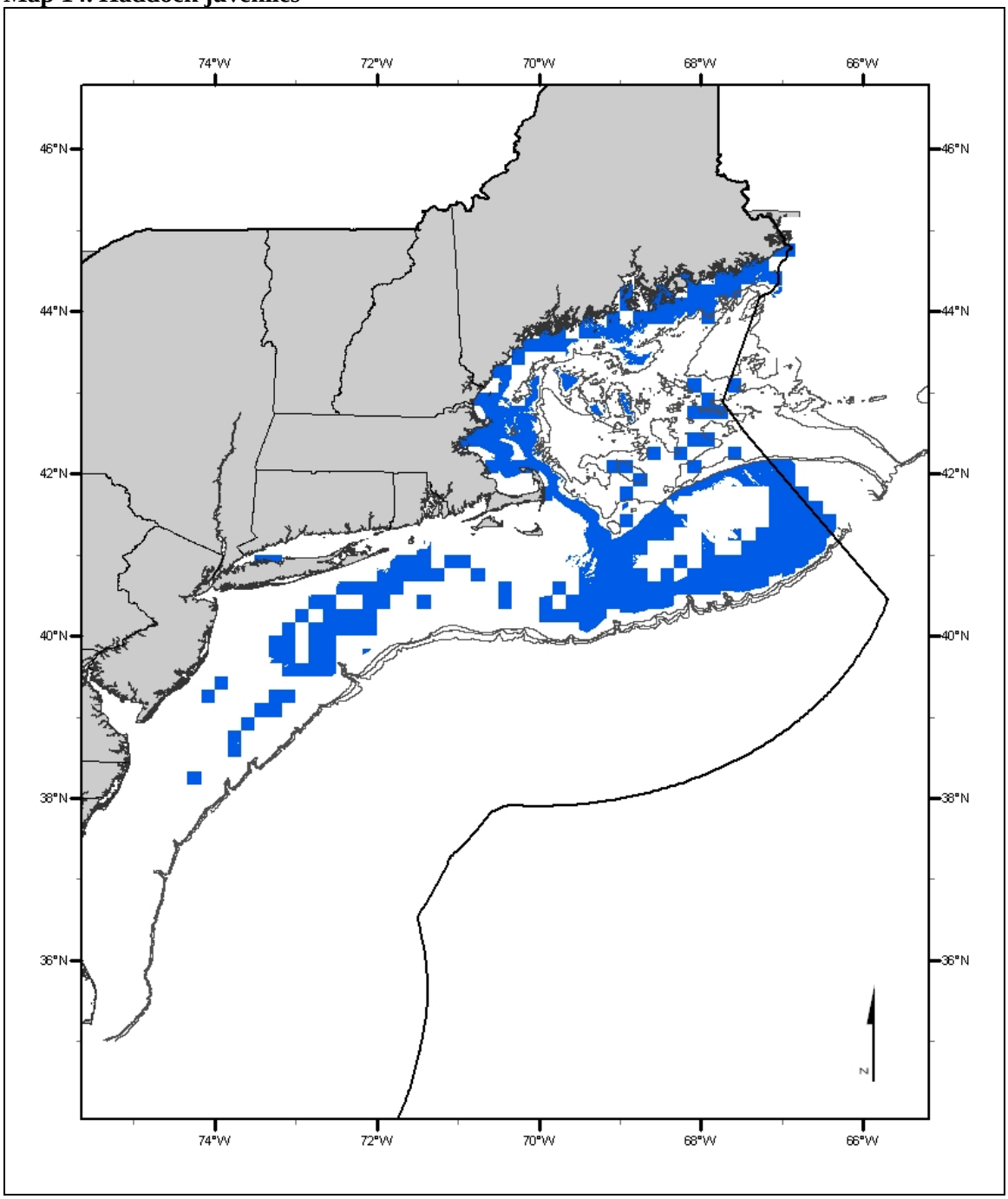
The EFH designation for haddock eggs is the status quo designation, which was based on the ten minute squares corresponding to 100% of the observed range in the 1978-1987 MARMAP survey data. *In addition it includes those bays and estuaries identified in the NOAA ELMR program as supporting haddock eggs at the "rare", "common", or "abundant" level.*

Map 13. Haddock larvae



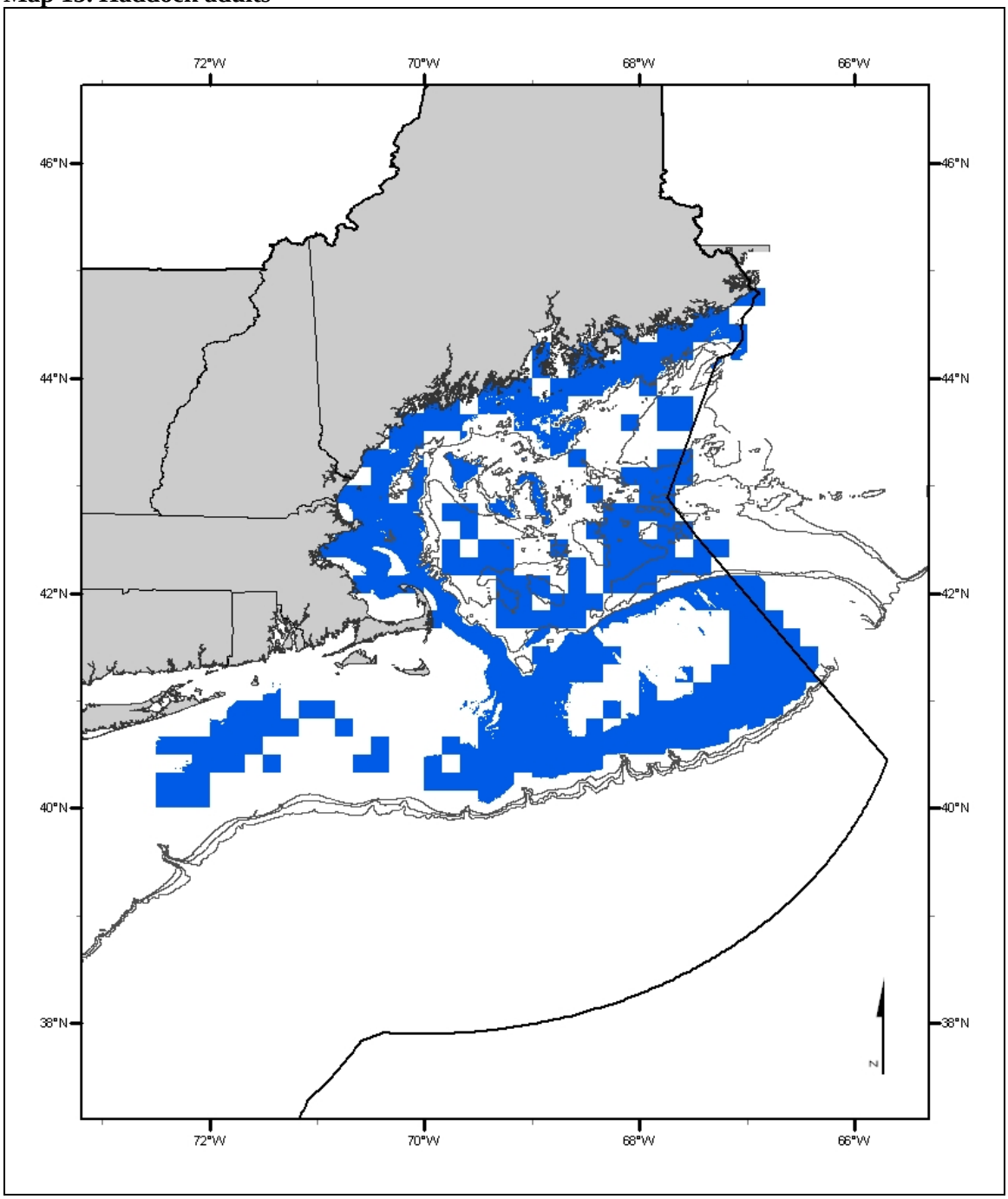
The EFH designation for haddock larvae is the status quo designation, which was based on the ten minute squares corresponding to 100% of the observed range in the 1978-1987 MARMAP survey data. *In addition it includes those bays and estuaries identified in the NOAA ELMR program as supporting haddock larvae at the "rare", "common", or "abundant" level.*

Map 14. Haddock juveniles



The Alternative 3D EFH designation for juvenile haddock on the continental shelf is based on the distribution of substrate types, depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore areas where juvenile haddock were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

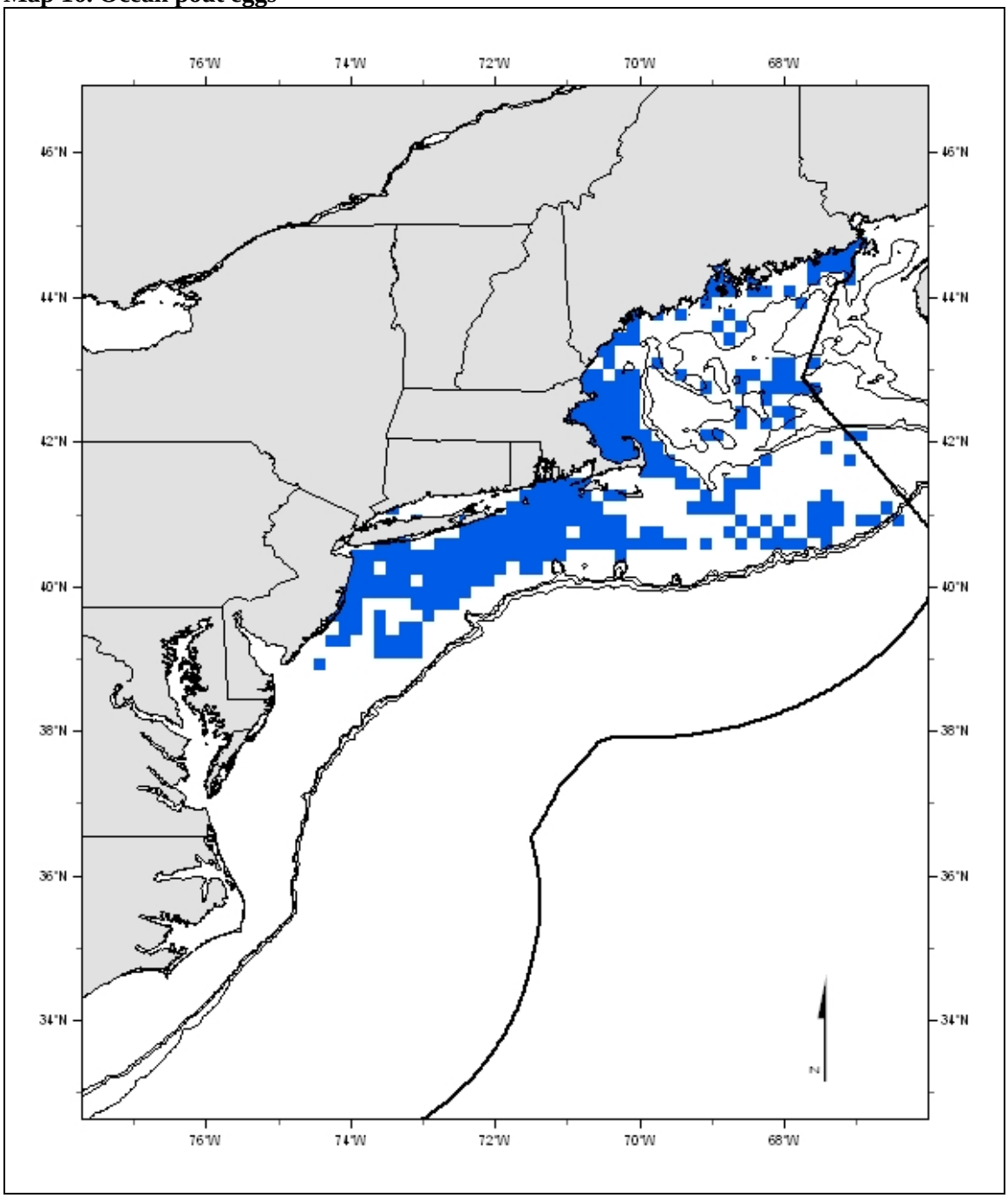
Map 15. Haddock adults



The Alternative 3E EFH designation for adult haddock is the union of the 3D designation for juvenile haddock and the 3D designation for adult haddock, bounded at the western and southern extent of the adult 3D map.

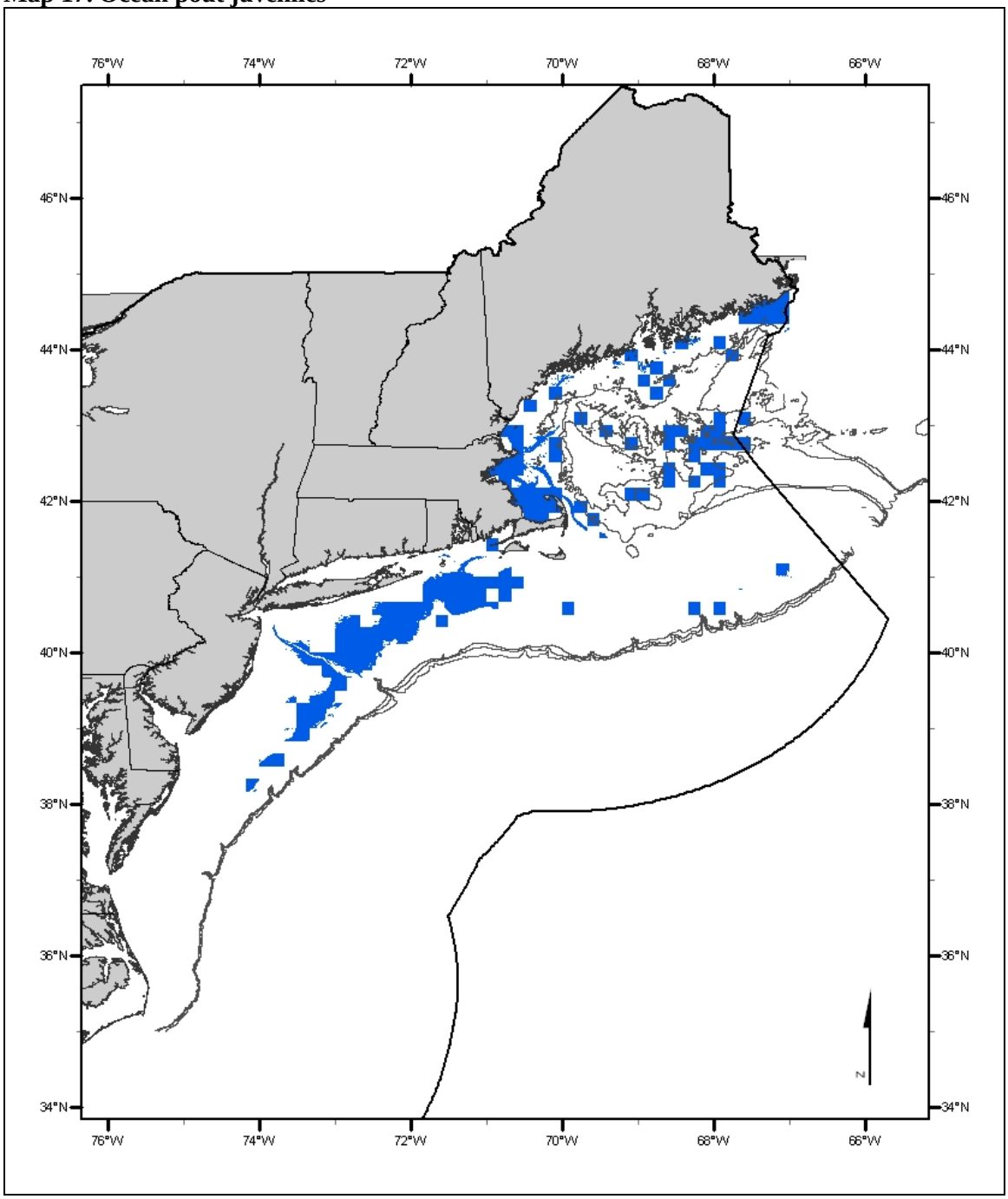
1.6 Ocean pout

Map 16. Ocean pout eggs



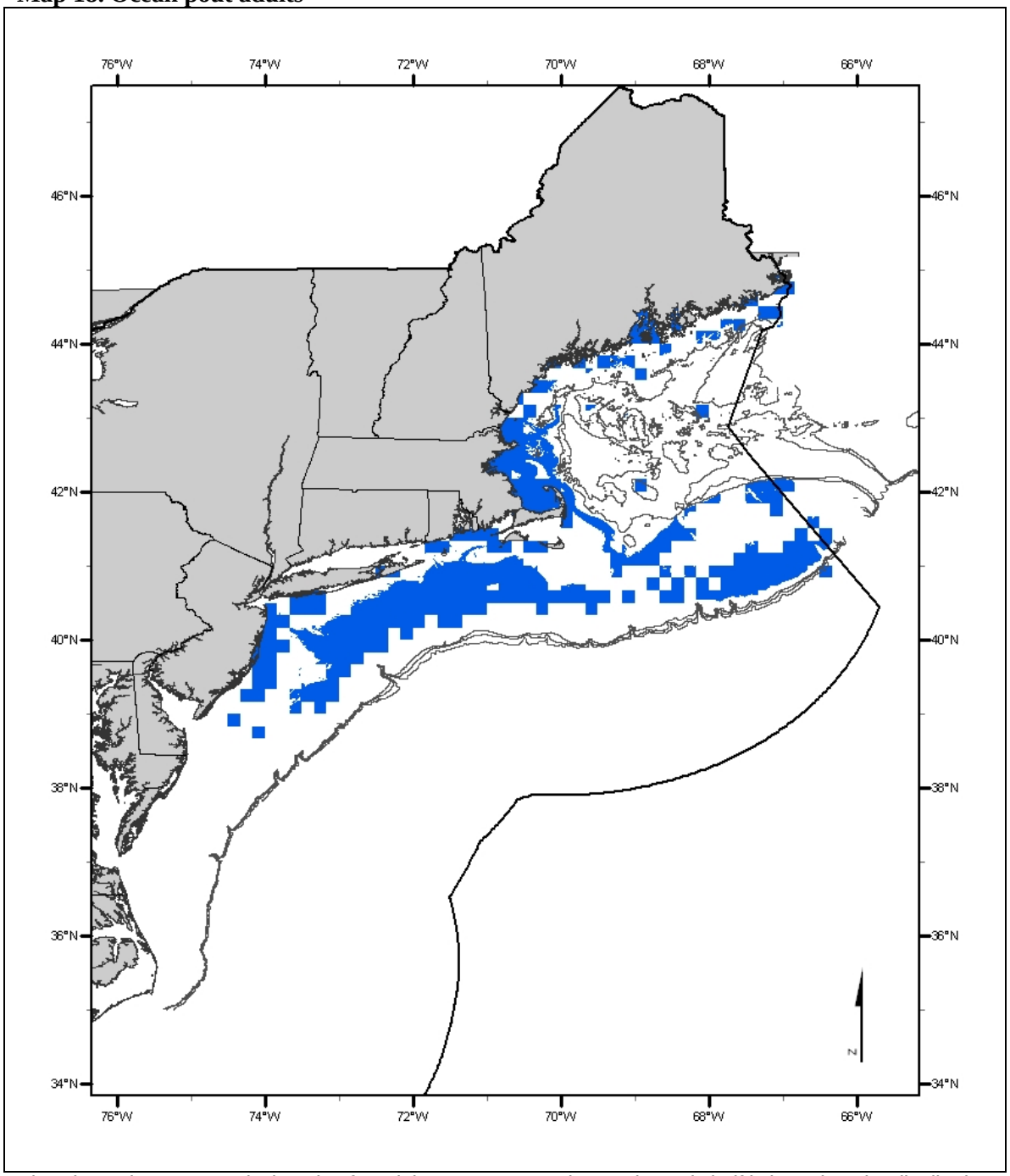
The Alternative 2C EFH designation for ocean pout eggs on the continental shelf is based upon the relative abundance of juveniles and adults during 1968-2005 in the fall and spring NMFS trawl survey at the 75% cumulative percentage level. This alternative also includes ten minute squares in inshore areas where juvenile or adult ocean pout were caught in state trawl surveys in more than 10% of the tows, as well as those bays and estuaries identified by the NOAA ELMR program where ocean pout juveniles or adults were "common" or "abundant."

Map 17. Ocean pout juveniles



The Alternative 3C EFH designation for juvenile ocean pout on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore areas where juvenile ocean pout were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

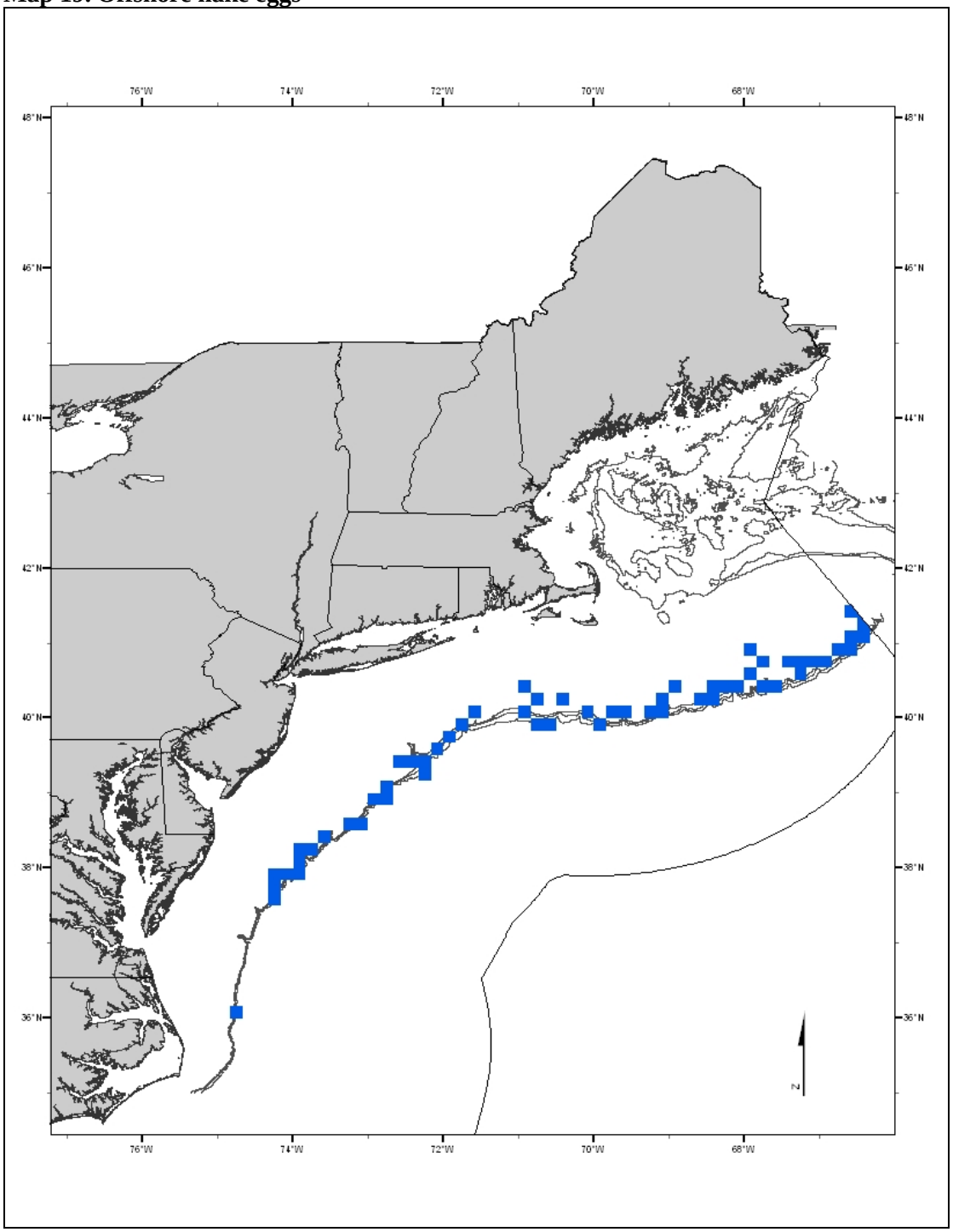
Map 18. Ocean pout adults



The Alternative 3C EFH designation for adult ocean pout on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore areas where adult ocean pout were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

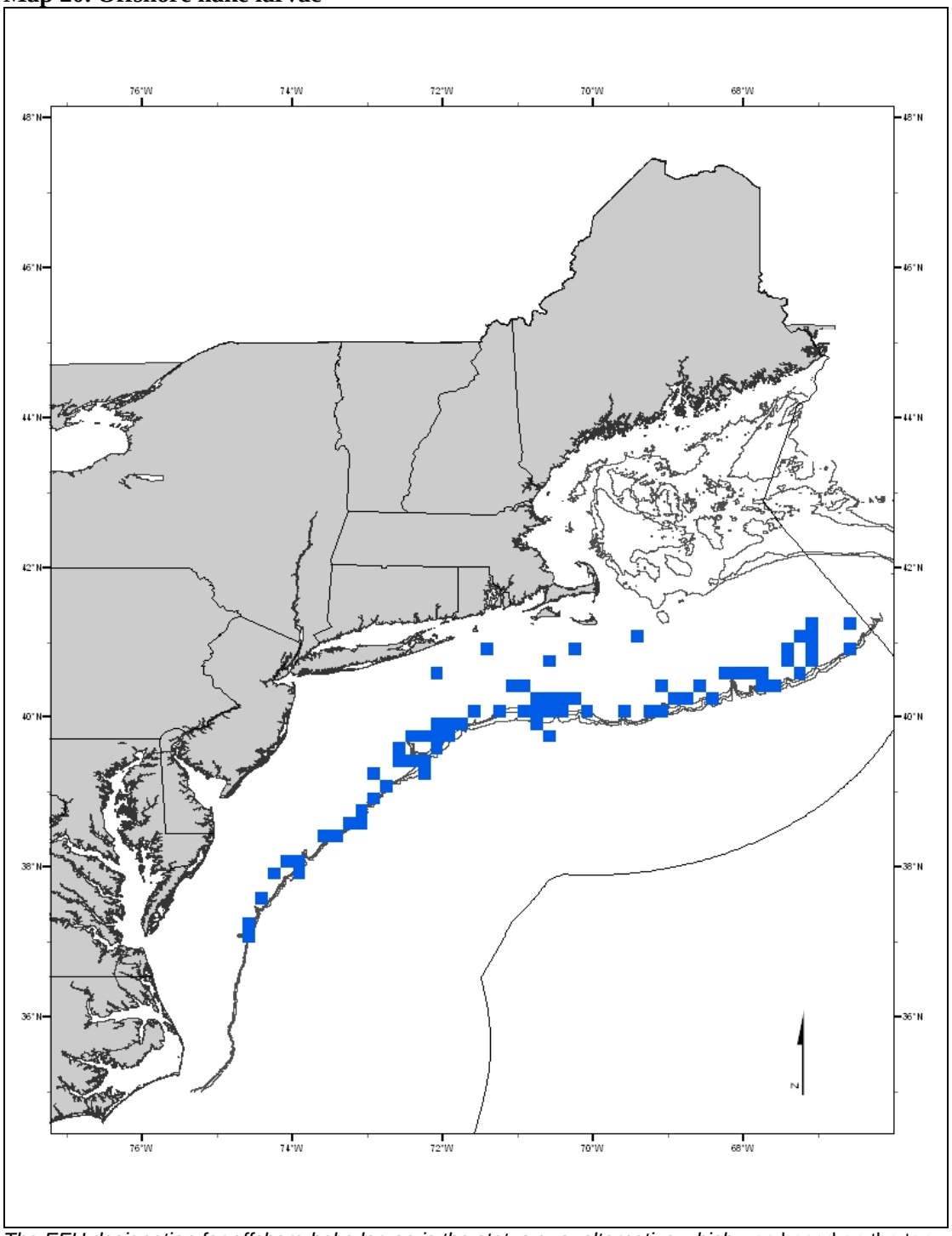
1.7 Offshore hake

Map 19. Offshore hake eggs



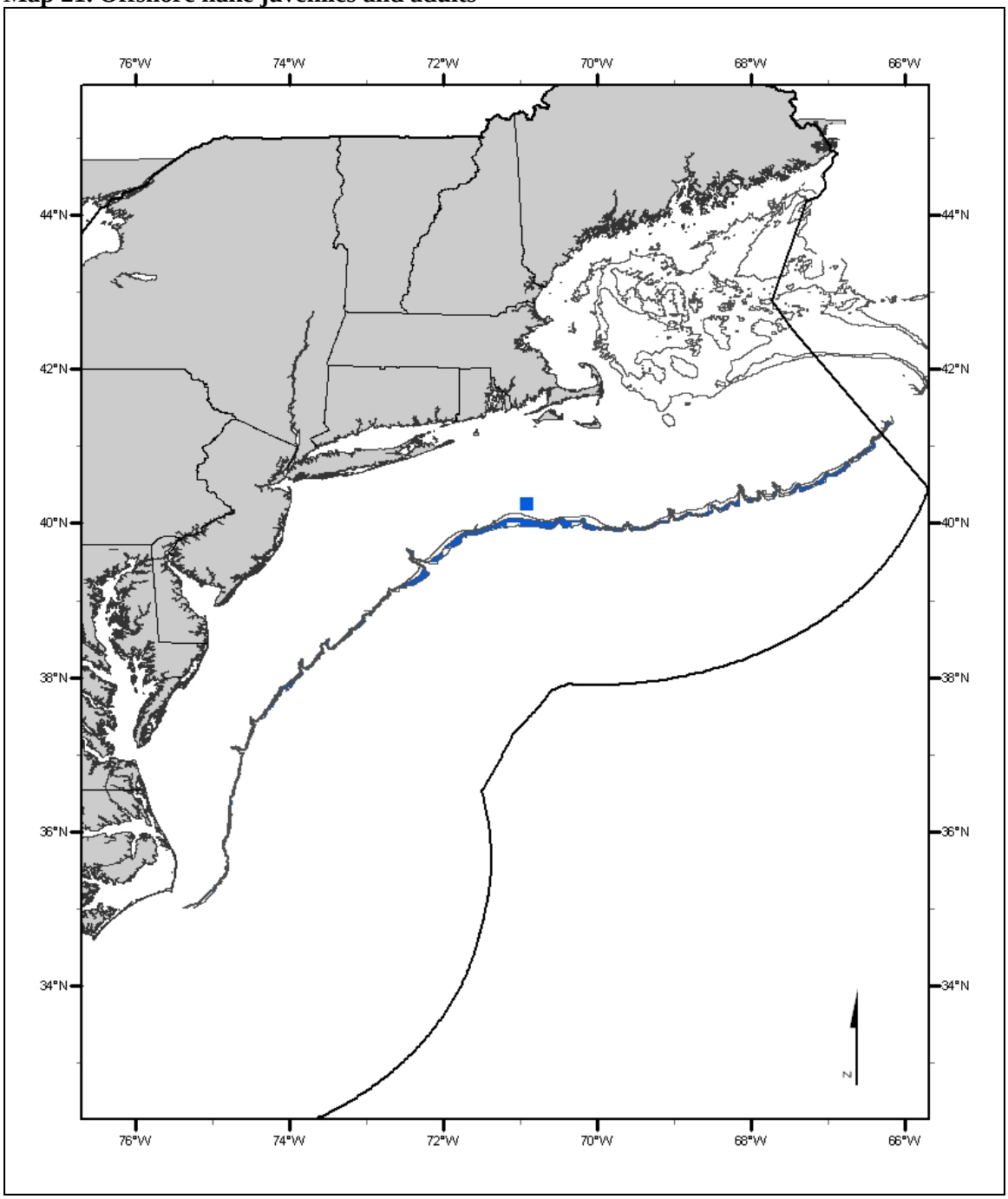
The EFH designation for offshore hake eggs is the status quo alternative which was based on the ten minute squares corresponding to the top 75% of the observed range in the 1978-1987 MARMAP survey data.

Map 20. Offshore hake larvae



The EFH designation for offshore hake larvae is the status quo alternative which was based on the ten minute squares corresponding to the top 75% of the observed range in the 1978-1987 MARMAP survey data.

Map 21. Offshore hake juveniles and adults

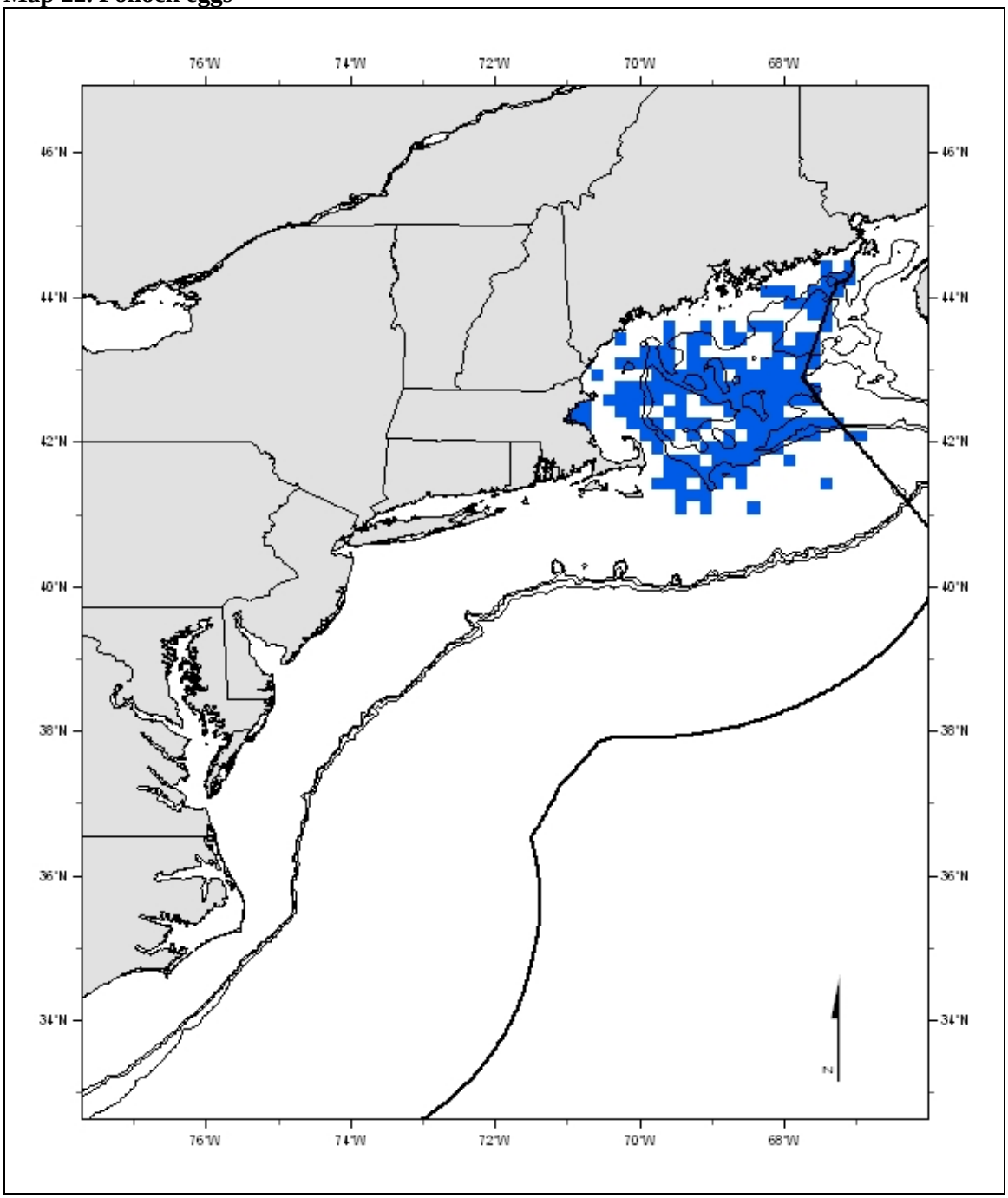


The Alternative 5 EFH designation for juvenile and adult offshore hake combines Alternative 3E for juveniles and 3D for adults. This alternative is based on off-shelf areas where juvenile and adult offshore hake were determined to be present, based on depth and geographic ranges, and also includes one ten minute square where the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys reached the 90% cumulative percentage of catch level.

NOTE: The correct map was never created – this is the juvenile offshore hake map.

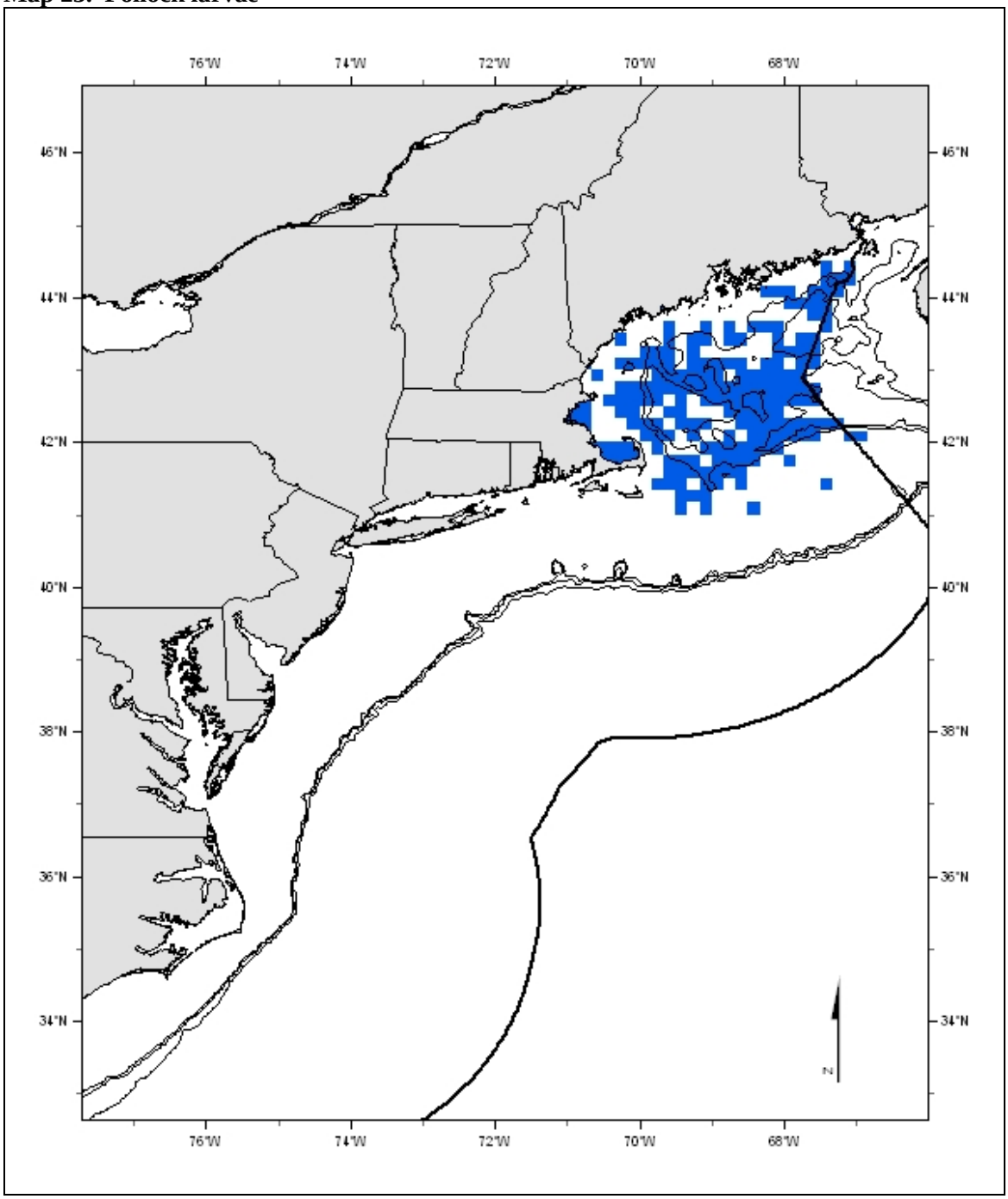
1.8 Pollock

Map 22. Pollock eggs



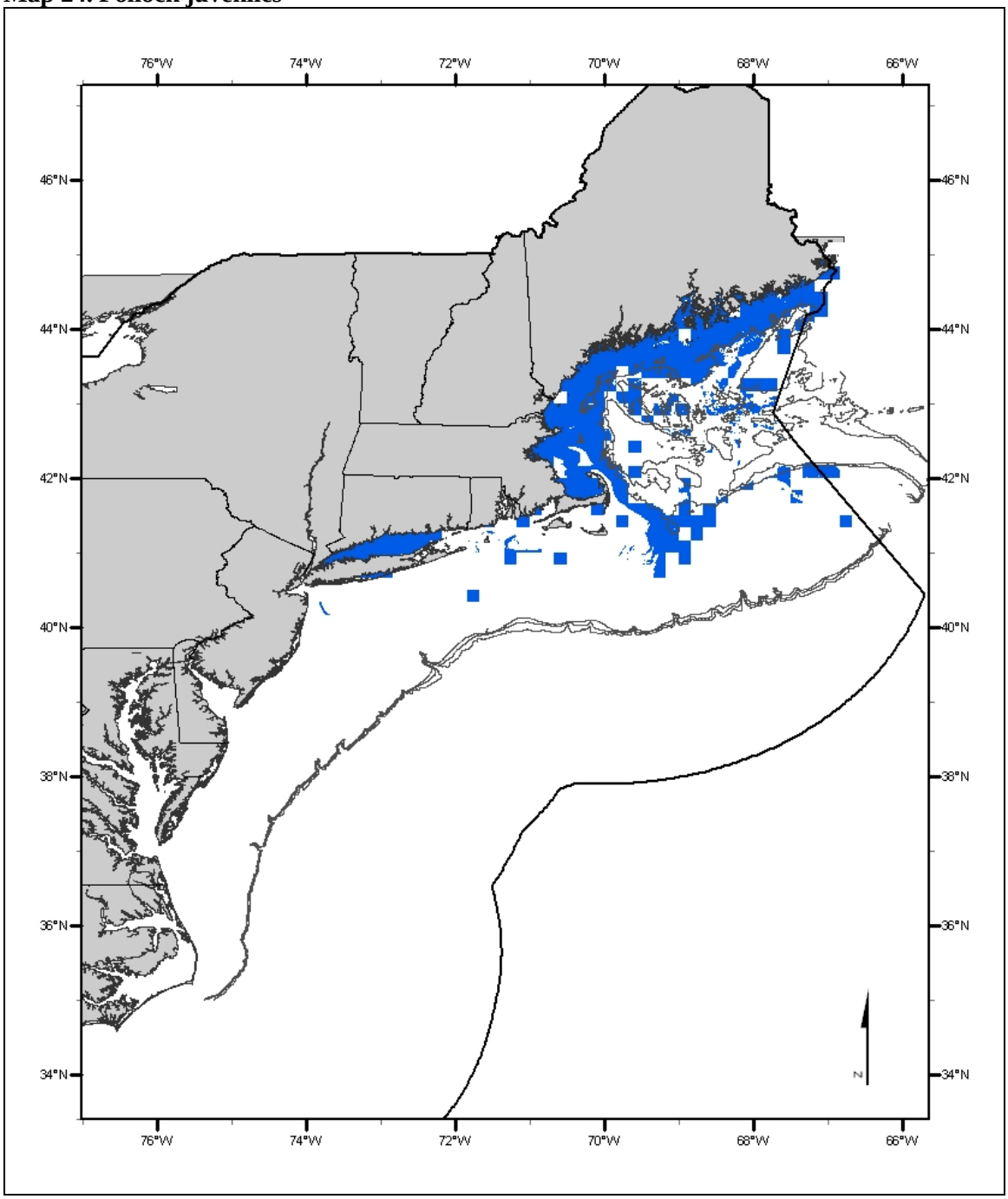
The Alternative 2D EFH designation for pollock eggs on the continental shelf is based upon the relative abundance of adult pollock during 1968-2005 in the fall and spring NMFS trawl survey at the 90% cumulative percentage level. This alternative also includes ten minute squares in inshore areas where adult pollock were caught in state trawl surveys in more than 10% of the tows, as well as those bays and estuaries identified by the NOAA ELMR program where pollock eggs were "common" or "abundant."

Map 23. Pollock larvae



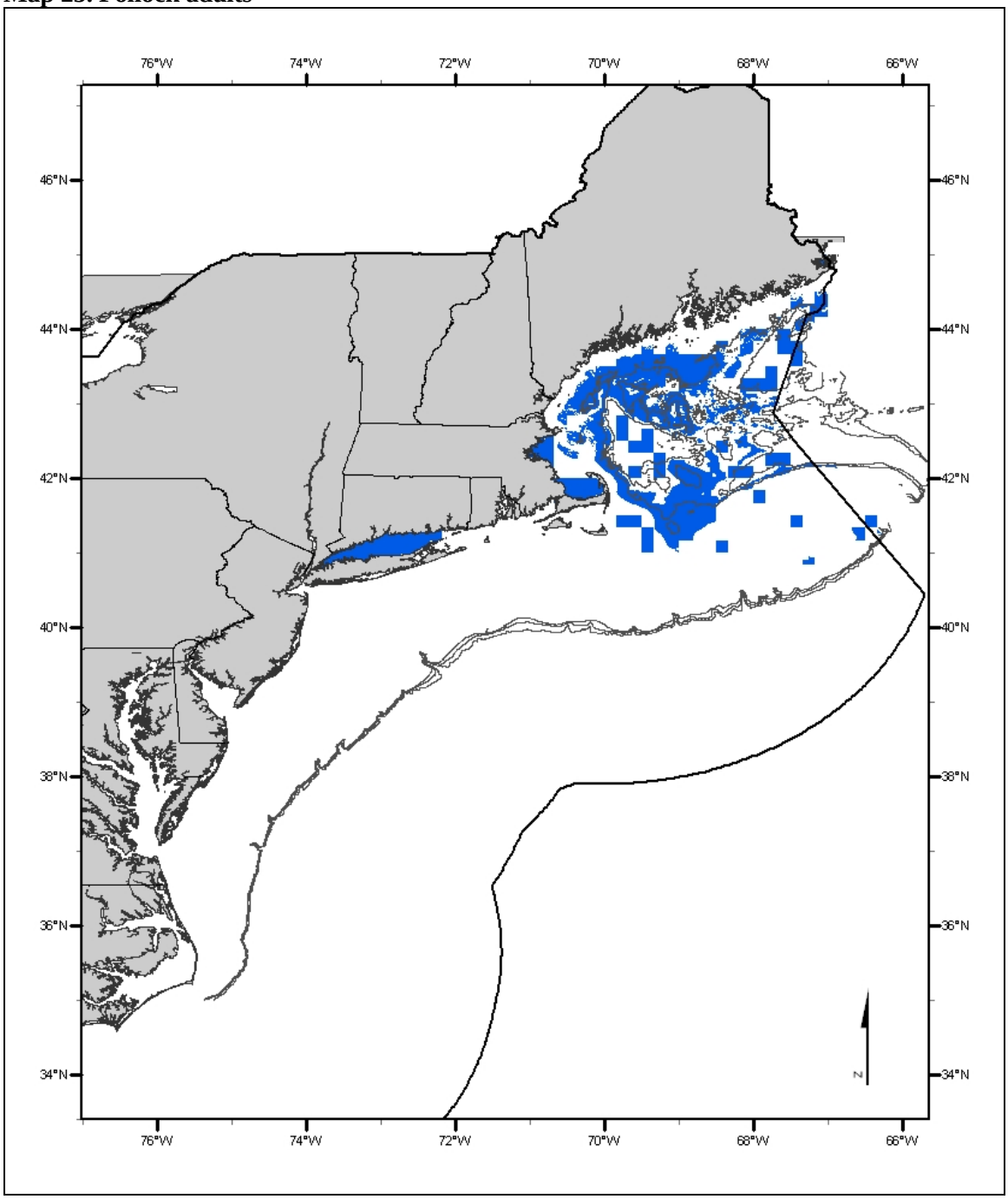
The Alternative 2D EFH designation for pollock larvae on the continental shelf is based upon the relative abundance of adult pollock during 1968-2005 in the fall and spring NMFS trawl survey at the 90% cumulative percentage level. This alternative also includes ten minute squares in inshore areas where adult pollock were caught in state trawl surveys in more than 10% of the tows, as well as those bays and estuaries identified by the NOAA ELMR program where pollock larvae were "common" or "abundant."

Map 24. Pollock juveniles



The Alternative 3D EFH designation for juvenile pollock on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore areas where juvenile pollock were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

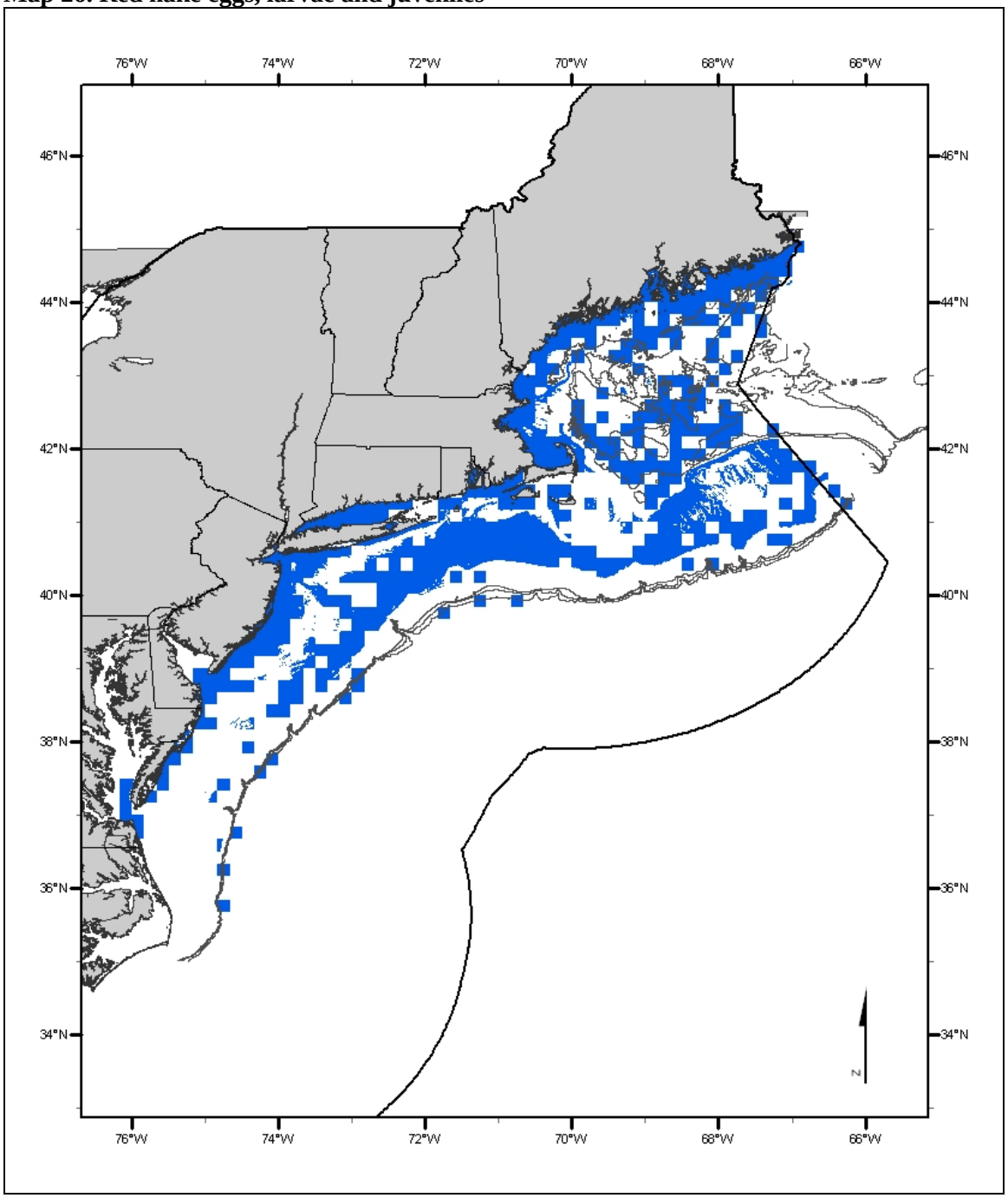
Map 25. Pollock adults



The Alternative 3D EFH designation for adult pollock on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore areas where adult pollock were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

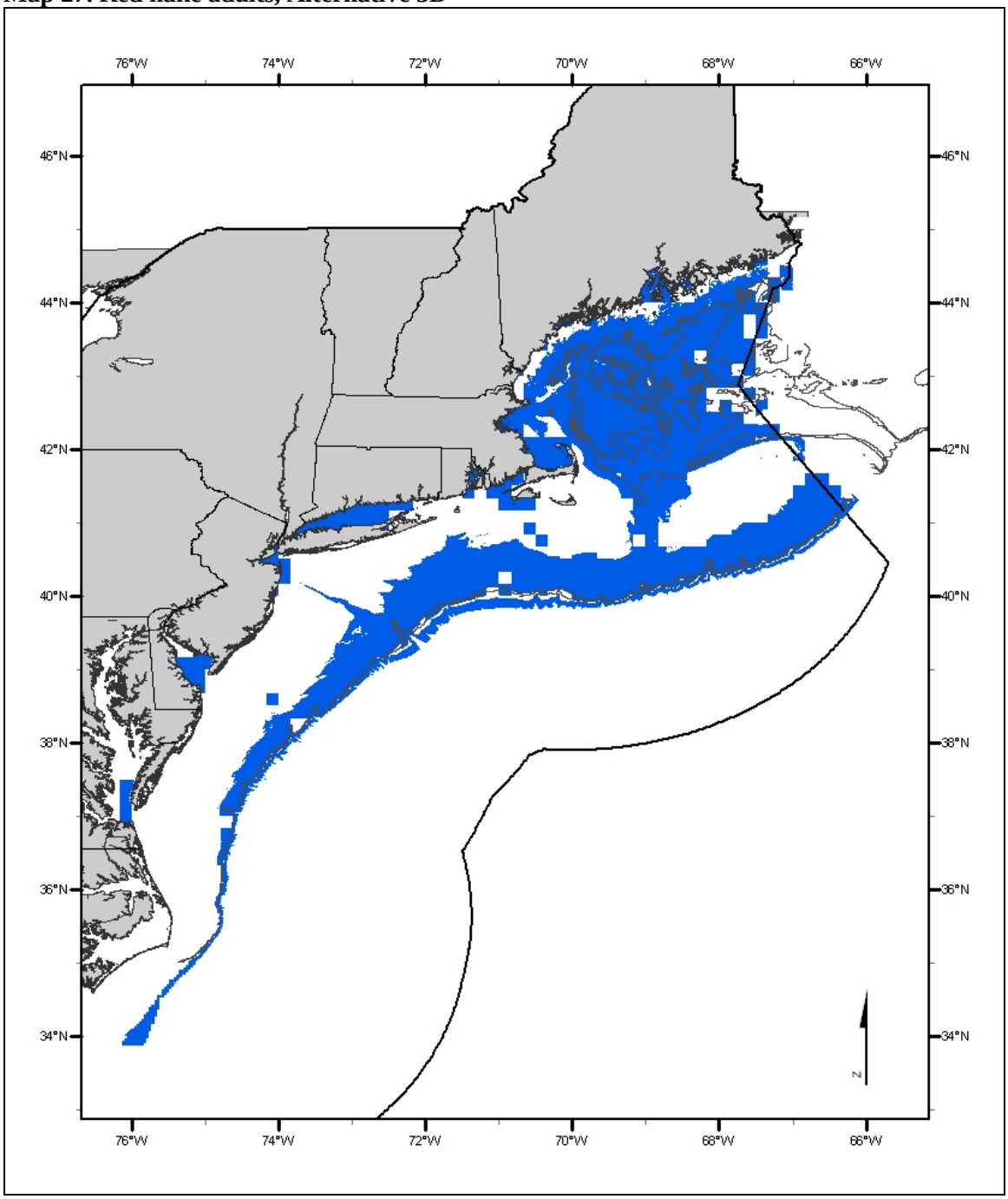
1.9 Red hake

Map 26. Red hake eggs, larvae and juveniles



The Alternative 3C EFH designation for red hake eggs, larvae, and juveniles on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore areas where juvenile red hake were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

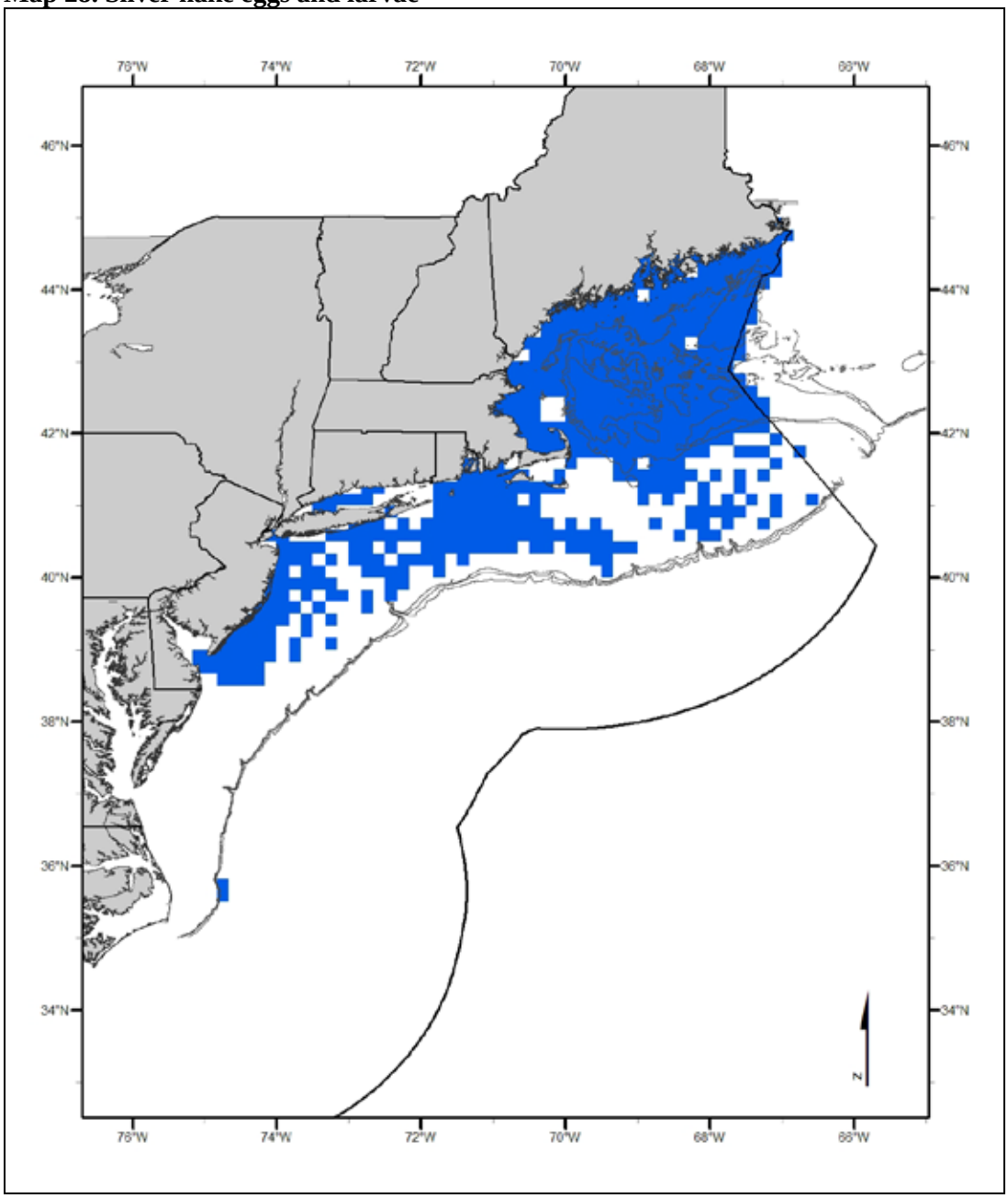
Map 27. Red hake adults, Alternative 3D



The Alternative 3D EFH designation for adult red hake on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore and off-shelf areas where adult red hake were determined to be present, based on 10% frequency of occurrence in state trawl surveys, ELMR information, and off-shelf depth and geographic ranges.

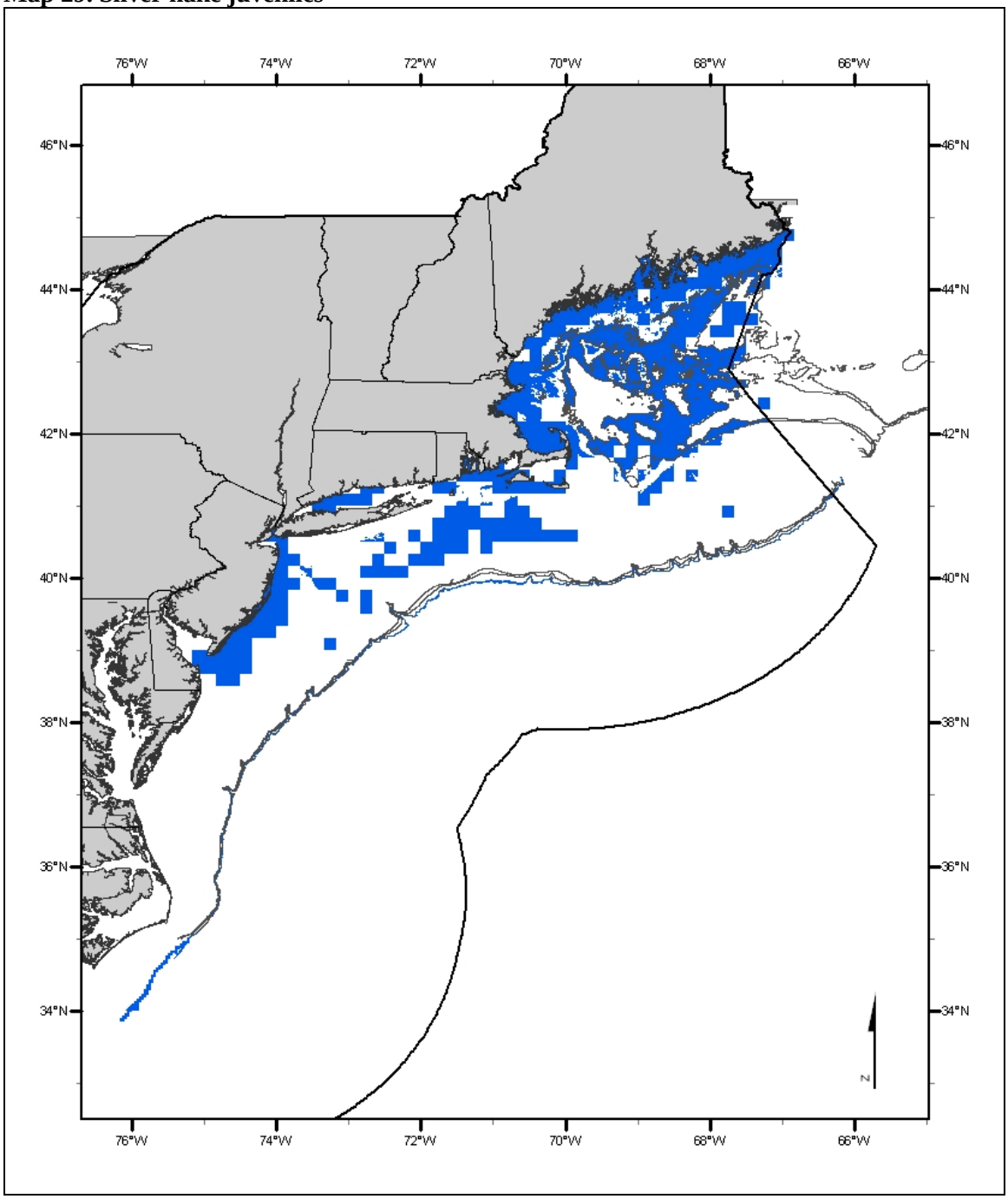
1.10 Silver hake

Map 28. Silver hake eggs and larvae



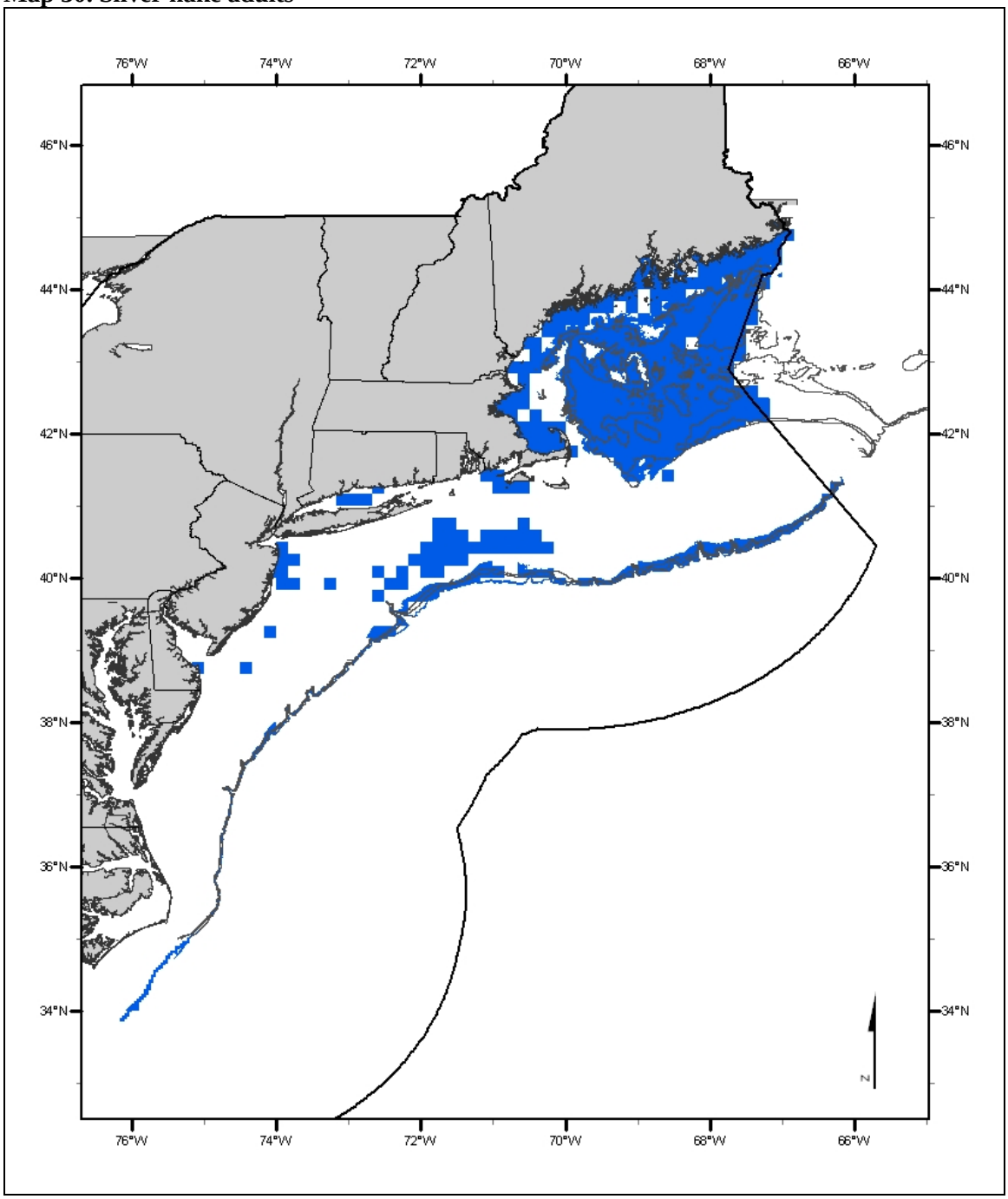
The Alternative 2D EFH designation for silver hake eggs and larvae on the continental shelf is based upon the relative abundance of juvenile silver hake during 1968-2005 in the fall and spring NMFS trawl survey at the 90% cumulative percentage level. This alternative also includes ten minute squares in inshore areas where juvenile silver hake were caught in state trawl surveys in more than 10% of the tows and those bays and estuaries identified by the NOAA ELMR program where silver hake eggs and larvae were "common" or "abundant."

Map 29. Silver hake juveniles



The Alternative 3C EFH designation for juvenile silver hake on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore areas where juvenile red hake were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

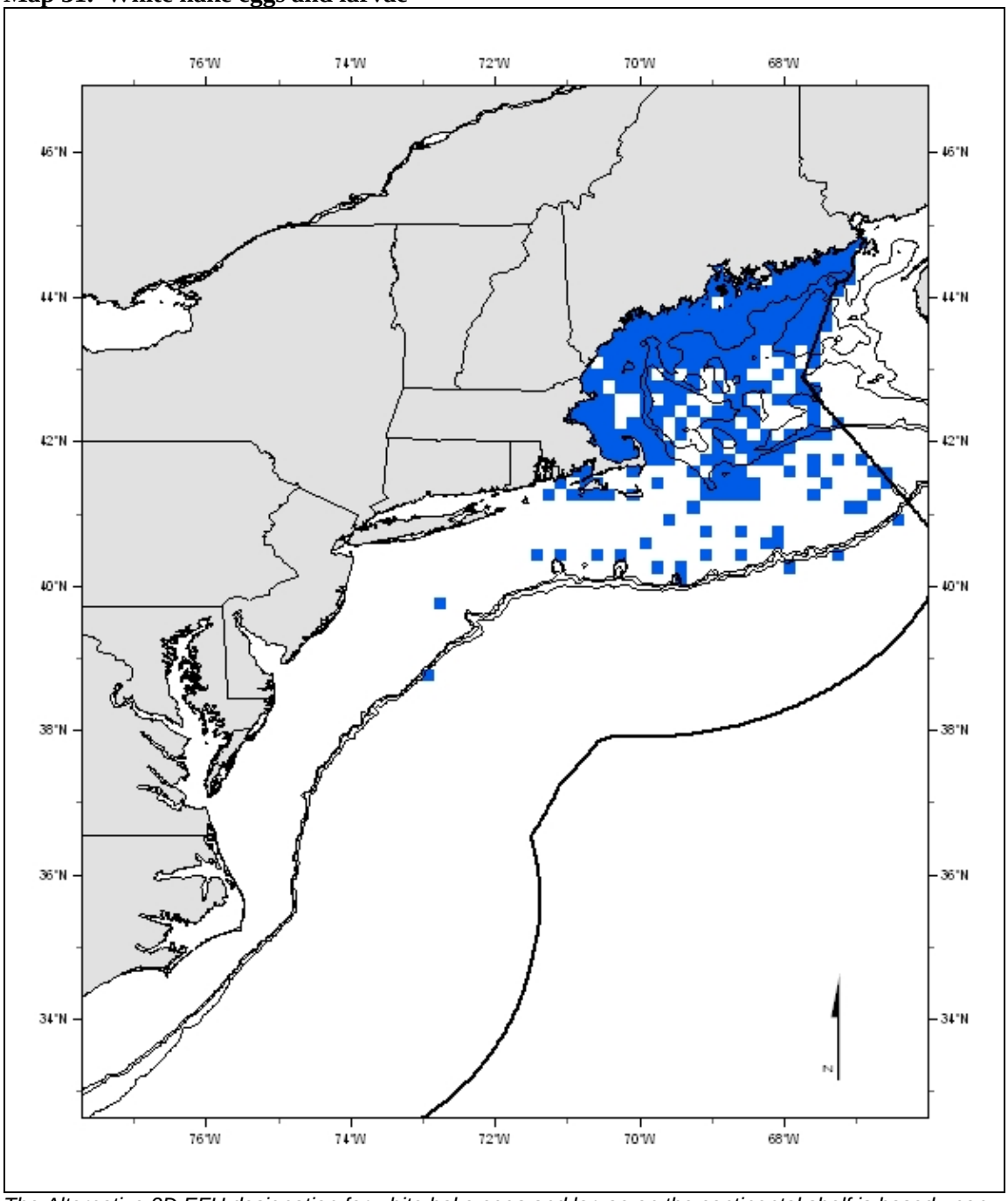
Map 30. Silver hake adults



The Alternative 3C EFH designation for adult silver hake on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore and off-shelf areas where adult silver hake were determined to be present, based on 10% frequency of occurrence in state trawl surveys, ELMR information, and off-shelf depth and geographic ranges.

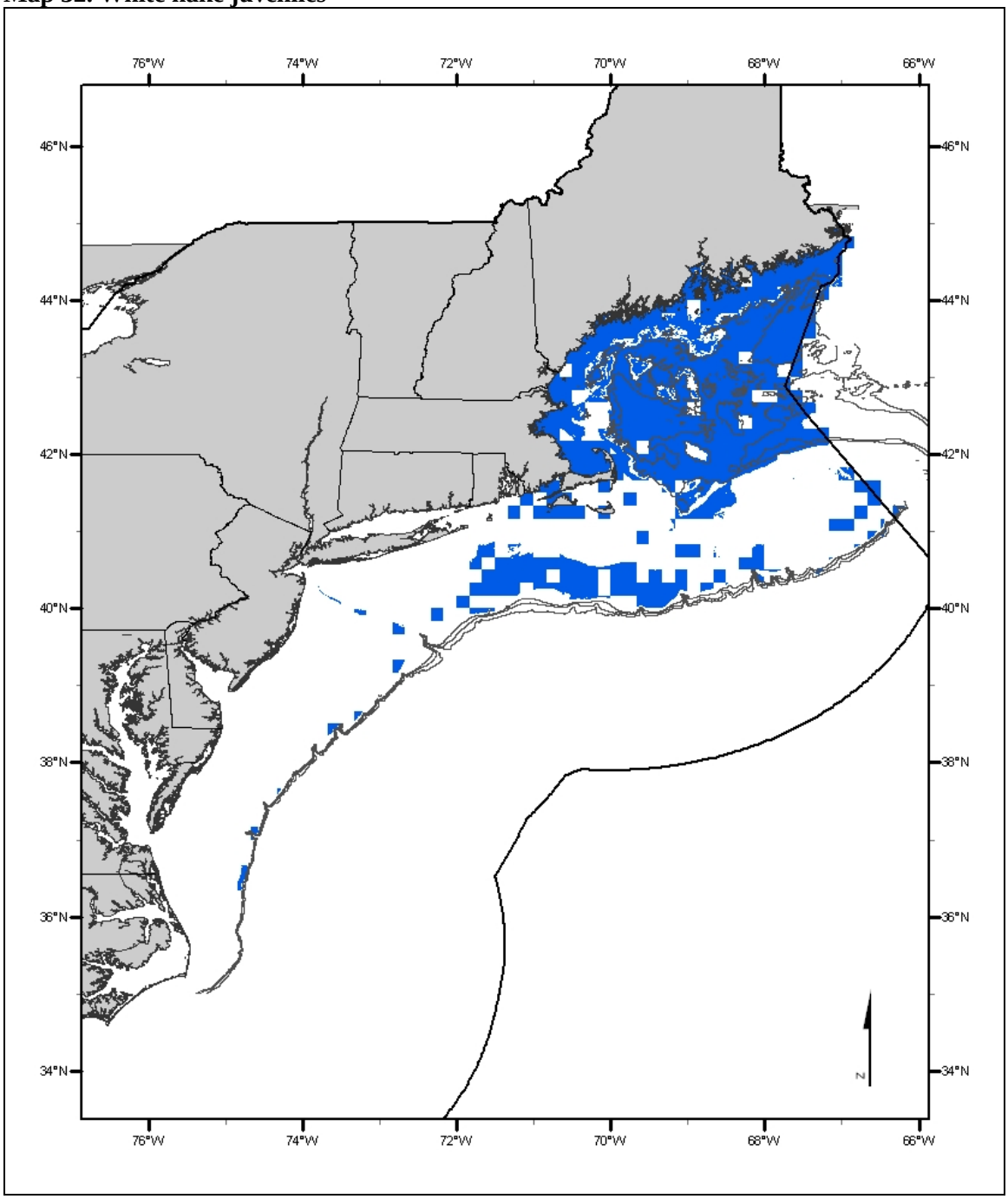
1.11 White hake

Map 31. White hake eggs and larvae



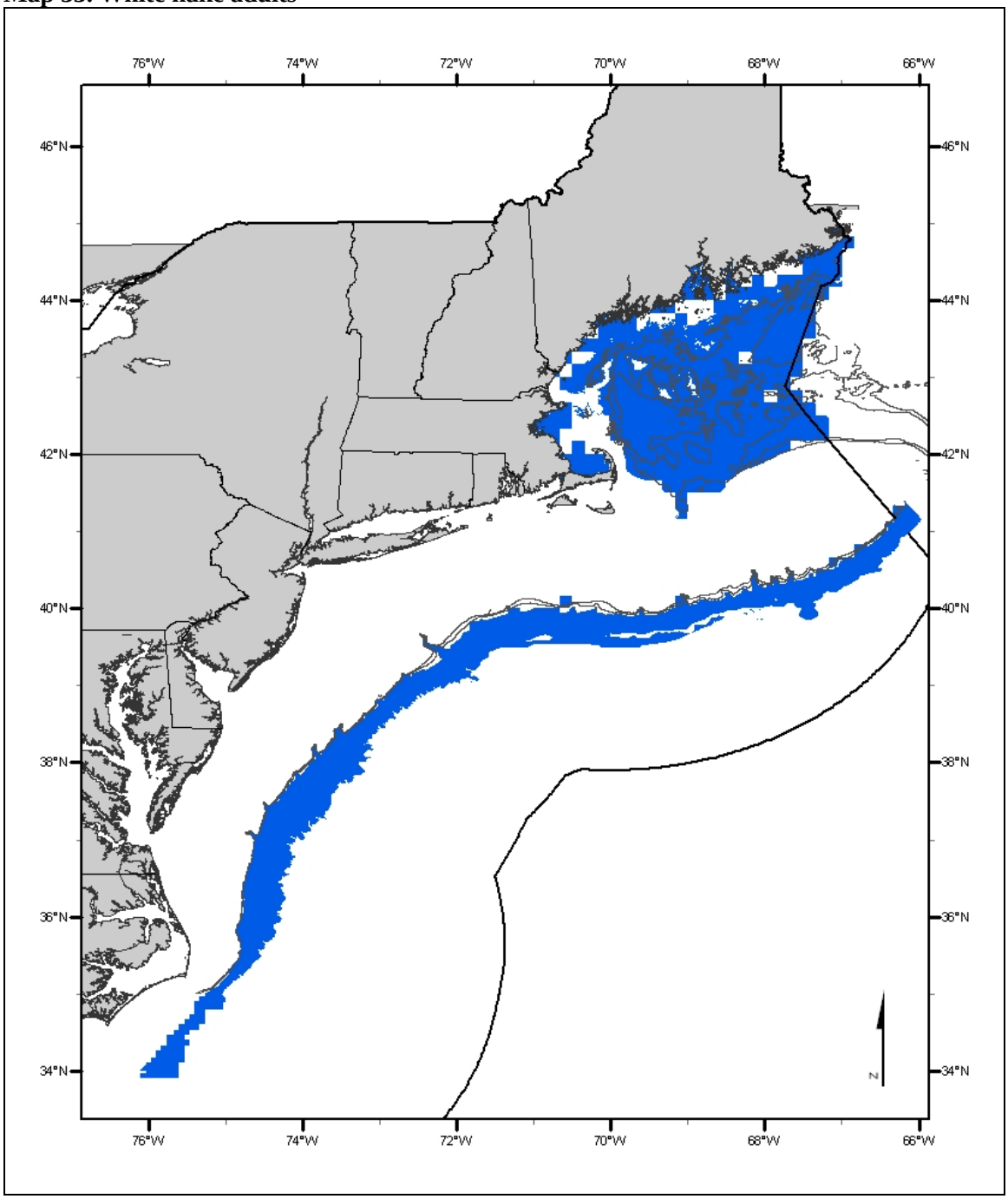
The Alternative 2D EFH designation for white hake eggs and larvae on the continental shelf is based upon the relative abundance of juveniles during 1968-2005 in the fall and spring NMFS trawl survey at the 90% cumulative percentage level. This alternative also includes ten minute squares in inshore areas where juvenile white hake were caught in state trawl surveys in more than 10% of the tows and those bays and estuaries identified by the NOAA ELMR program where white hake eggs or larvae were "common" or "abundant."

Map 32. White hake juveniles



The Alternative 3D EFH designation for juvenile white hake on the continental shelf is based on the distribution of substrate types, depths, and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore areas where juvenile white hake were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

Map 33. White hake adults

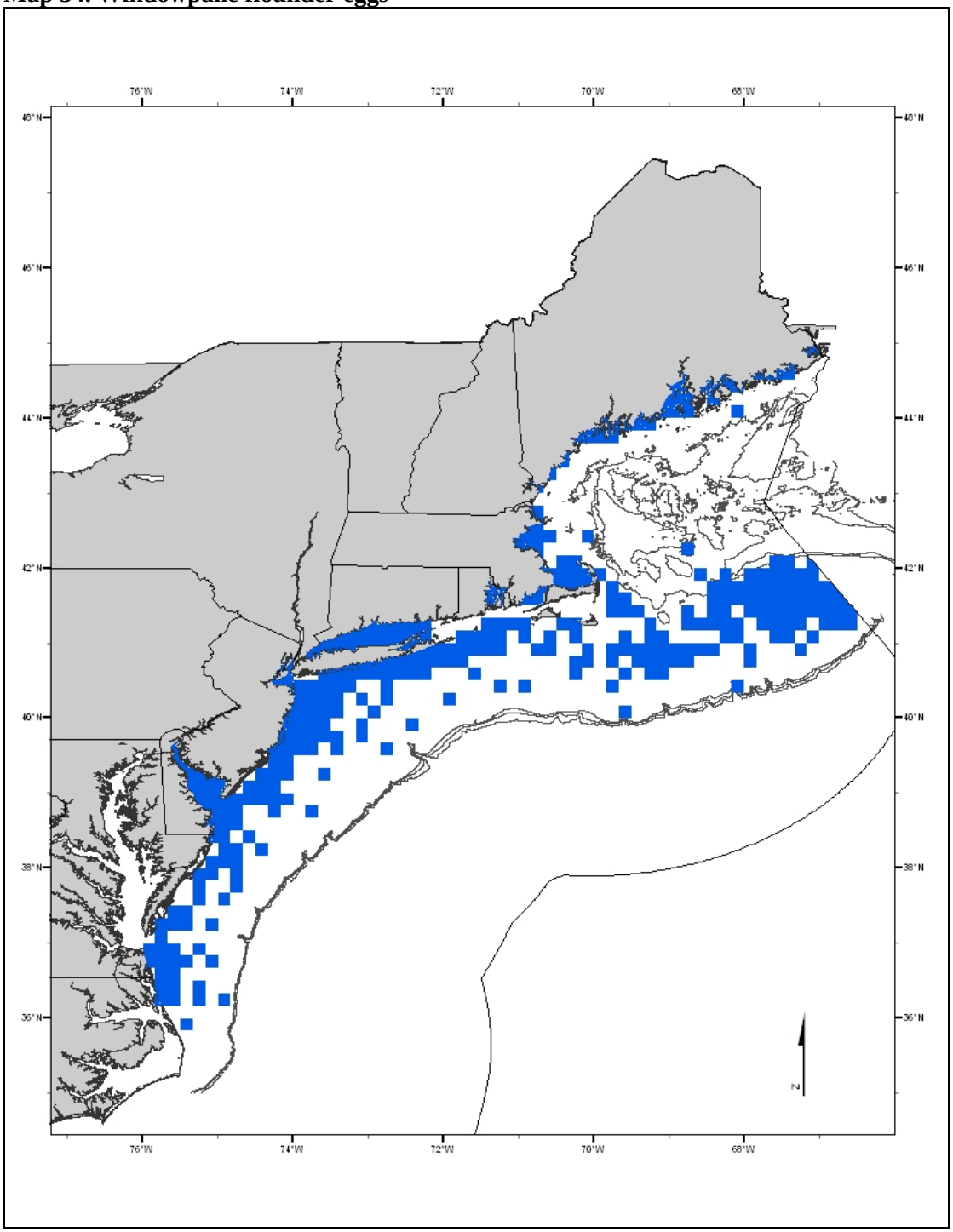


The Alternative 3D EFH designation for adult white hake on the continental shelf is based on the distribution of substrate types, depths, and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore and off-shelf areas where adult white hake were determined to be present, based on 10% frequency of occurrence in state trawl surveys, ELMR information, and off-shelf depth and geographic ranges.

NOTE: The maximum depth on the slope was incorrectly mapped at 2250 m – it should be 900m.

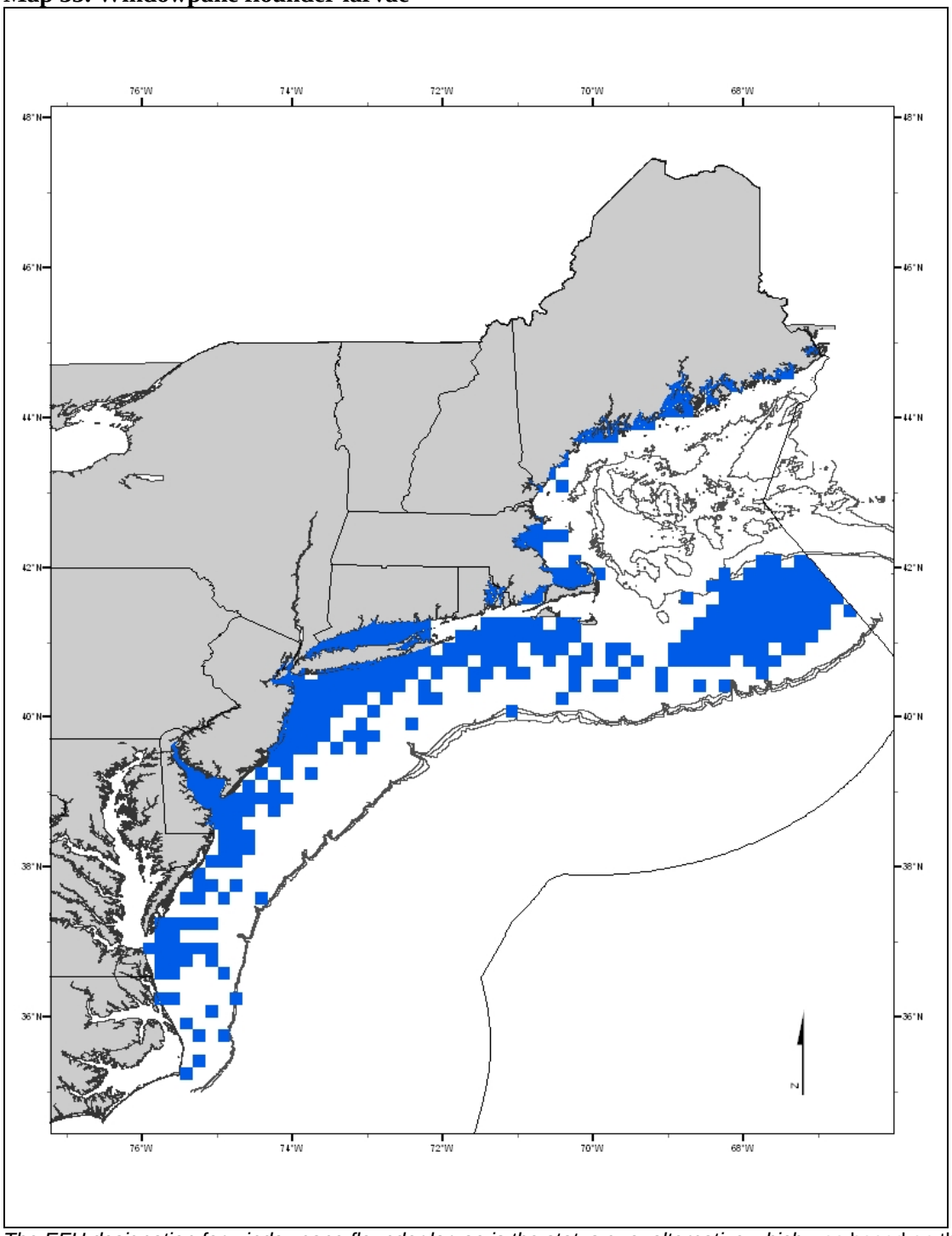
1.12 Windowpane flounder

Map 34. Windowpane flounder eggs



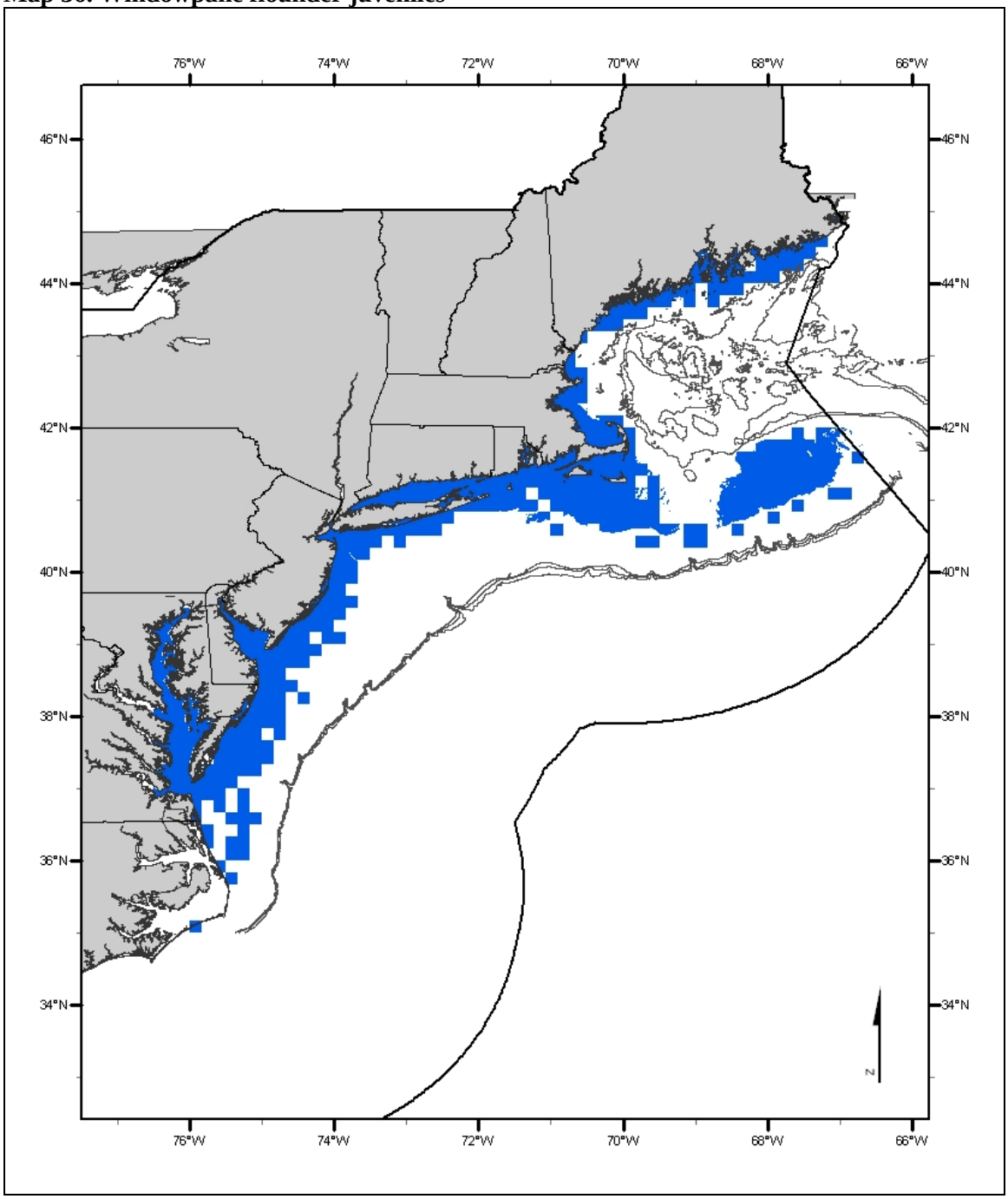
The EFH designation for windowpane flounder eggs is the status quo alternative which was based on the ten minute squares corresponding to the top 90% of the observed range in the 1978-1987 MARMAP survey data. *The EFH designation also includes those bays and estuaries identified by the NOAA ELMR program as supporting windowpane flounder eggs at the "common" or "abundant" level.*

Map 35. Windowpane flounder larvae



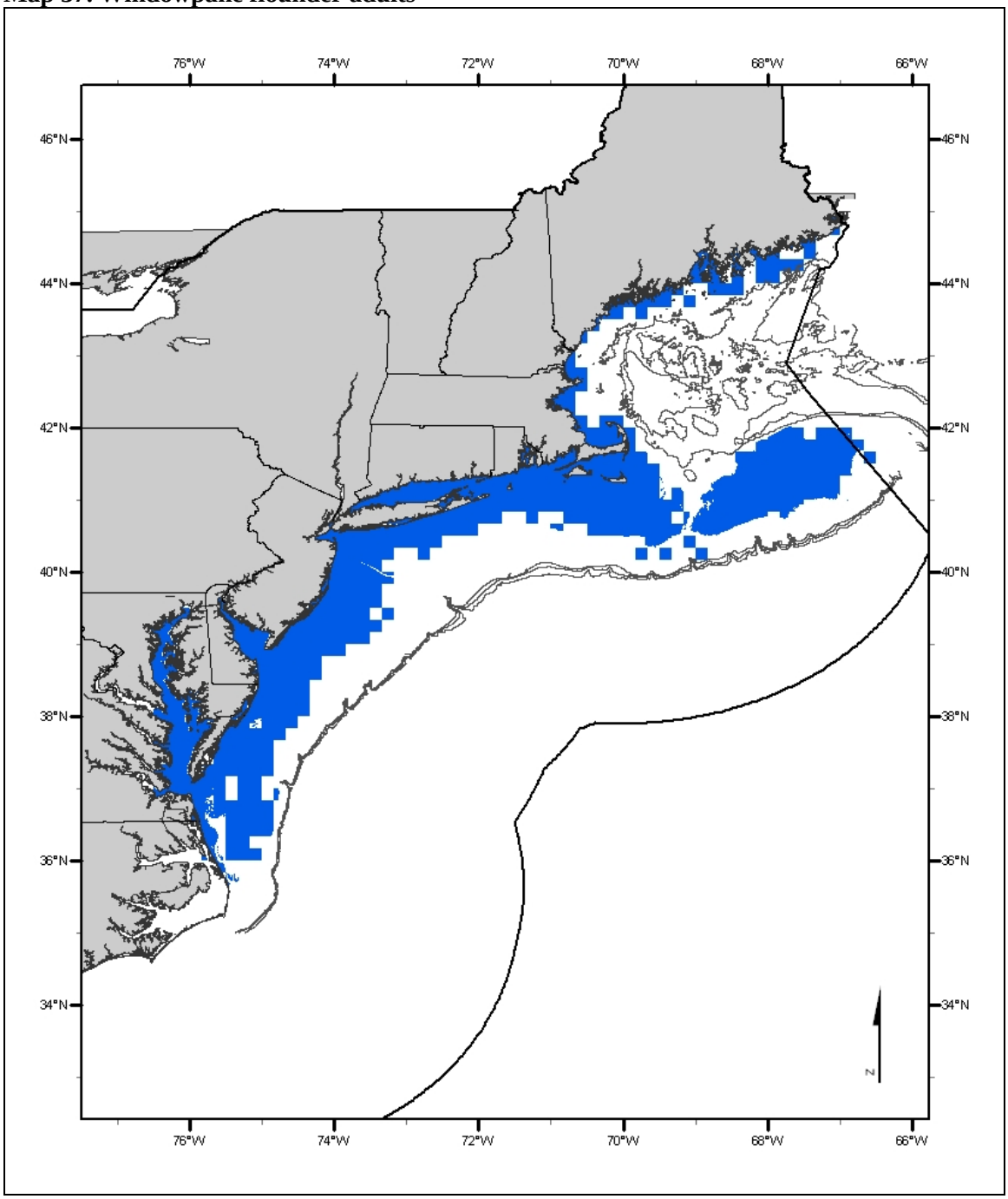
The EFH designation for windowpane flounder larvae is the status quo alternative which was based on the ten minute squares corresponding to 100% of the observed range in the 1978-1987 MARMAP survey data. *The EFH designation also includes those bays and estuaries identified by the NOAA ELMR program as supporting windowpane flounder larvae at the "common" or "abundant" level.*

Map 36. Windowpane flounder juveniles



The Alternative 3E EFH designation for juvenile windowpane flounder is the same as the 3D Alternative for juvenile windowpane flounder with the addition of ten minute squares along the RI and CT coasts and southeast of Nantucket Island where there are no survey data.

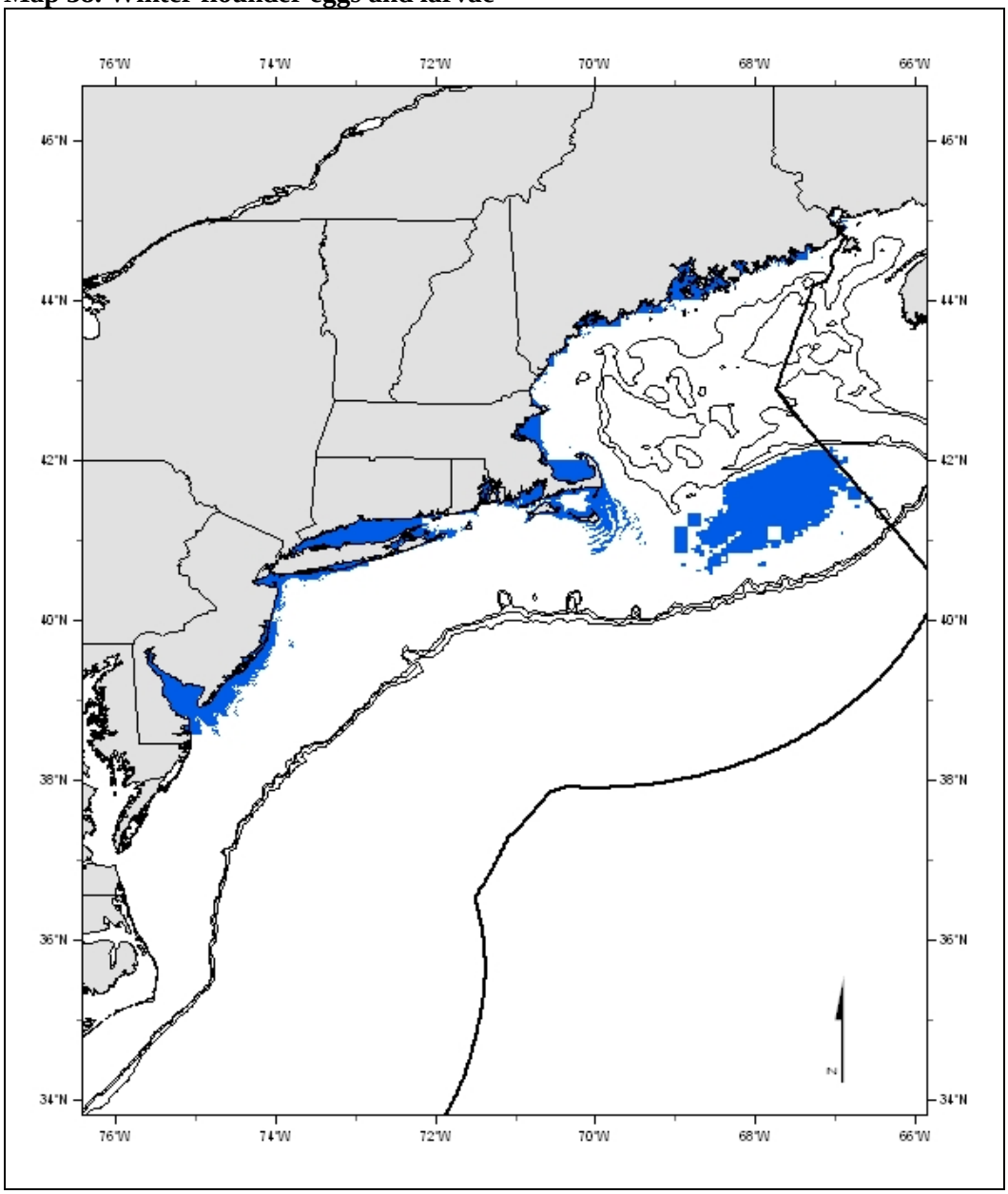
Map 37. Windowpane flounder adults



The Alternative 3E EFH designation for adult windowpane flounder is the same as the 3D Alternative for adult windowpane flounder with the addition of ten minute squares along the RI and CT coasts and southeast of Nantucket Island where there are no survey data for this species.

1.13 Winter flounder

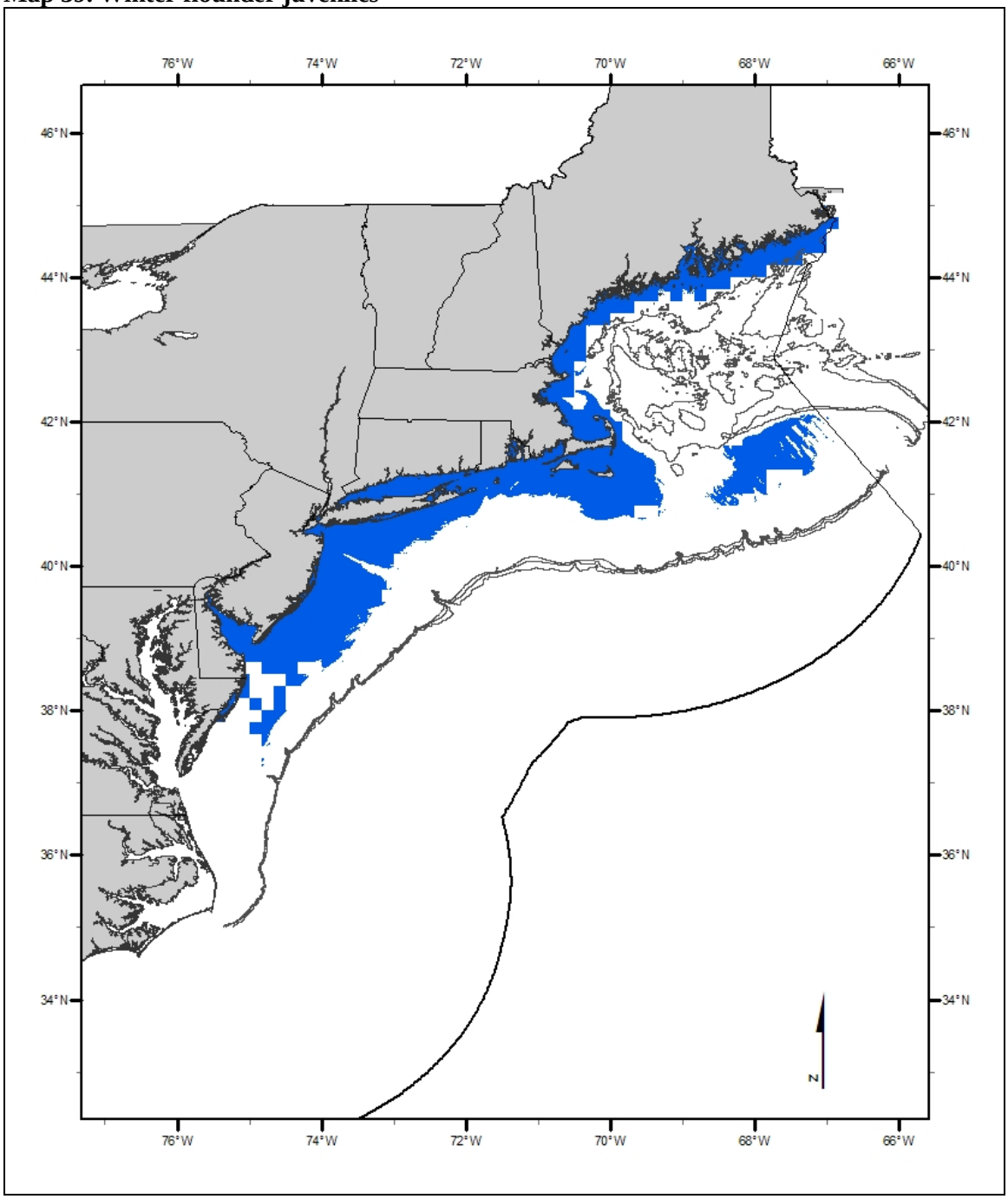
Map 38. Winter flounder eggs and larvae



The Alternative 5A EFH designation for winter flounder eggs and larvae is the same as the Alternative 3 designation for eggs and larvae, except that areas in Nantucket Sound deeper than 20 meters have been removed. The Alternative 3 designation includes coastal waters out to a maximum depth of 20 meters within the range of spawning adults (eastern Maine to Delaware Bay) plus bays and estuaries identified in the NOAA ELMR program where winter flounder eggs and larvae are "common" or "abundant." It also includes spawning areas on Georges Bank to a maximum depth of 72 meters, as identified in the EFH Source Document.

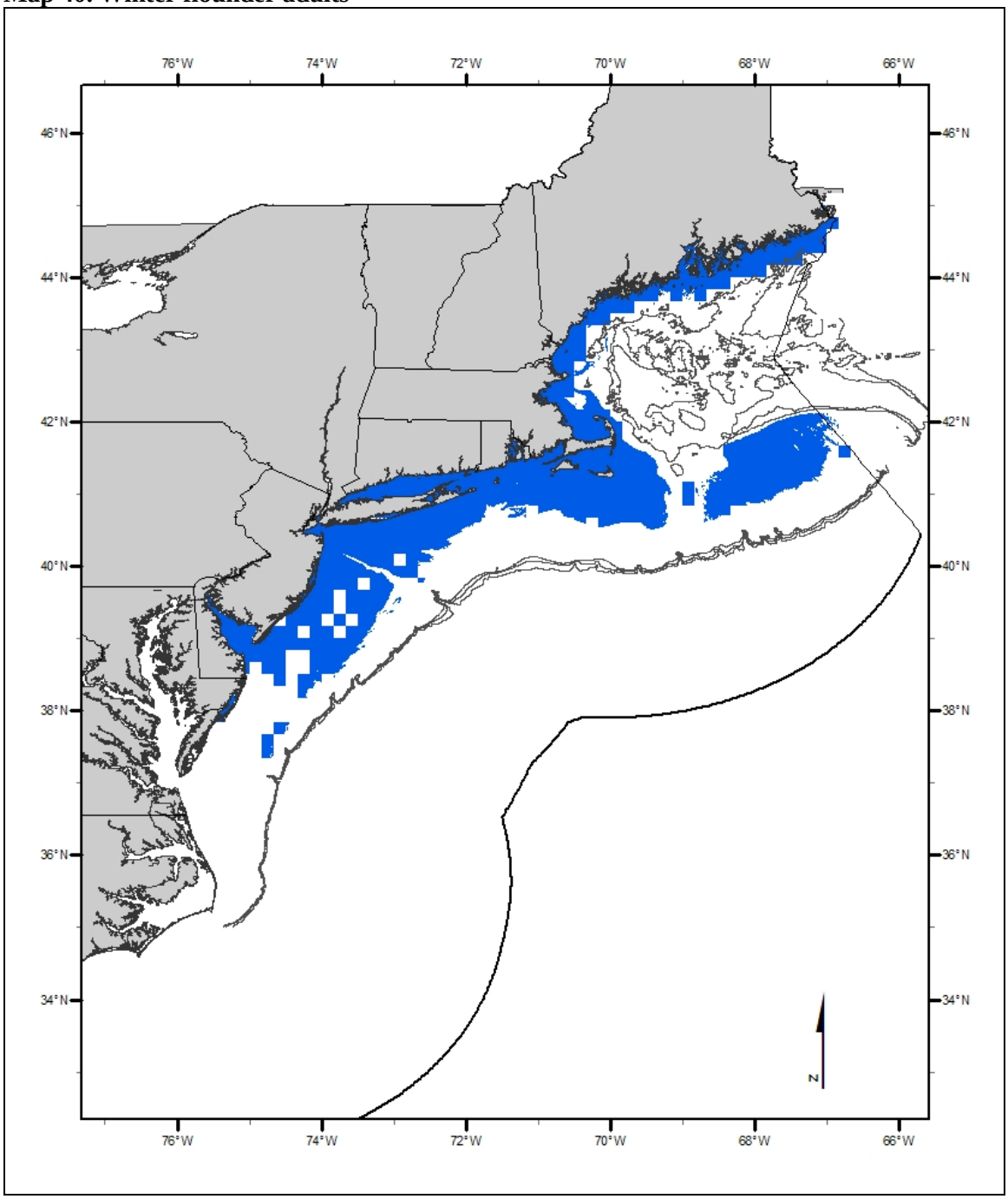
NOTE: The maximum depth on Georges Bank was incorrectly set at 60 meters – it should be 70 meters.

Map 39. Winter flounder juveniles



The Alternative 3E EFH designation for juvenile winter flounder is based on the Alternative 3D designation for juvenile winter flounder with "filled in" ten minute squares along the ME, NH, RI, and CT coasts and east and south of Nantucket Island.

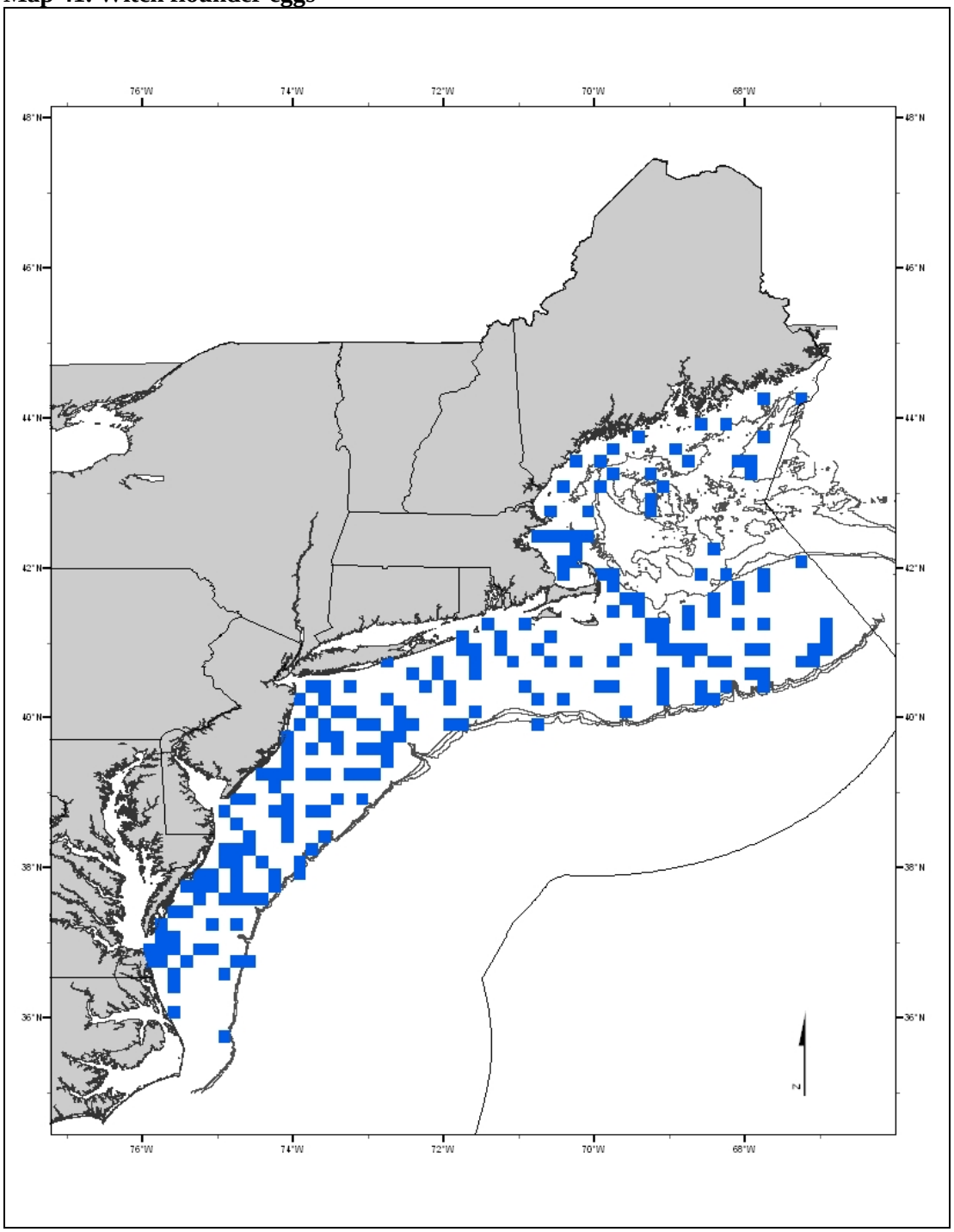
Map 40. Winter flounder adults



The Alternative 3E EFH designation for adult winter flounder is based on the Alternative 3D designation for adult winter flounder with "filled in" ten minute squares along the ME, NH, RI, and CT coasts and east and south of Nantucket Island.

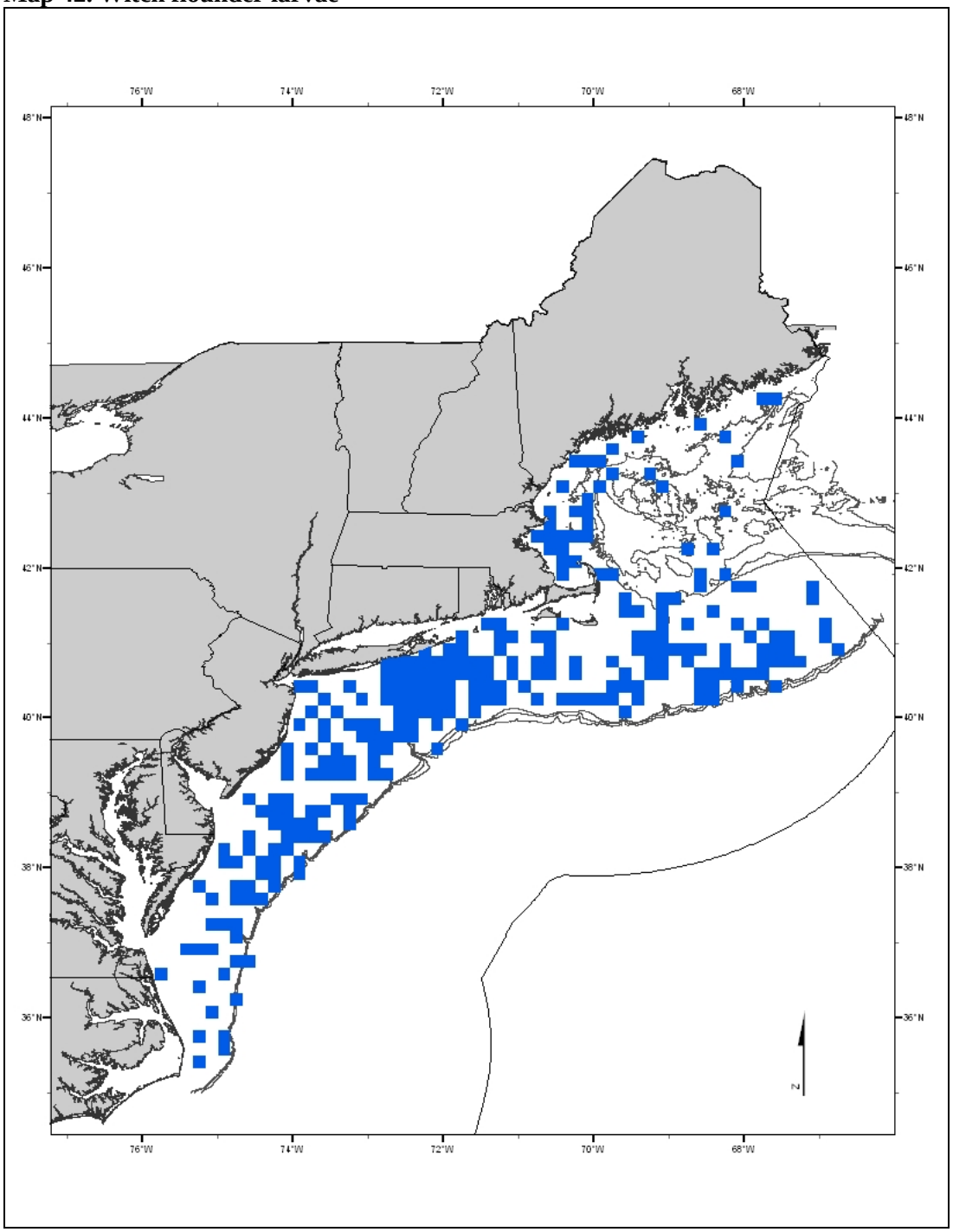
1.14 Witch flounder

Map 41. Witch flounder eggs



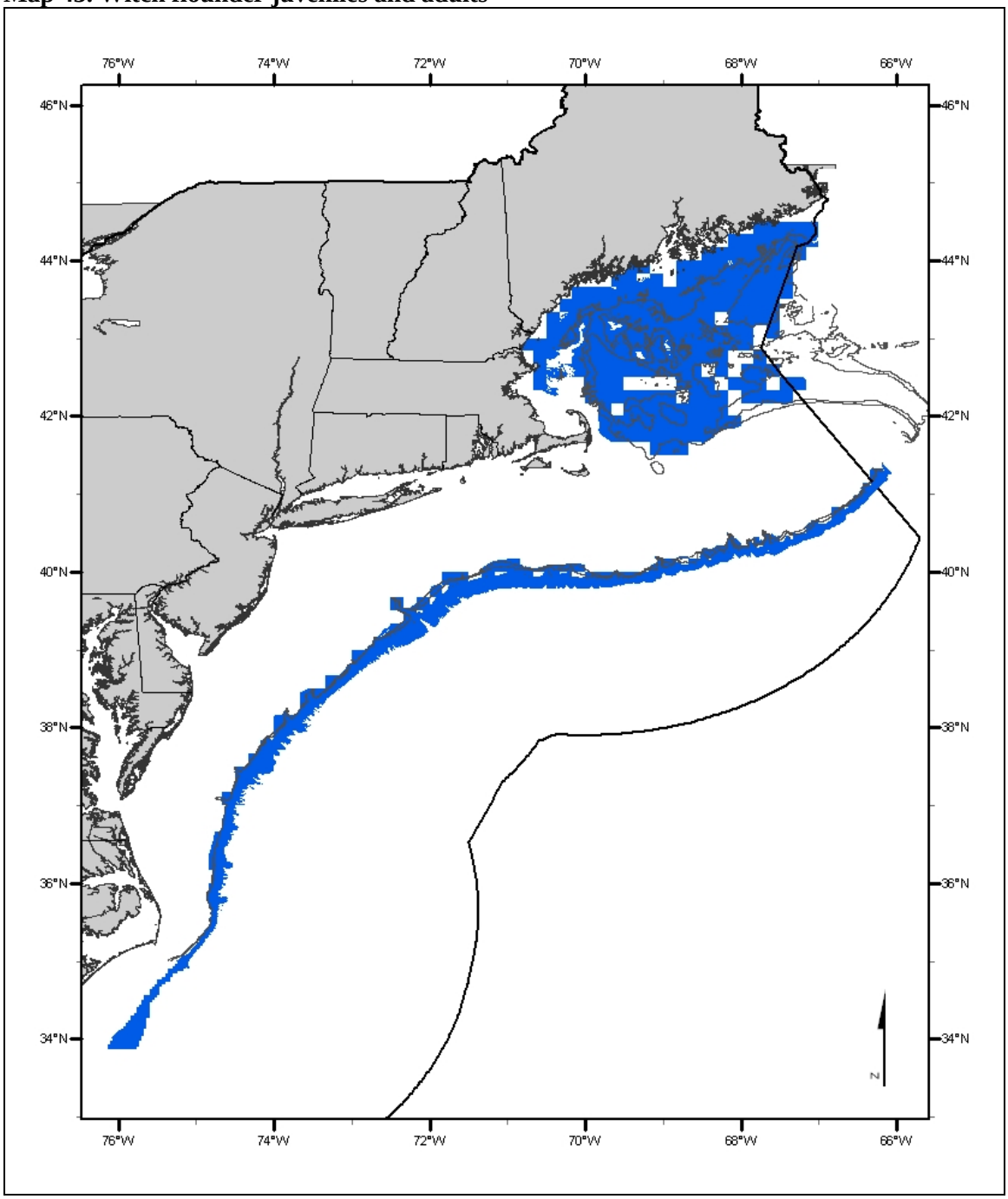
The EFH designation for witch flounder eggs is the status quo alternative which was based on the ten minute squares corresponding to 100% of the observed range in the 1978-1987 MARMAP survey data.

Map 42. Witch flounder larvae



The EFH designation for witch flounder larvae is the status quo alternative which was based on the ten minute squares corresponding to 100% of the observed range in the 1978-1987 MARMAP survey data.

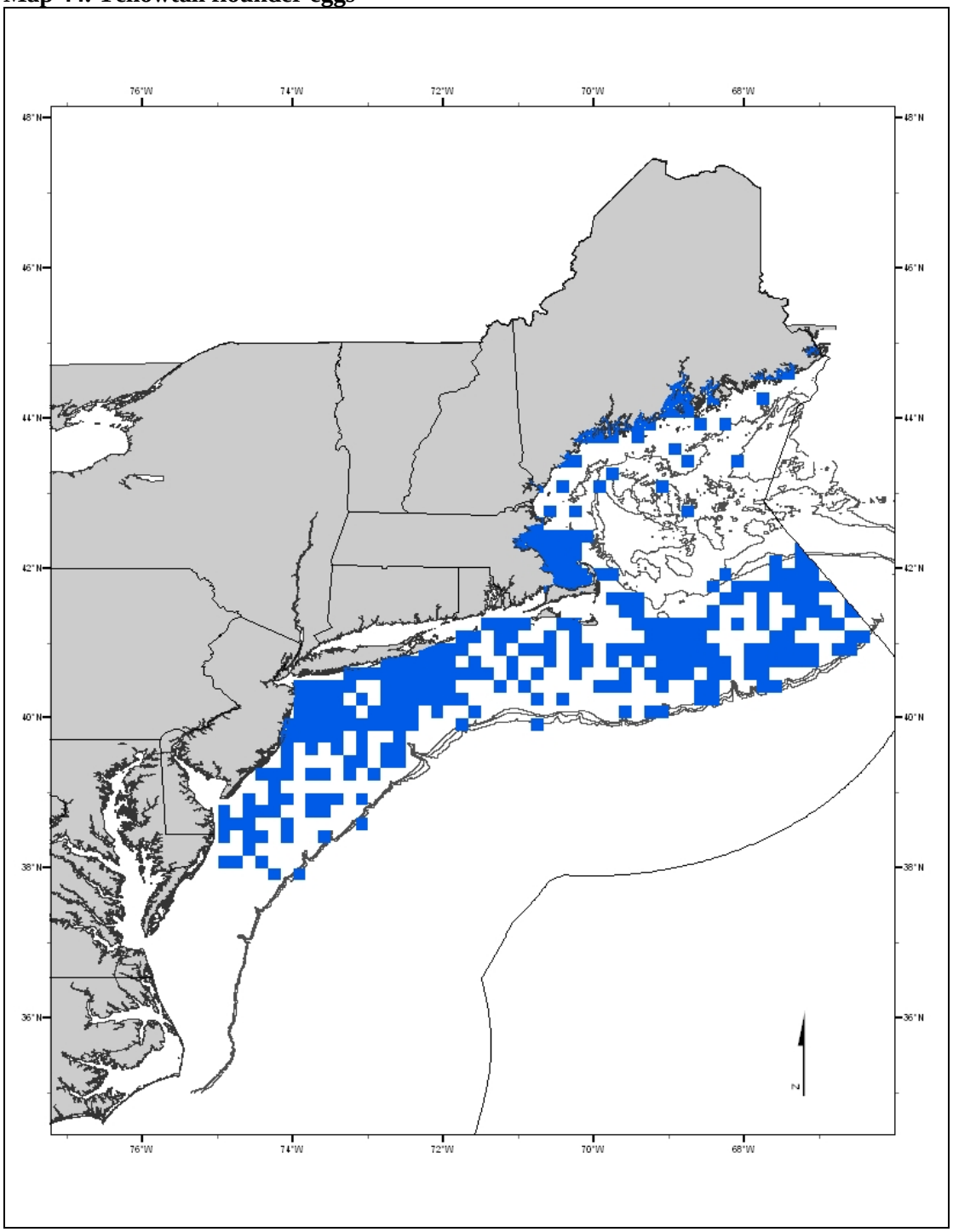
Map 43. Witch flounder juveniles and adults



The Alternative 3D EFH designation for juvenile and adult witch flounder on the continental shelf is based on the distribution of substrate types, depths, and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore and off-shelf areas where juvenile witch flounder were determined to be present, based on 10% frequency of occurrence in state trawl surveys and off-shelf depth and geographic ranges.

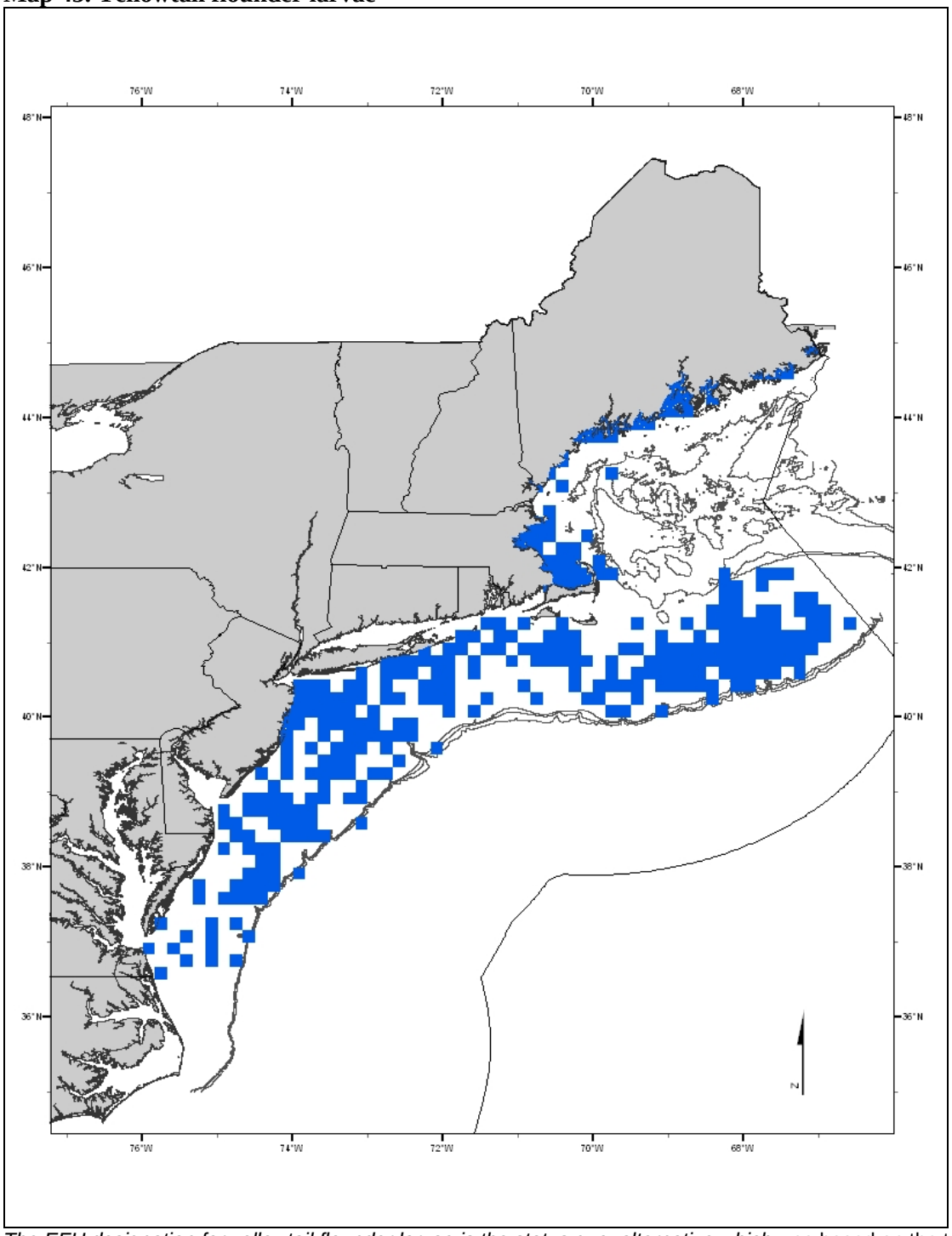
1.15 Yellowtail flounder

Map 44. Yellowtail flounder eggs



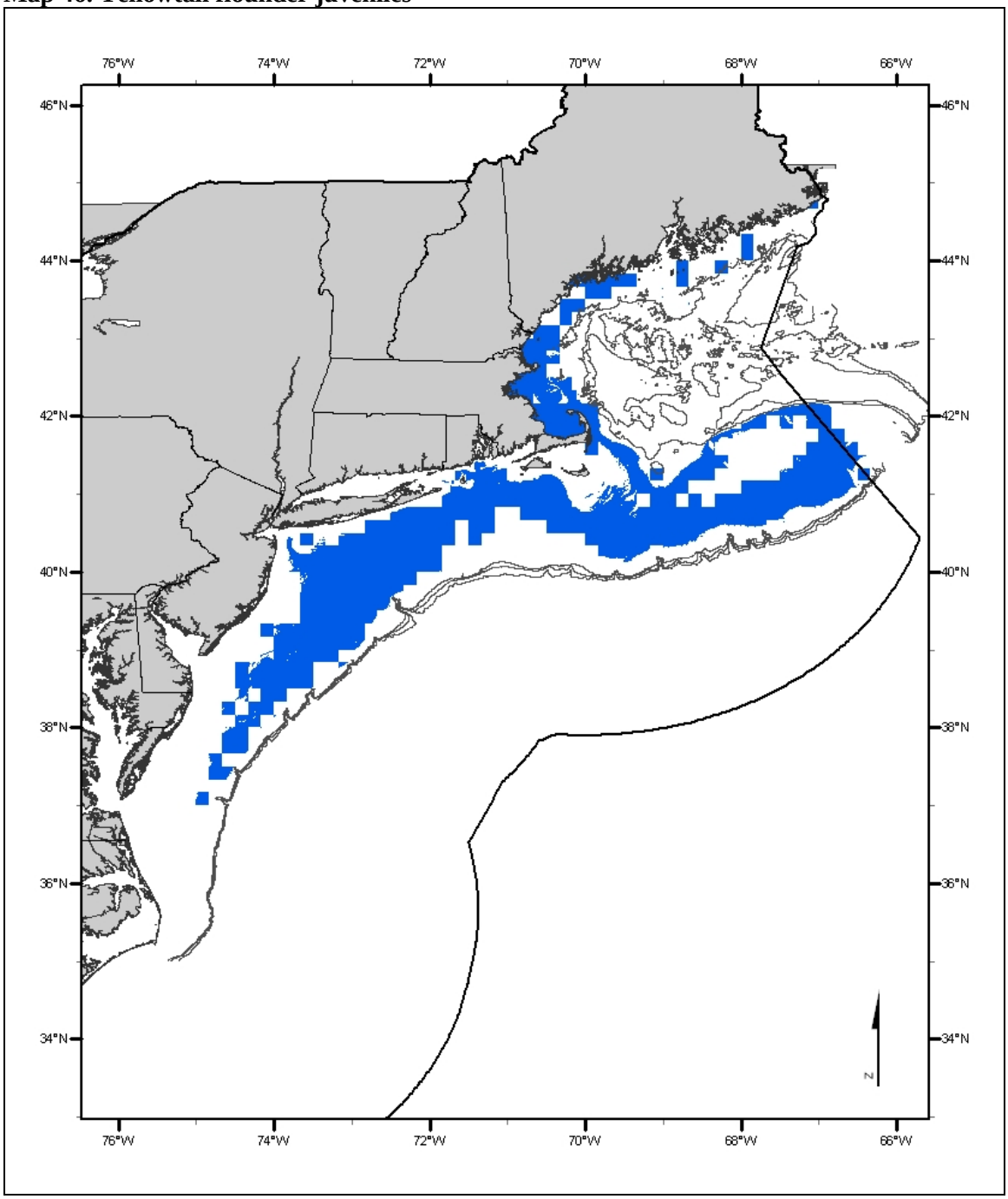
The EFH designation for yellowtail flounder eggs is the status quo alternative which was based on the ten minute squares corresponding to 100% of the observed range in the 1978-1987 MARMAP survey data. *In addition, this designation includes those bays and estuaries identified in the NOAA ELMR program as supporting yellowtail flounder eggs at the "rare", "common", or "abundant" level.*

Map 45. Yellowtail flounder larvae



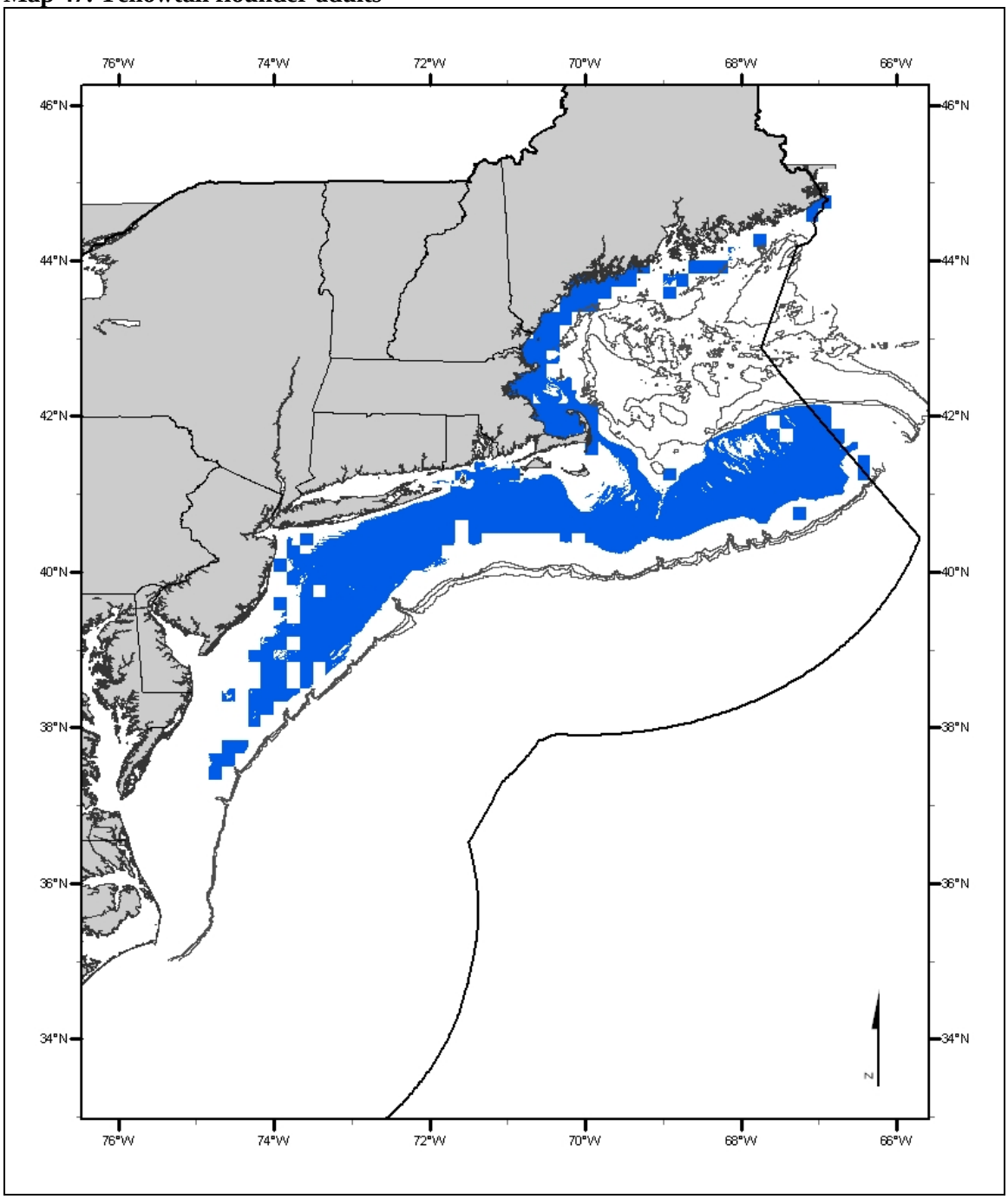
The EFH designation for yellowtail flounder larvae is the status quo alternative which was based on the ten minute squares corresponding to 100% of the observed range in the 1978-1987 MARMAP survey data. *In addition, this designation includes those bays and estuaries identified in the NOAA ELMR program as supporting yellowtail flounder larvae at the "rare", "common", or "abundant" level.*

Map 46. Yellowtail flounder juveniles



The Alternative 3D EFH designation for juvenile yellowtail flounder on the continental shelf is based on the distribution of substrate types, depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore areas where juvenile yellowtail flounder were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

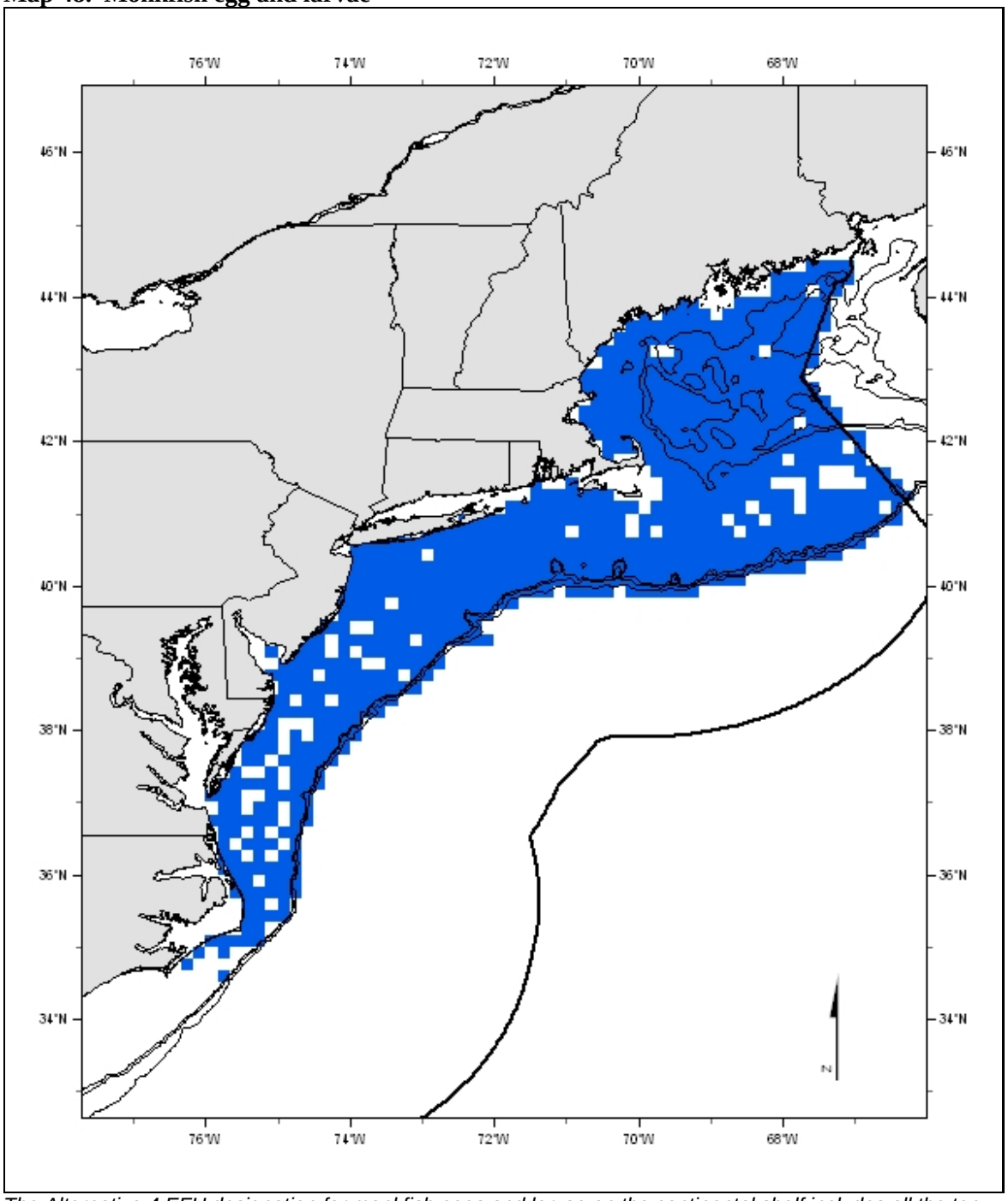
Map 47. Yellowtail flounder adults



The Alternative 3D EFH designation for adult yellowtail flounder on the continental shelf is based on the distribution of substrate types, depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore areas where adult yellowtail flounder were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

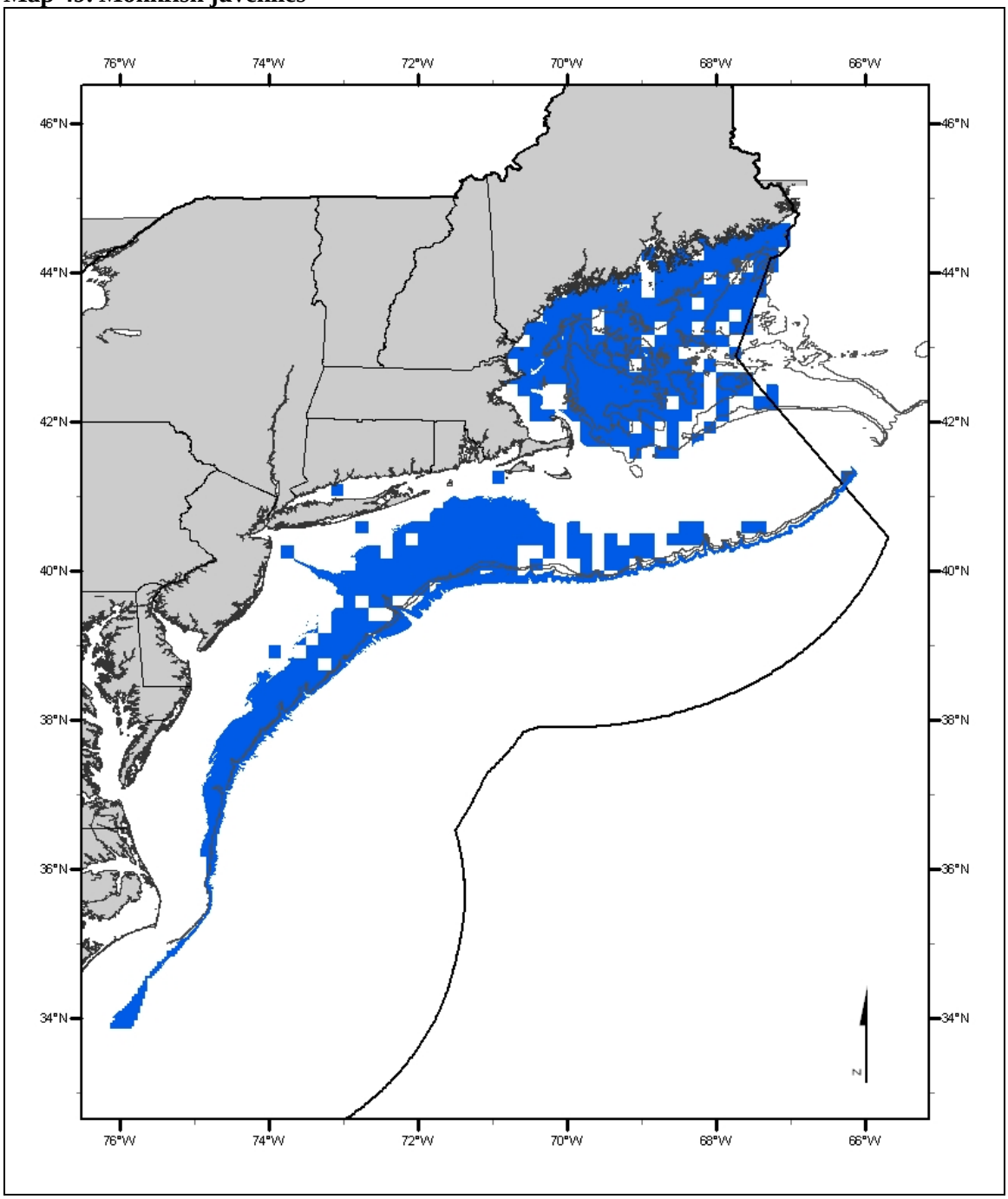
2.0 Monkfish

Map 48. Monkfish egg and larvae



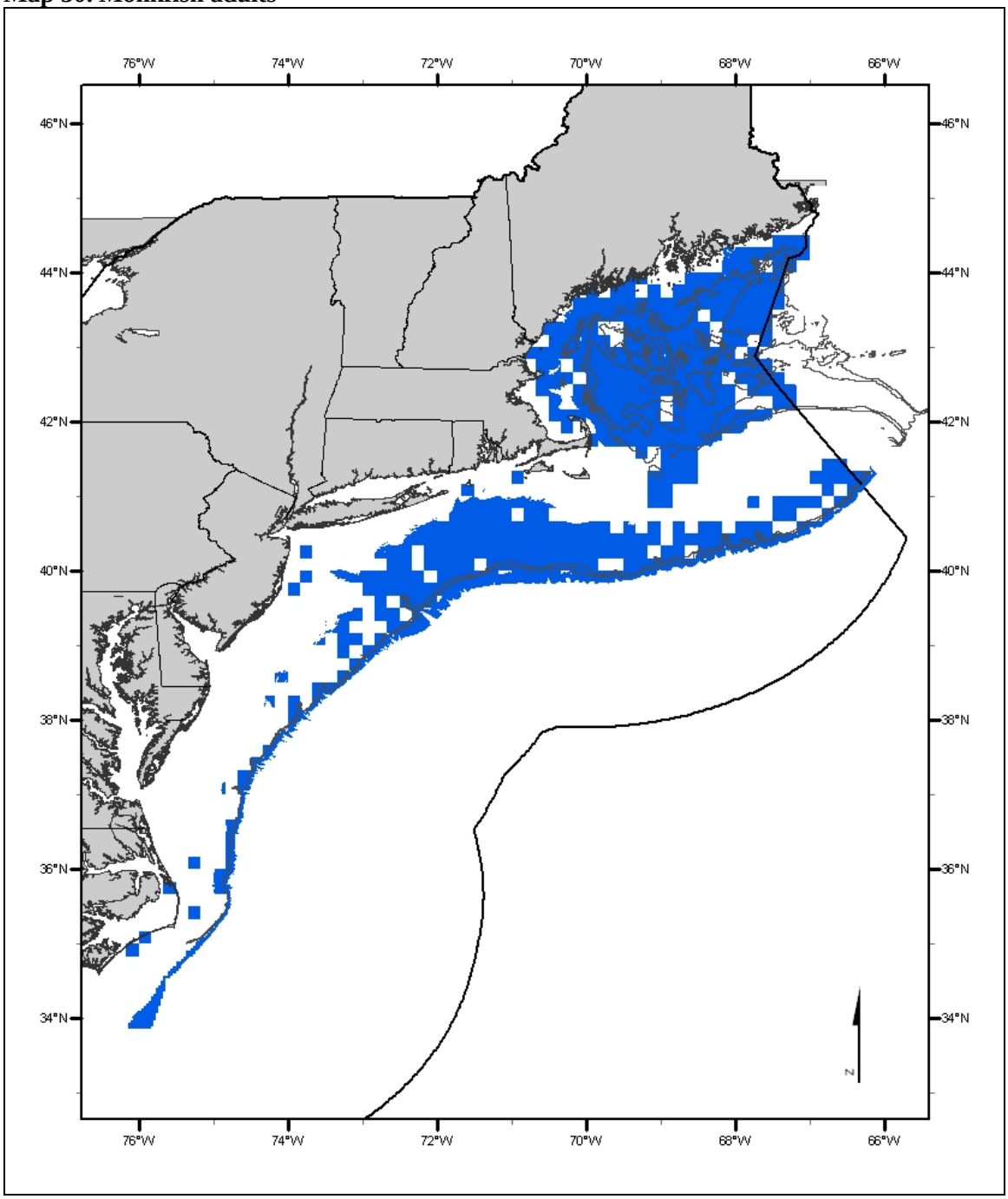
The Alternative 4 EFH designation for monkfish eggs and larvae on the continental shelf includes all the ten minute squares where adult monkfish were caught during 1968-2005 in the fall and spring NMFS trawl survey plus all the ten minute squares where monkfish larvae were collected during 1978-1987 in the NMFS MARMAP ichthyoplankton survey. Inshore, this alternative includes ten minute squares where adult monkfish were caught in state trawl surveys in more than 10% of the tows. This alternative also includes the area beyond the continental shelf where monkfish larvae are known or presumed to be present.

Map 49. Monkfish juveniles



The Alternative 3C EFH designation for juvenile monkfish on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes off-shelf areas where juvenile or adult monkfish were determined to be present, based on depth and geographic ranges.

Map 50. Monkfish adults

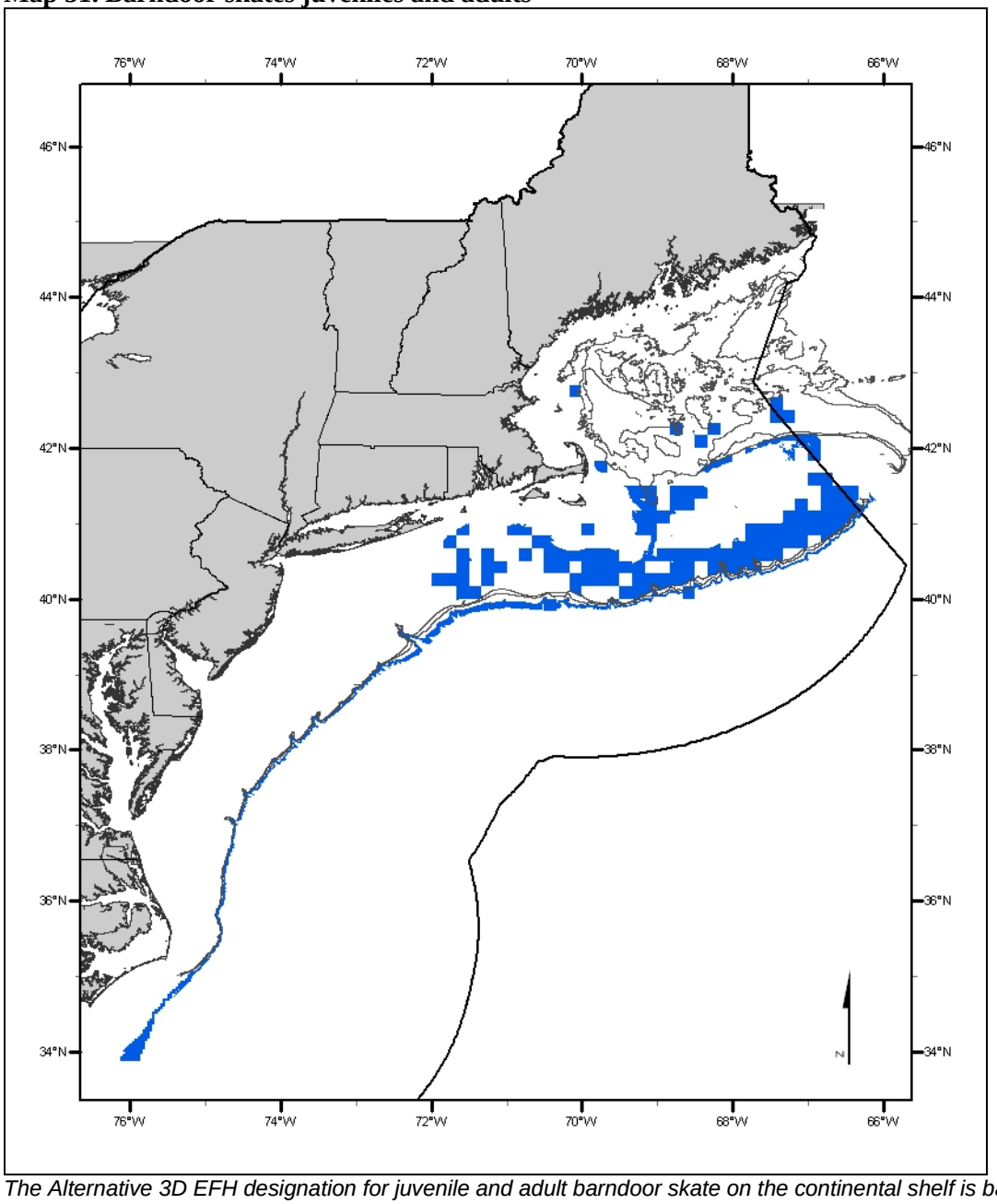


The Alternative 3C EFH designation for adult monkfish on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes off-shelf areas where adult or adult monkfish were determined to be present, based on depth and geographic ranges.

3.0 Skates

3.1 Barndoor skate

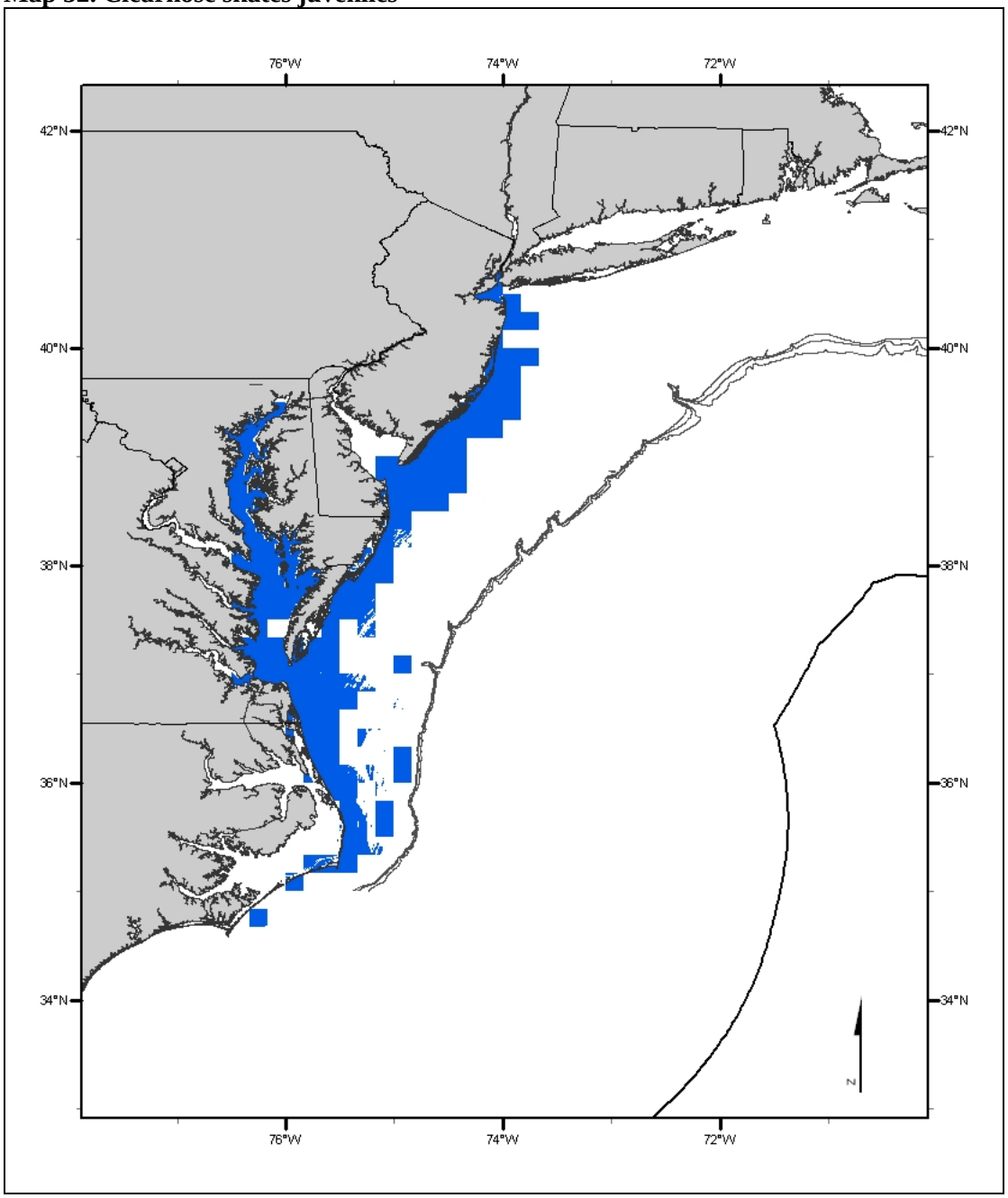
Map 51. Barndoor skates juveniles and adults



The Alternative 3D EFH designation for juvenile and adult barndoor skate on the continental shelf is based on the distribution of substrate types, depths, and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes off-shelf areas where juvenile and adult barndoor skate were determined to be present, based on off-shelf depth and geographic ranges.

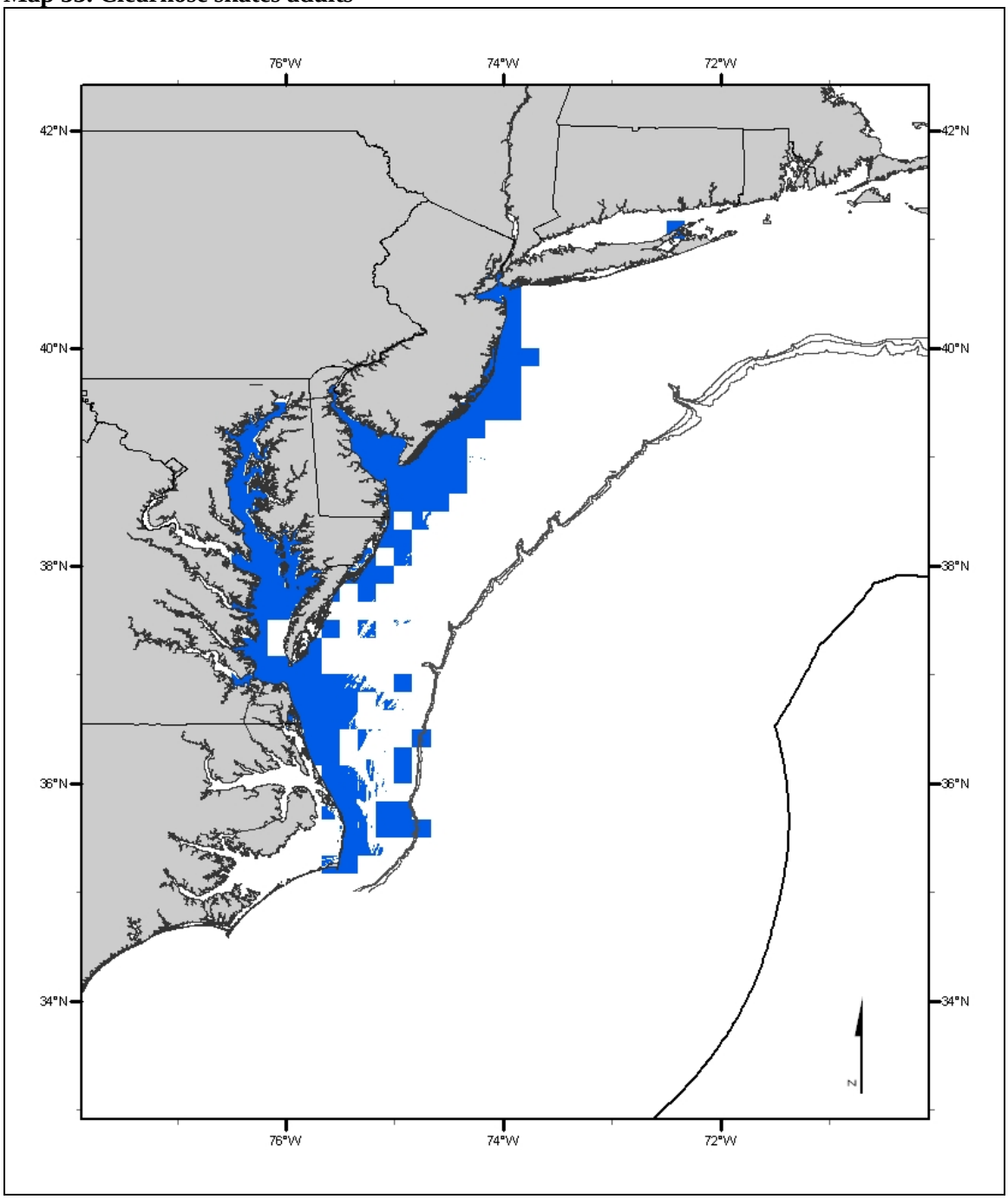
3.2 Clearnose skate

Map 52. Clearnose skates juveniles



The Alternative 3C EFH designation for juvenile clearnose skate on the continental shelf is based on the distribution of substrate types, depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore areas where juvenile clearnose skate were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

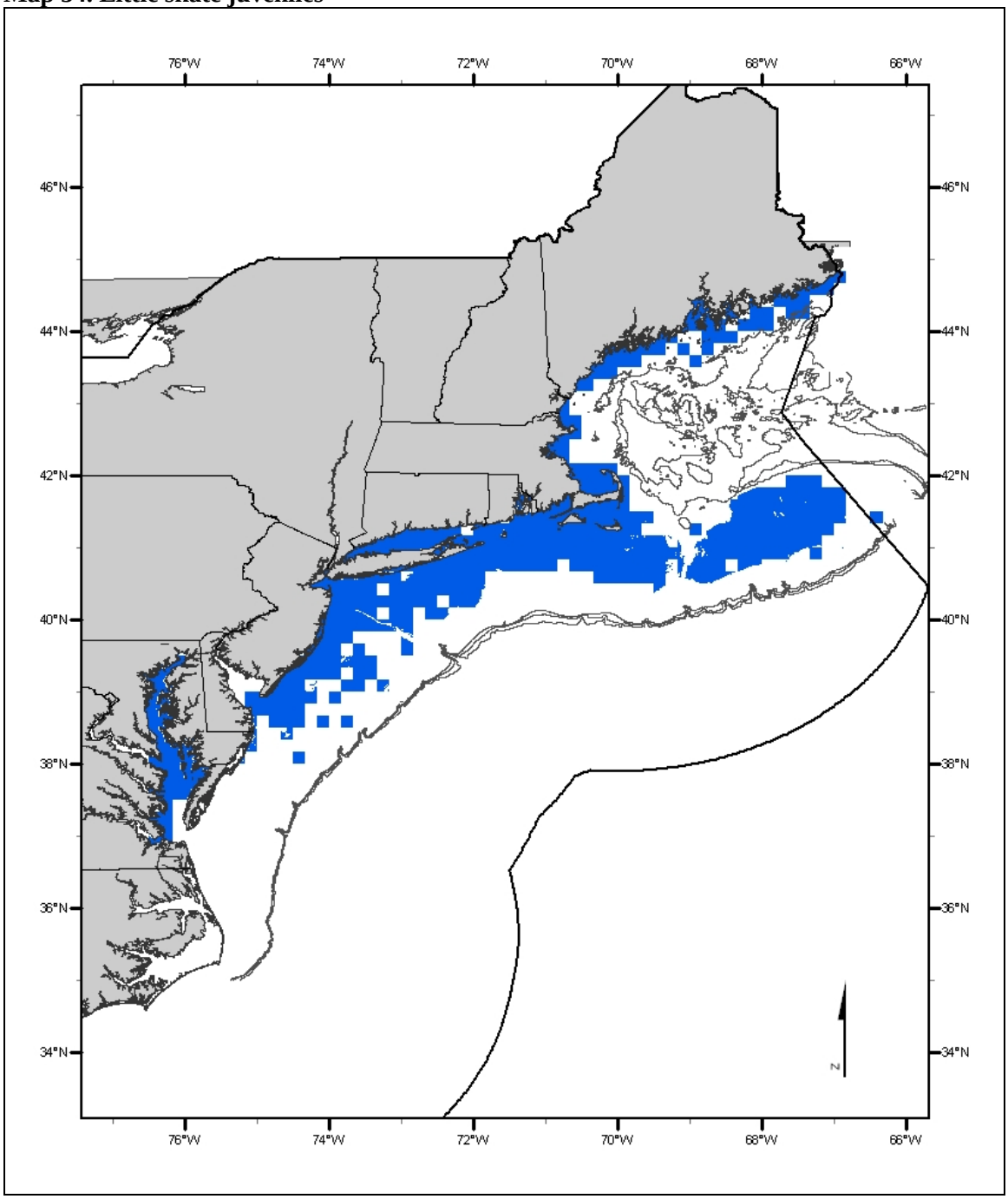
Map 53. Clearnose skates adults



The Alternative 3C EFH designation for adult clearnose skate on the continental shelf is based on the distribution of substrate types, depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore areas where adult clearnose skate were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

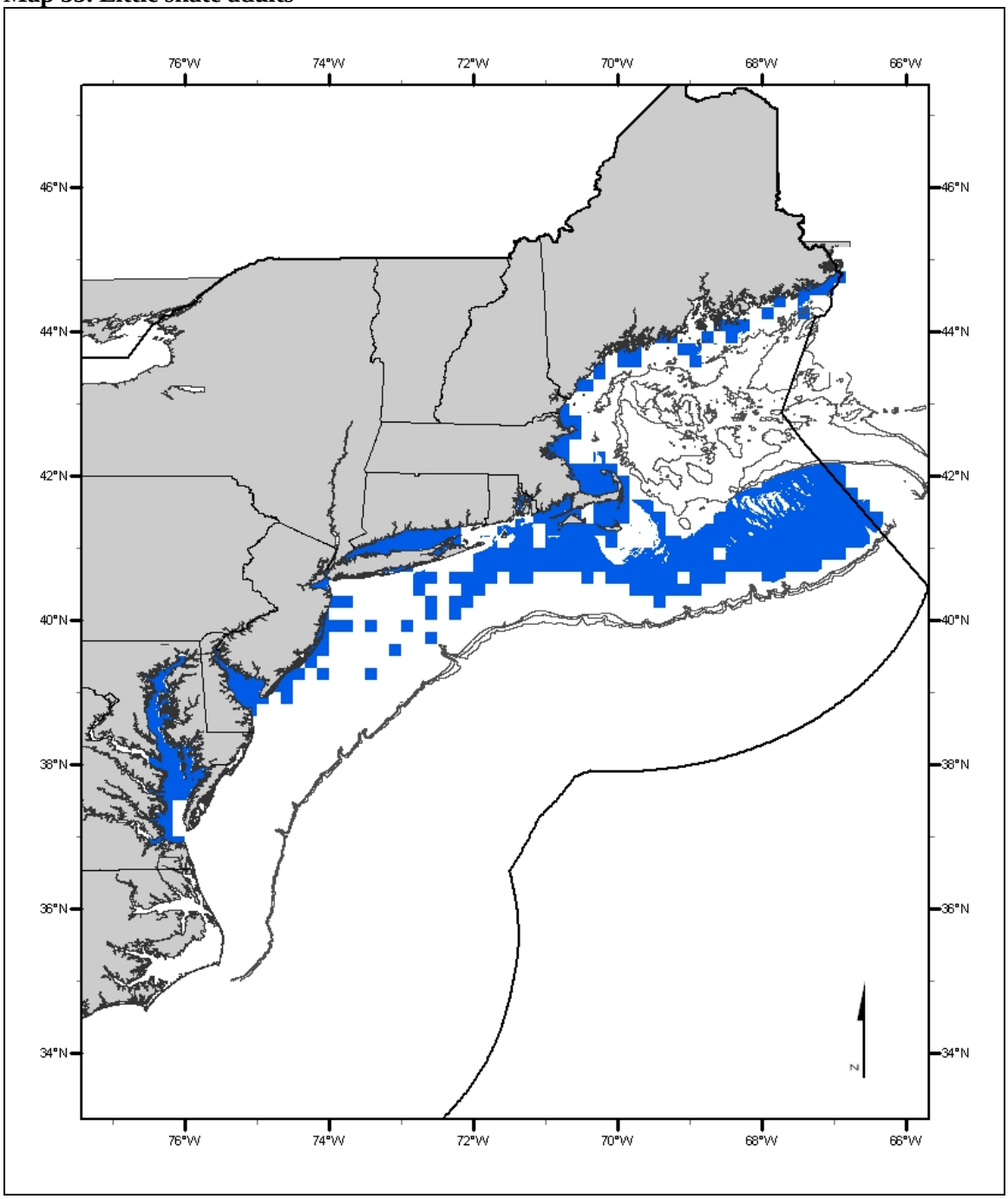
3.3 Little skate

Map 54. Little skate juveniles



The Alternative 3E EFH designation for juvenile little skate is based on the 3C Alternative for juvenile little skate with the addition of ten minute squares along the RI and CT coasts and east of Nantucket Island where there are no survey data for this species.

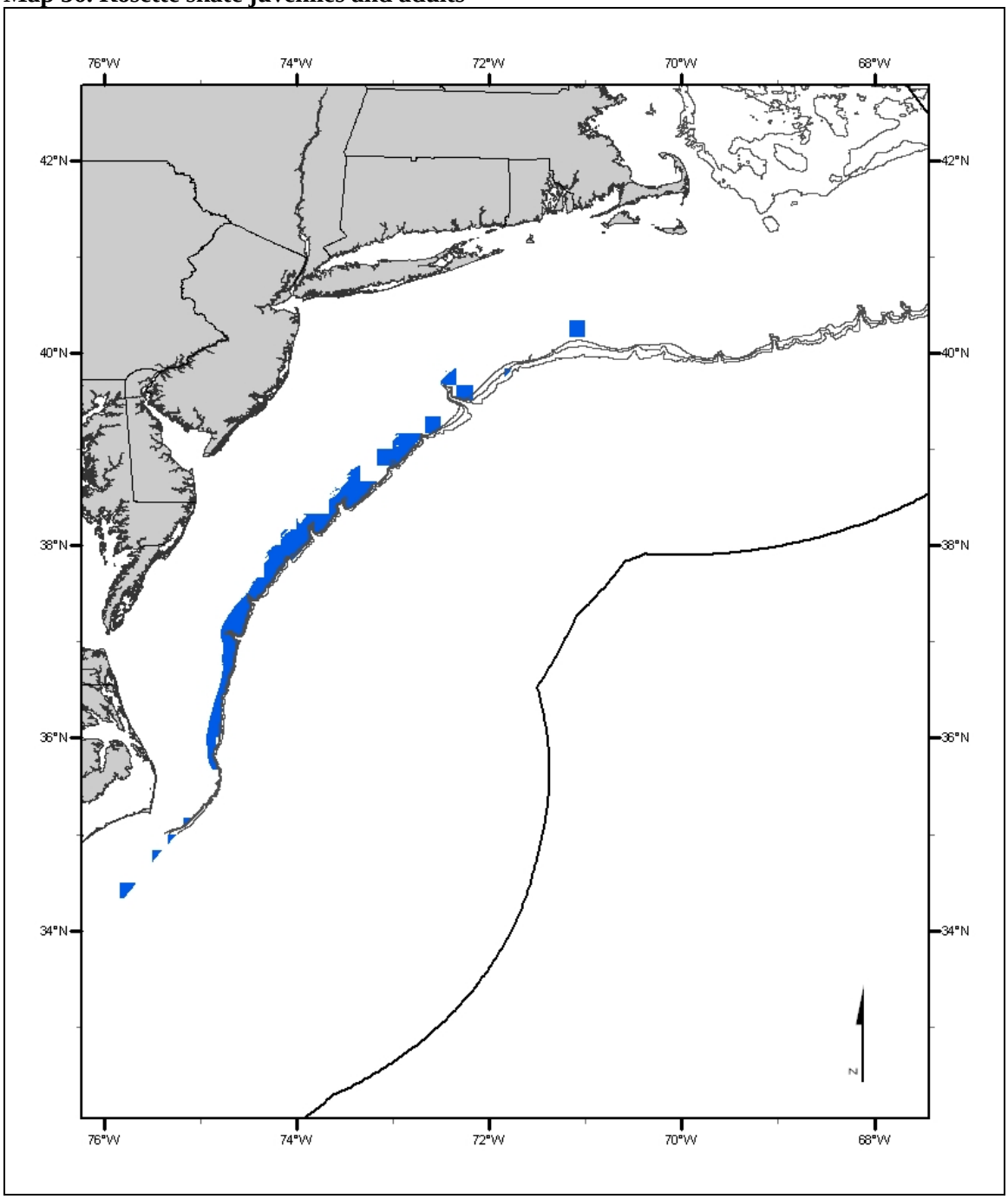
Map 55. Little skate adults



The Alternative 3C EFH designation for adult little skate on the continental shelf is based on the distribution of substrate types, depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore areas where adult little skate were determined to be present, based on 10% frequency of occurrence in state trawl surveys and ELMR information.

3.4 Rosette skate

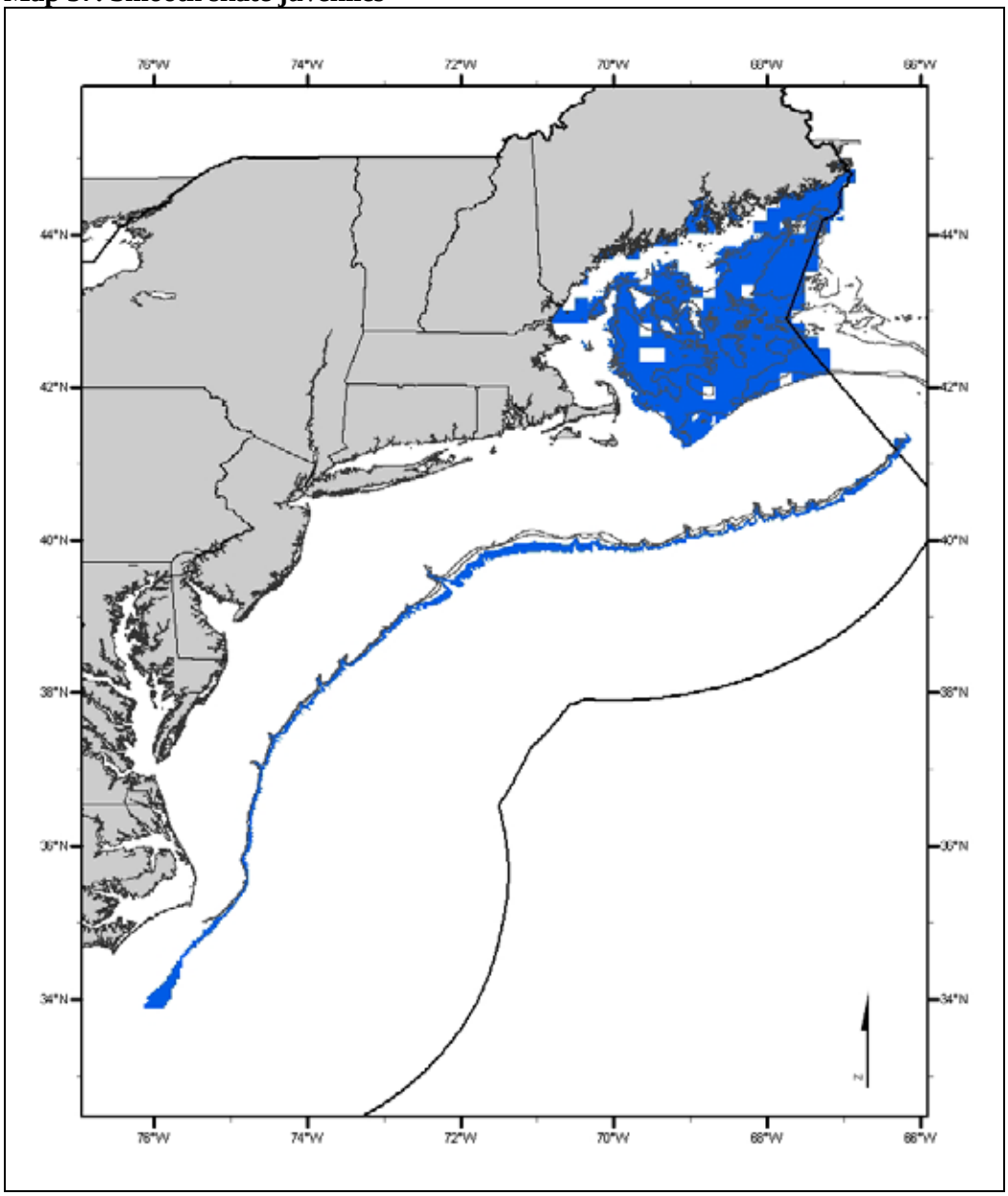
Map 56. Rosette skate juveniles and adults



The Alternative 3C EFH designation for juvenile and adult rosette skate on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level.

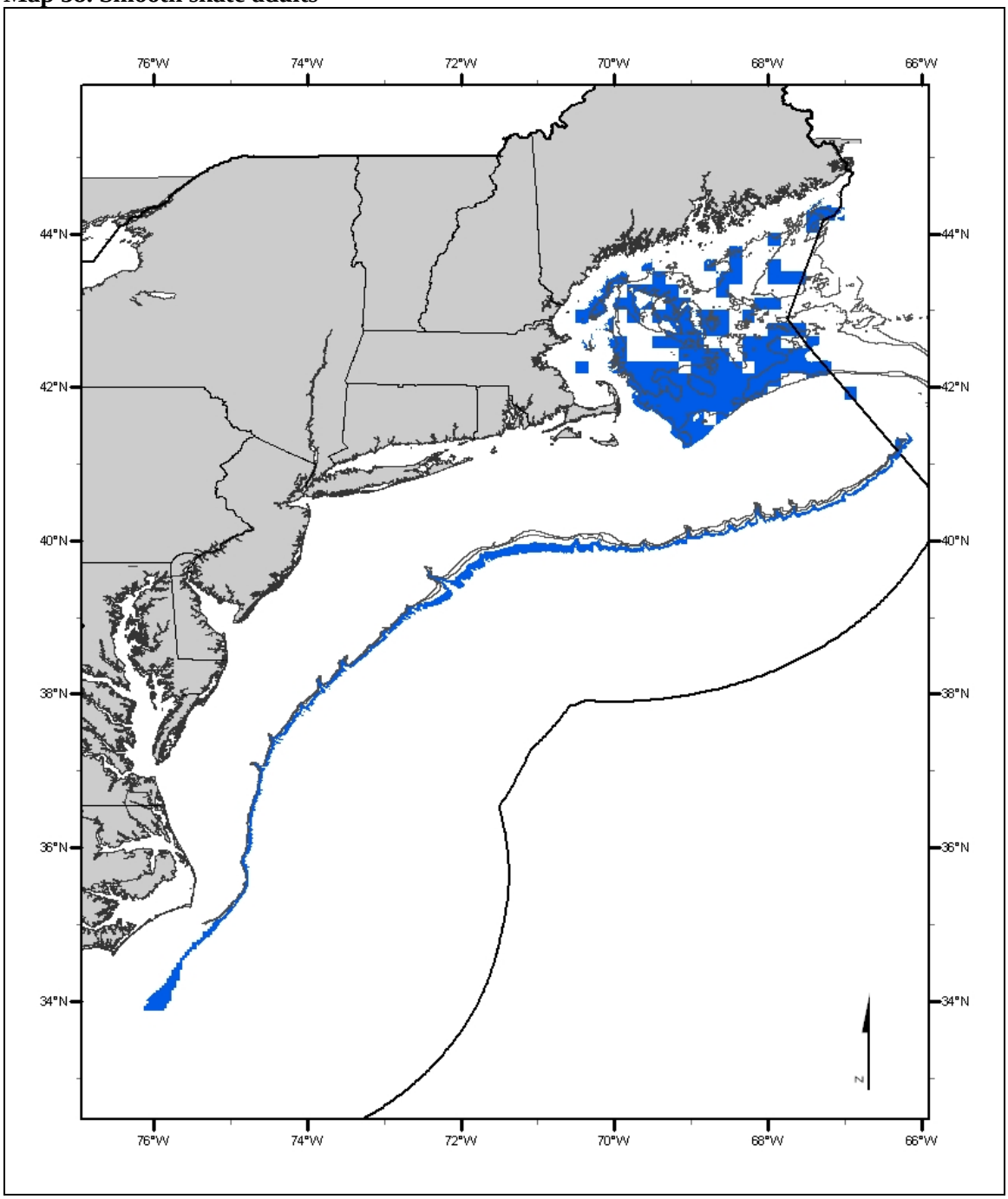
3.5 Smooth skate

Map 57. Smooth skate juveniles



The Alternative 3D EFH designation for juvenile smooth skate on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore and off-shelf areas where juvenile smooth skate were determined to be present, based on 10% frequency of occurrence in state trawl surveys and off-shelf depth and geographic ranges.

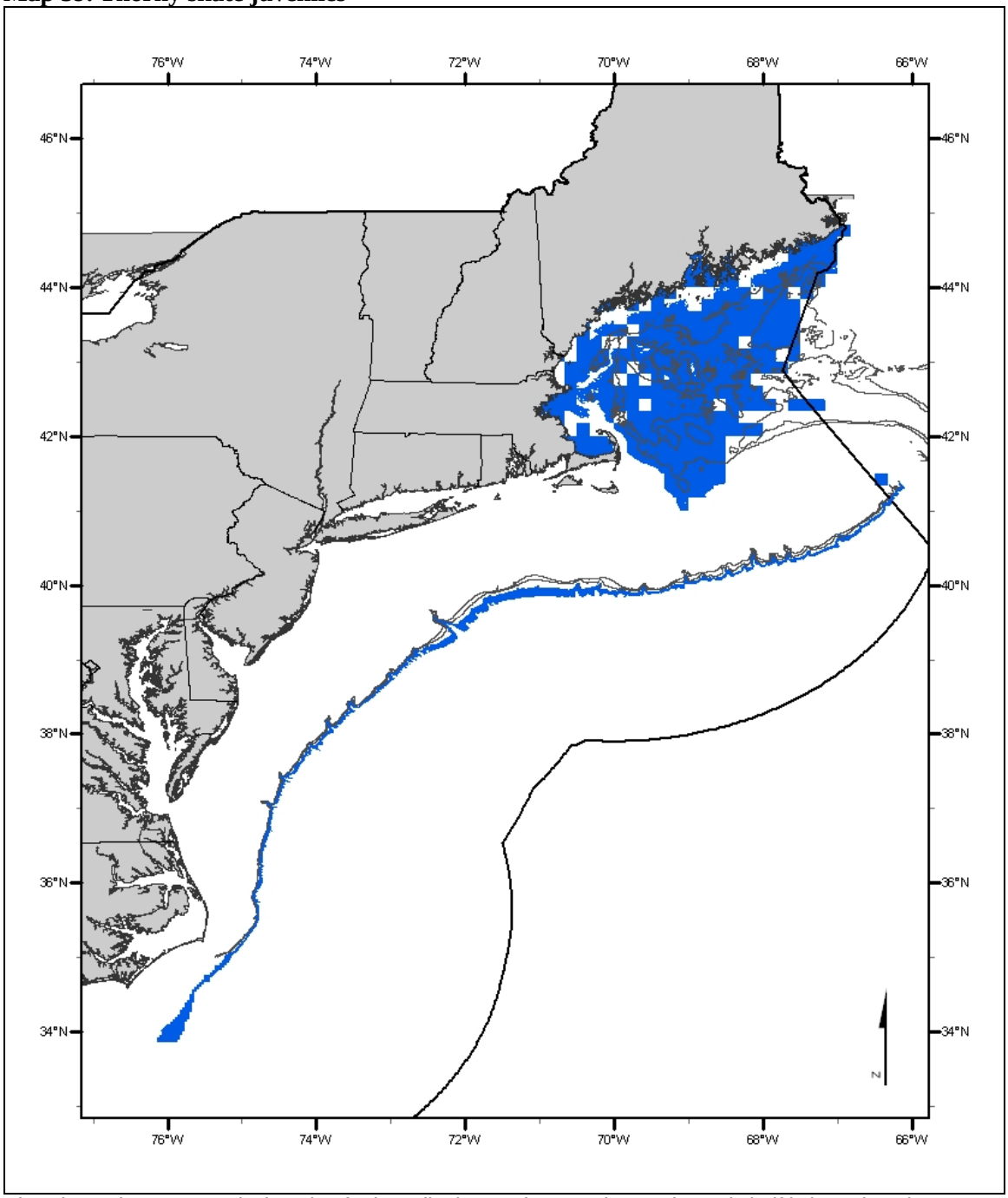
Map 58. Smooth skate adults



The Alternative 3D EFH designation for adult smooth skate on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore and off-shelf areas where adult smooth skate were determined to be present, based on 10% frequency of occurrence in state trawl surveys and off-shelf depth and geographic ranges.

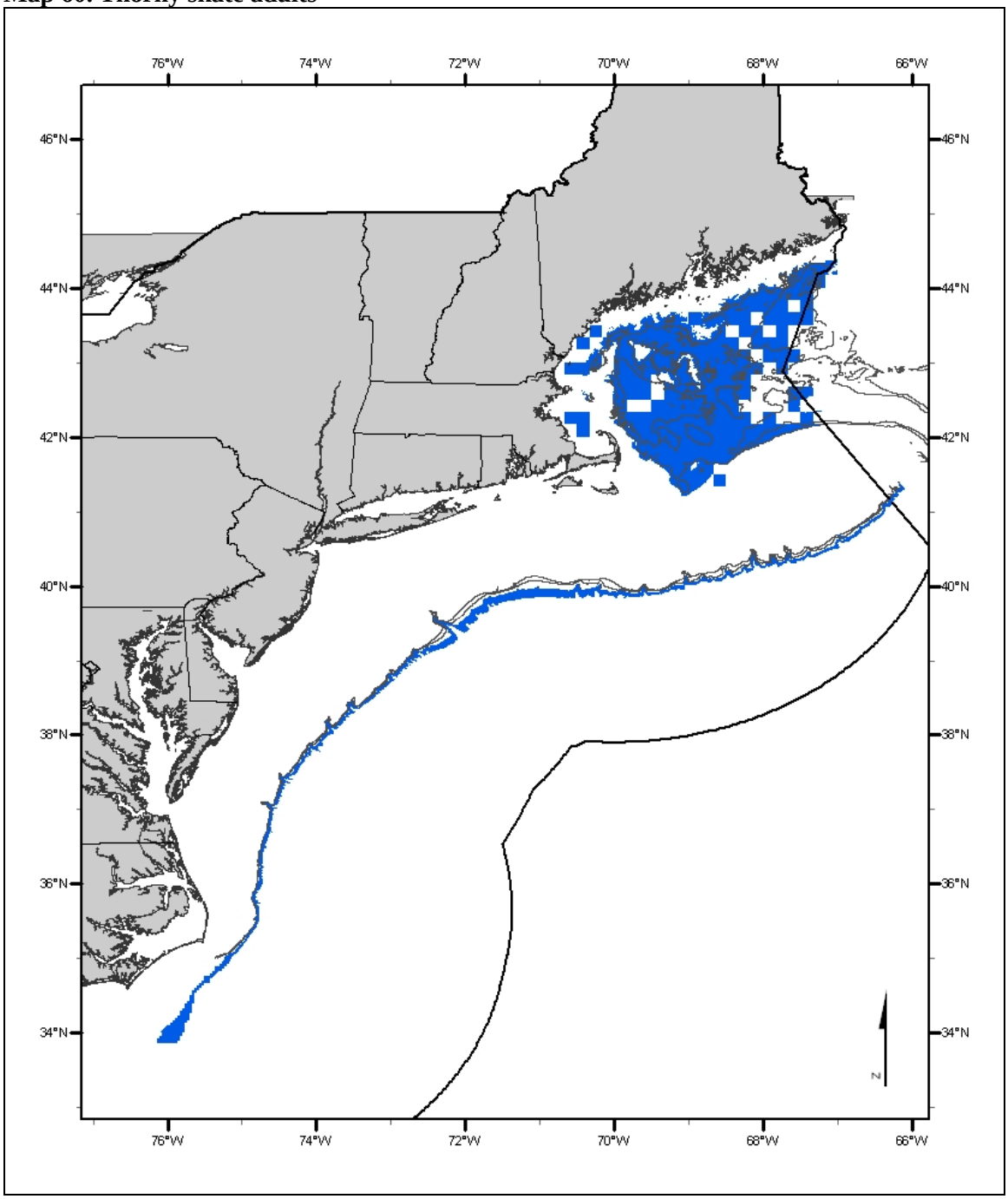
3.6 Thorny skate

Map 59. Thorny skate juveniles



The Alternative 3C EFH designation for juvenile thorny skate on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 75% cumulative percentage of catch level and includes inshore and off-shelf areas where juvenile thorny skate were determined to be present, based on 10% frequency of occurrence in state trawl surveys and off-shelf depth and geographic ranges.

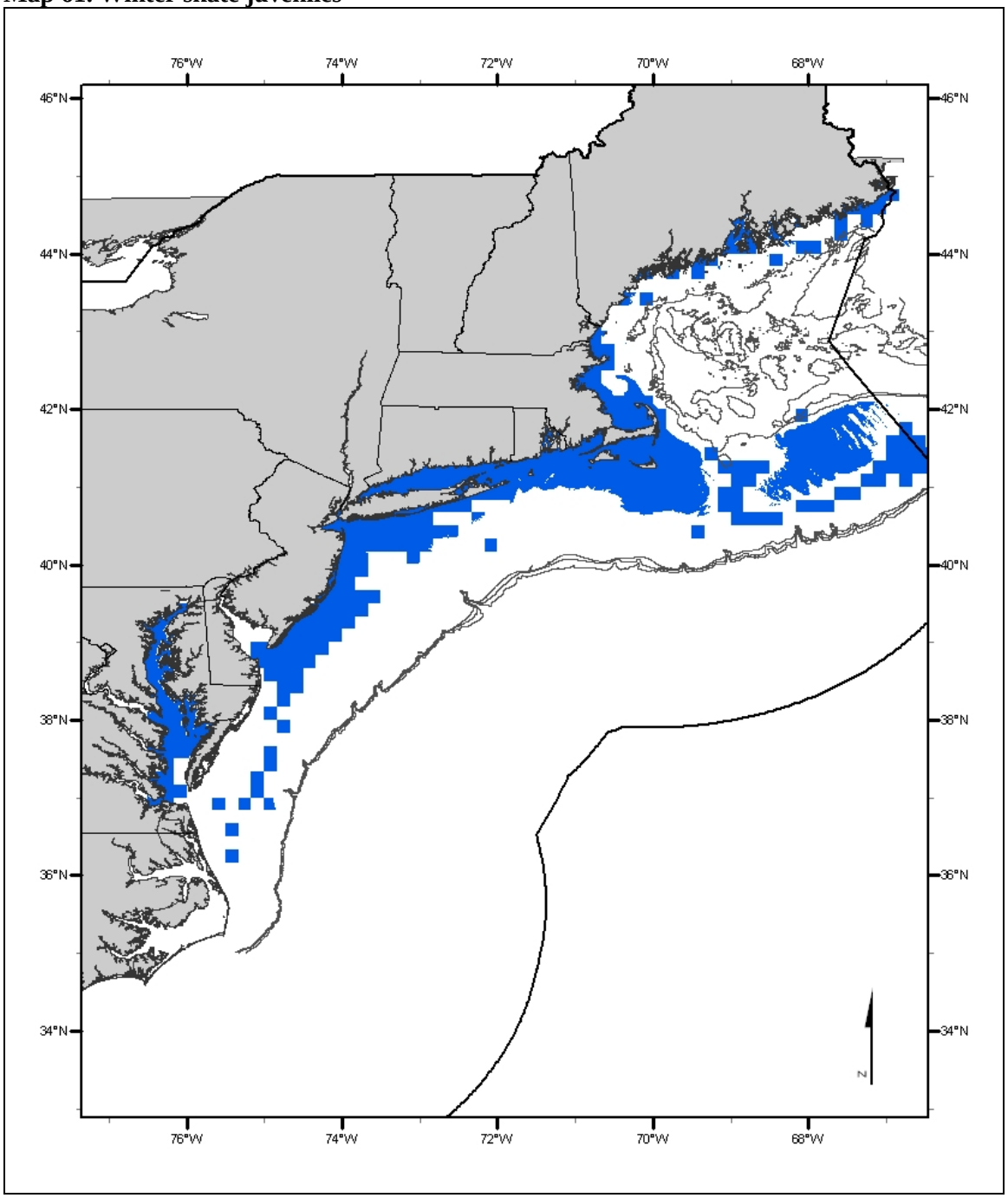
Map 60. Thorny skate adults



The Alternative 3D EFH designation for adult thorny skate on the continental shelf is based on the distribution of depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys or identified in the EFH Source Document for this species. This alternative is also based on the abundance of adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90% cumulative percentage of catch level and includes inshore and off-shelf areas where adult thorny skate were determined to be present, based on 10% frequency of occurrence in state trawl surveys and off-shelf depth and geographic ranges.

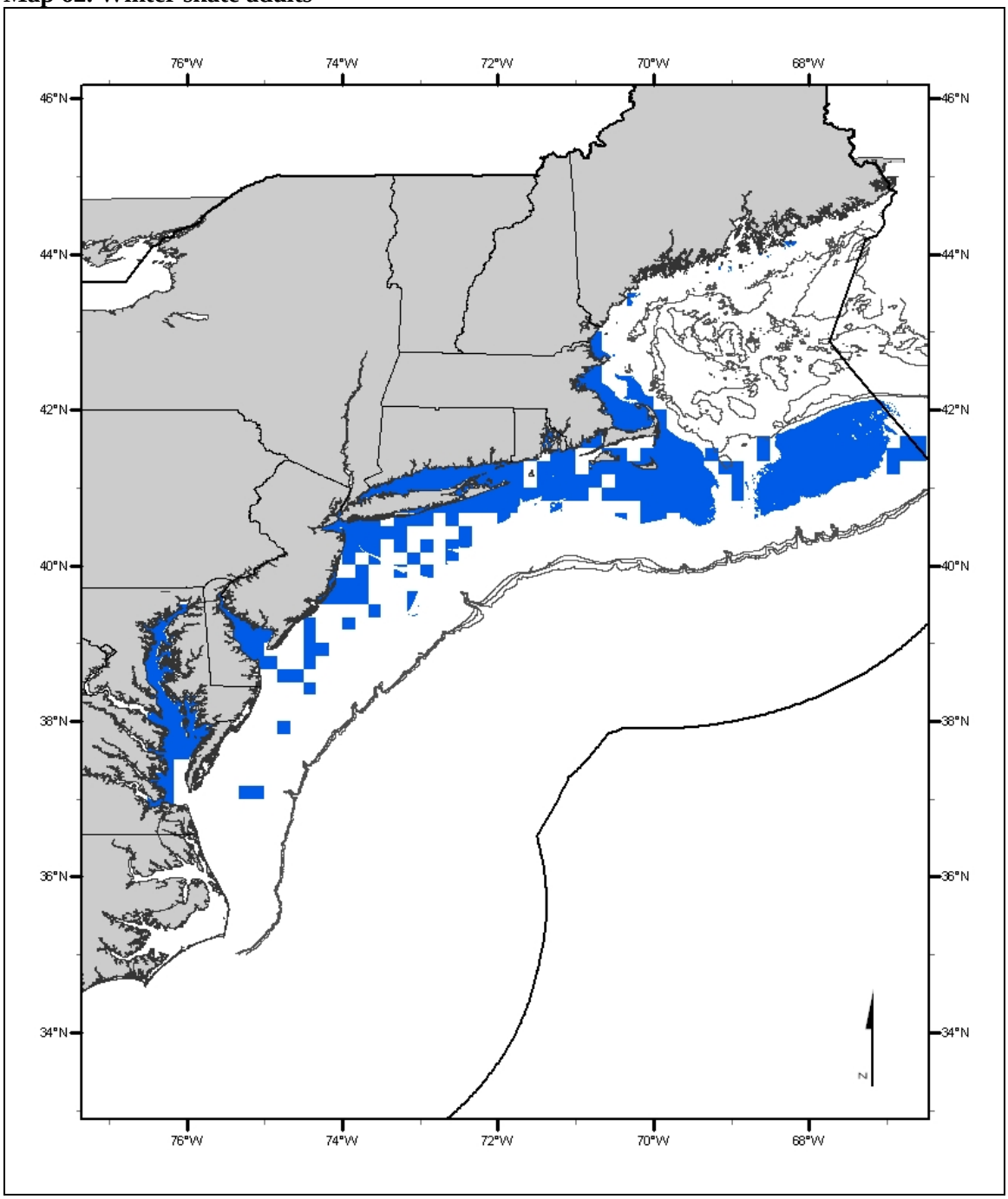
3.7 Winter skate

Map 61. Winter skate juveniles



The Alternative 3E EFH designation for juvenile winter skate is based on the Alternative 3D designation for juvenile winter skate with the addition of ten minute squares along the RI and CT coasts and southeast of Nantucket Island where there are no survey data for this species.

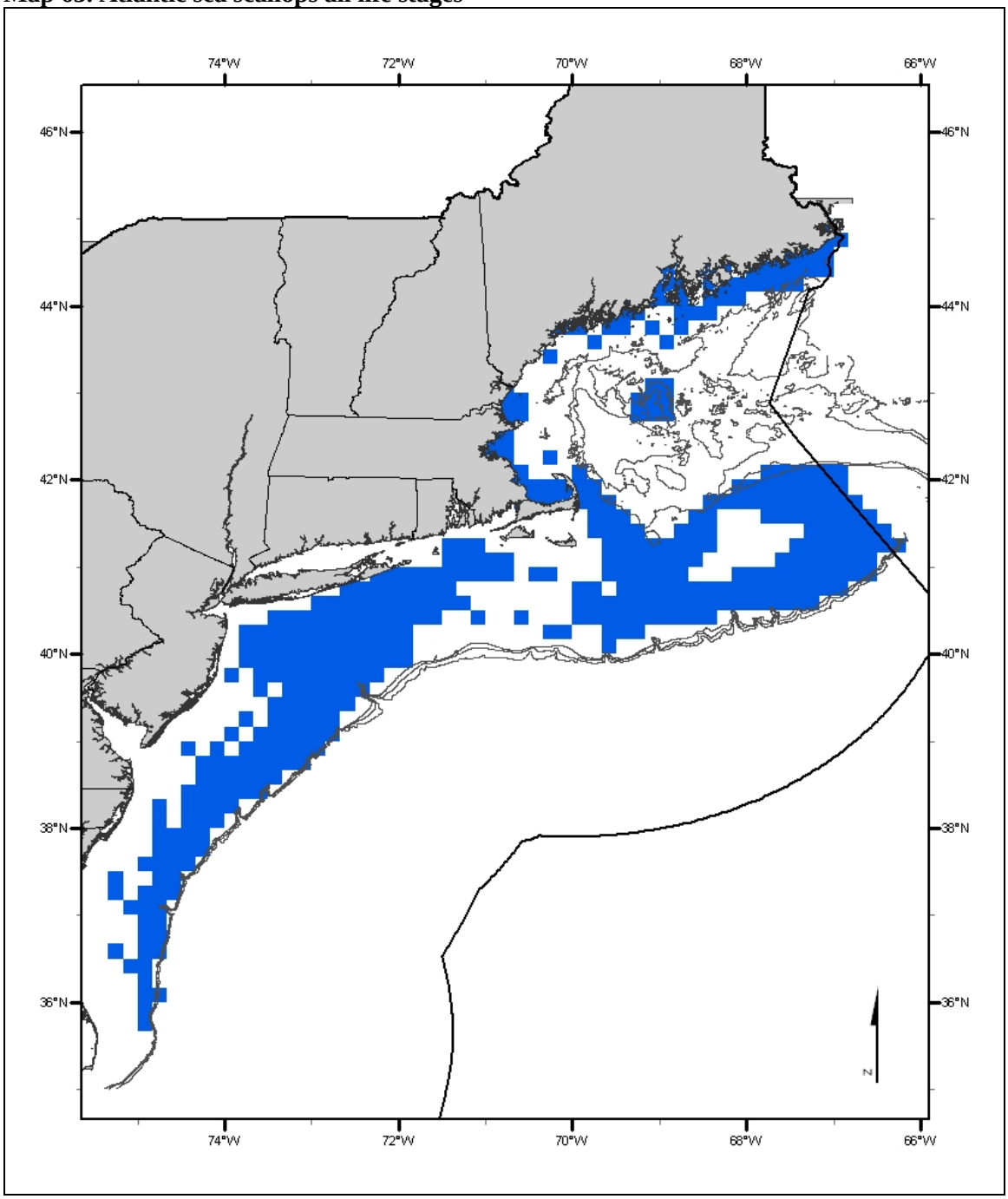
Map 62. Winter skate adults



The Alternative 3E EFH designation for adult winter skate is based on the Alternative 3D designation for adult winter skate with the addition of ten minute squares along the RI and CT coasts and southeast of Nantucket Island where there are no survey data for this species.

4.0 Atlantic sea scallop

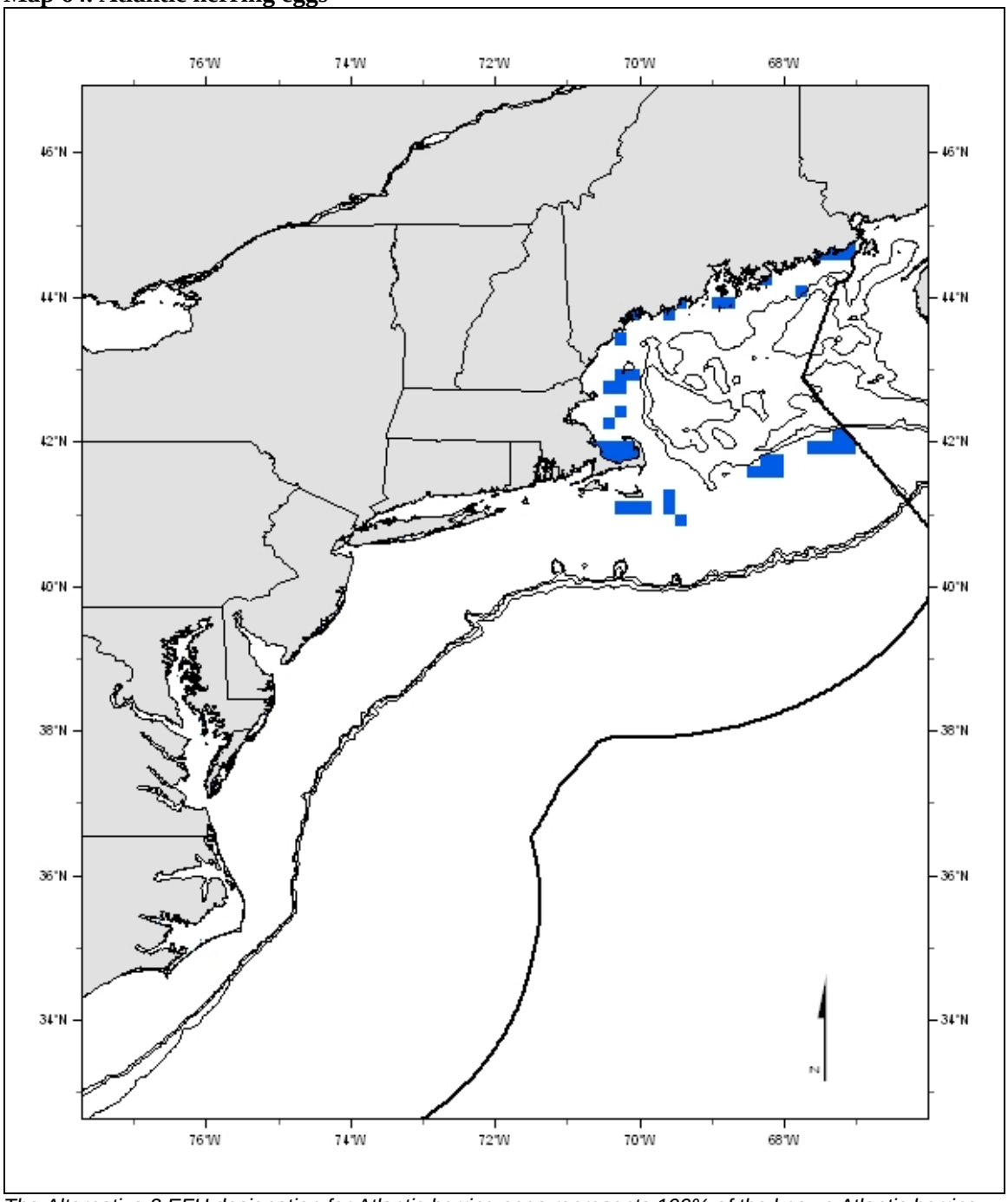
Map 63. Atlantic sea scallops all life stages



The Alternative 5 EFH designation for juvenile and adult Atlantic sea scallops is the same as the Alternative 4 designation, with the addition of ten minute squares on Fipennies Ledge and in eastern Maine that are not well represented in state surveys of the Gulf of Maine. The Alternative 4 EFH designation includes all the ten minute squares where juveniles or adults were caught during 1982-2005 in the summer NMFS sea scallop dredge survey and ten minute squares in the Gulf of Maine where juveniles or adults were caught in state trawl surveys in more than 10% of the tows, as well as those bays and estuaries identified by the NOAA ELMR program where juvenile or adult Atlantic sea scallops were "common" or "abundant."

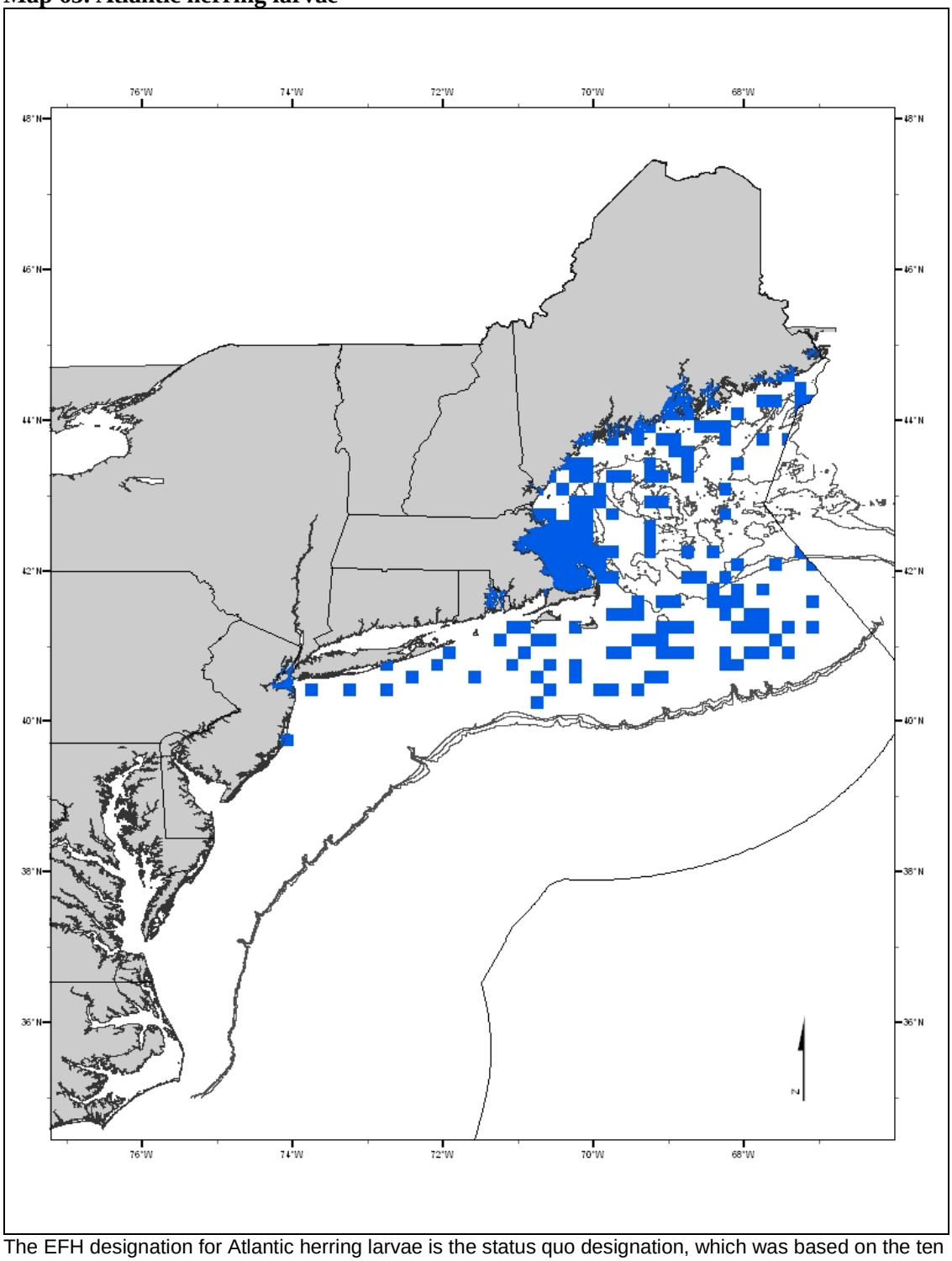
5.0 Atlantic herring

Map 64. Atlantic herring eggs



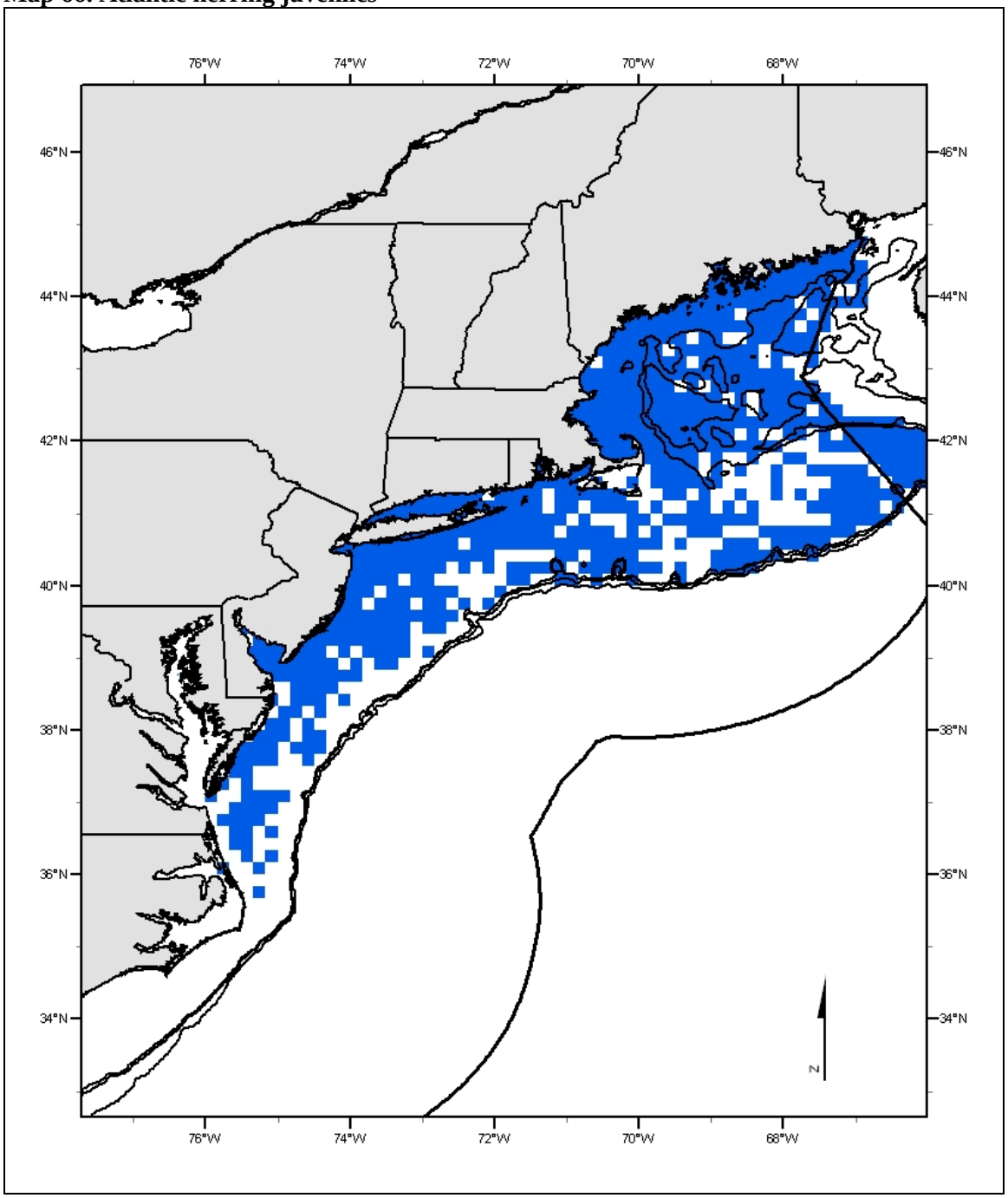
The Alternative 2 EFH designation for Atlantic herring eggs represents 100% of the known Atlantic herring egg beds. These egg beds were identified based on a review of all available information on current and historical herring egg bed locations. In addition, this alternative includes those bays and estuaries identified in the NOAA ELMR program where herring eggs were "rare", "common", or "abundant" and other ten minute squares on the continental shelf that are included in the No Action alternative where eggs have never been observed, but where recently-hatched larvae have been observed during larval herring surveys.

Map 65. Atlantic herring larvae



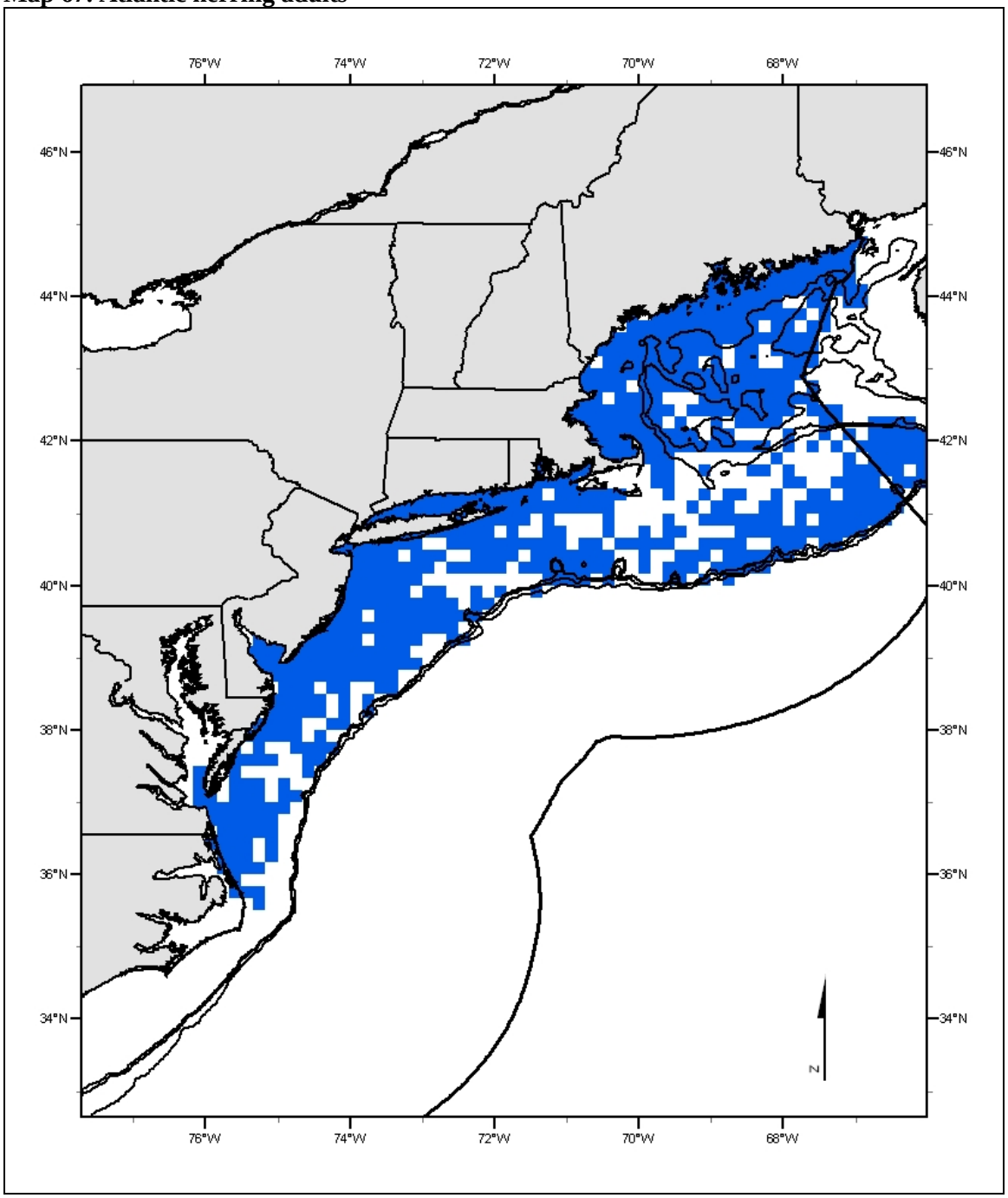
The EFH designation for Atlantic herring larvae is the status quo designation, which was based on the ten minute squares corresponding to the top 75% of the observed range in the 1978-1987 MARMAP survey data. *This designation also includes those bays and estuaries identified by the NOAA ELMR program as supporting Atlantic herring larvae at a "common" or "abundant" level.*

Map 66. Atlantic herring juveniles



The Alternative 2E EFH designation for juvenile Atlantic herring on the continental shelf is based upon relative abundance during 1968-2005 in the fall and spring NMFS trawl survey at the 75% cumulative percentage level plus additional ten minute squares that were "filled in" along the CT and RI coasts . Relative abundance was calculated on a percent of area rather than a percent of catch basis. This alternative also includes ten minute squares in inshore areas where juvenile Atlantic herring were caught in state trawl surveys in more than 10% of the tows, as well as those bays and estuaries identified by the NOAA ELMR program where Atlantic herring juveniles were "common" or "abundant."

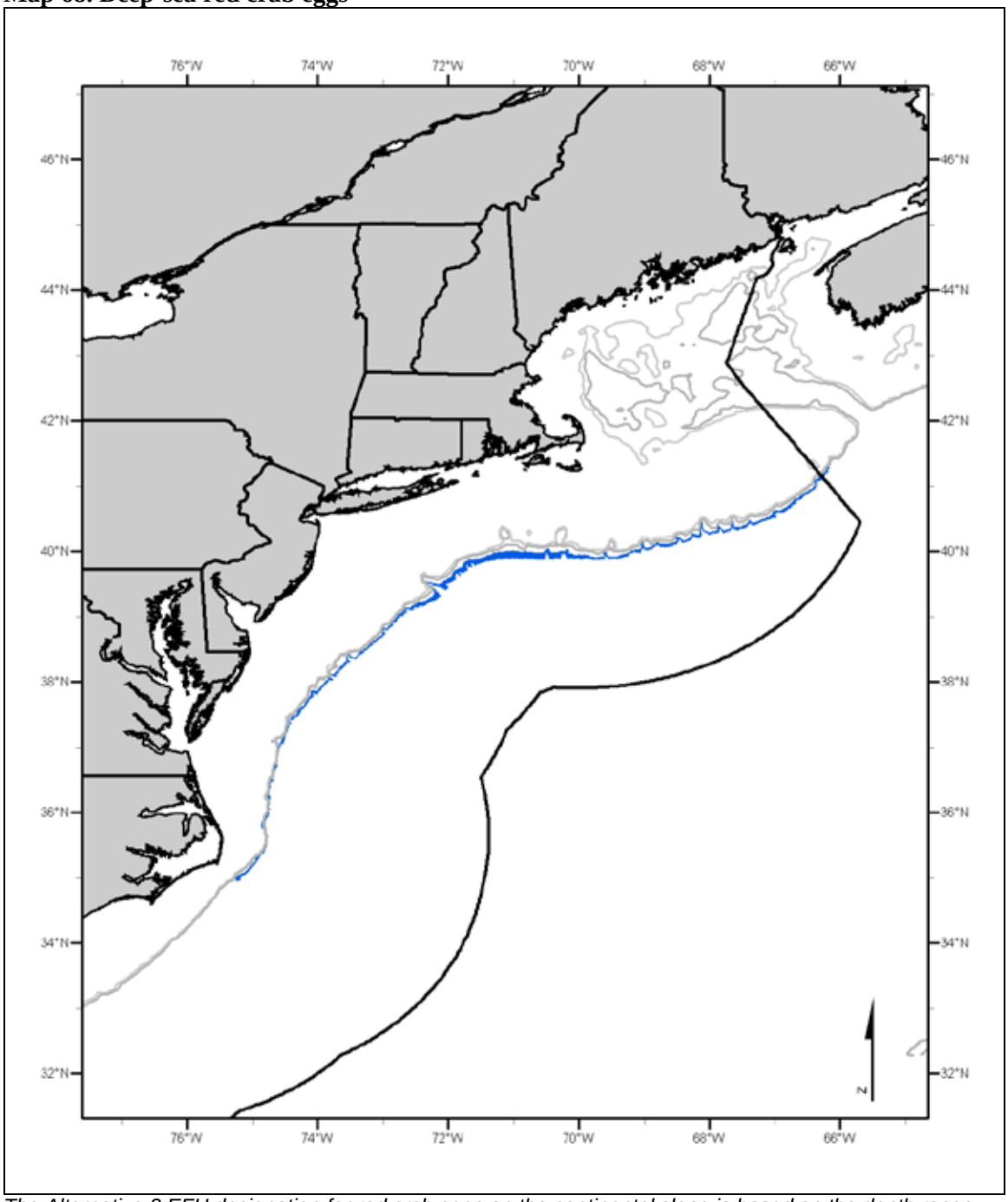
Map 67. Atlantic herring adults



The Alternative 2E EFH designation for adult Atlantic herring on the continental shelf is based upon relative abundance during 1968-2005 in the fall and spring NMFS trawl survey at the 75% cumulative percentage level plus additional ten minute squares that were "filled in" along the ME, CT, and RI coasts . Relative abundance was calculated on a percent of area rather than a percent of catch basis. This alternative also includes ten minute squares in inshore areas where juvenile Atlantic herring were caught in state trawl surveys in more than 10% of the tows, as well as those bays and estuaries identified by the NOAA ELMR program where Atlantic herring juveniles were "common" or "abundant."

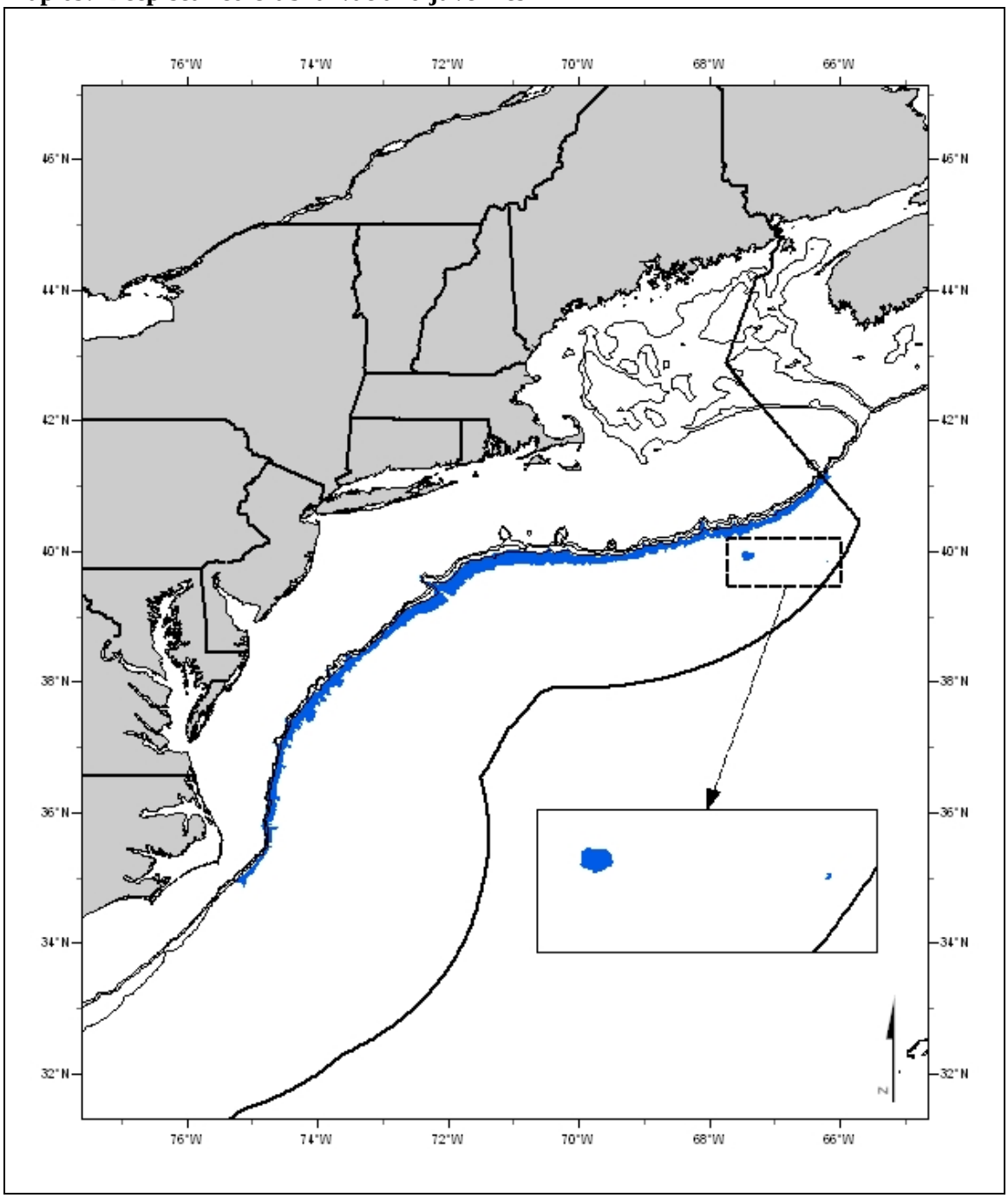
6.0 Deep-sea red crab

Map 68. Deep-sea red crab eggs



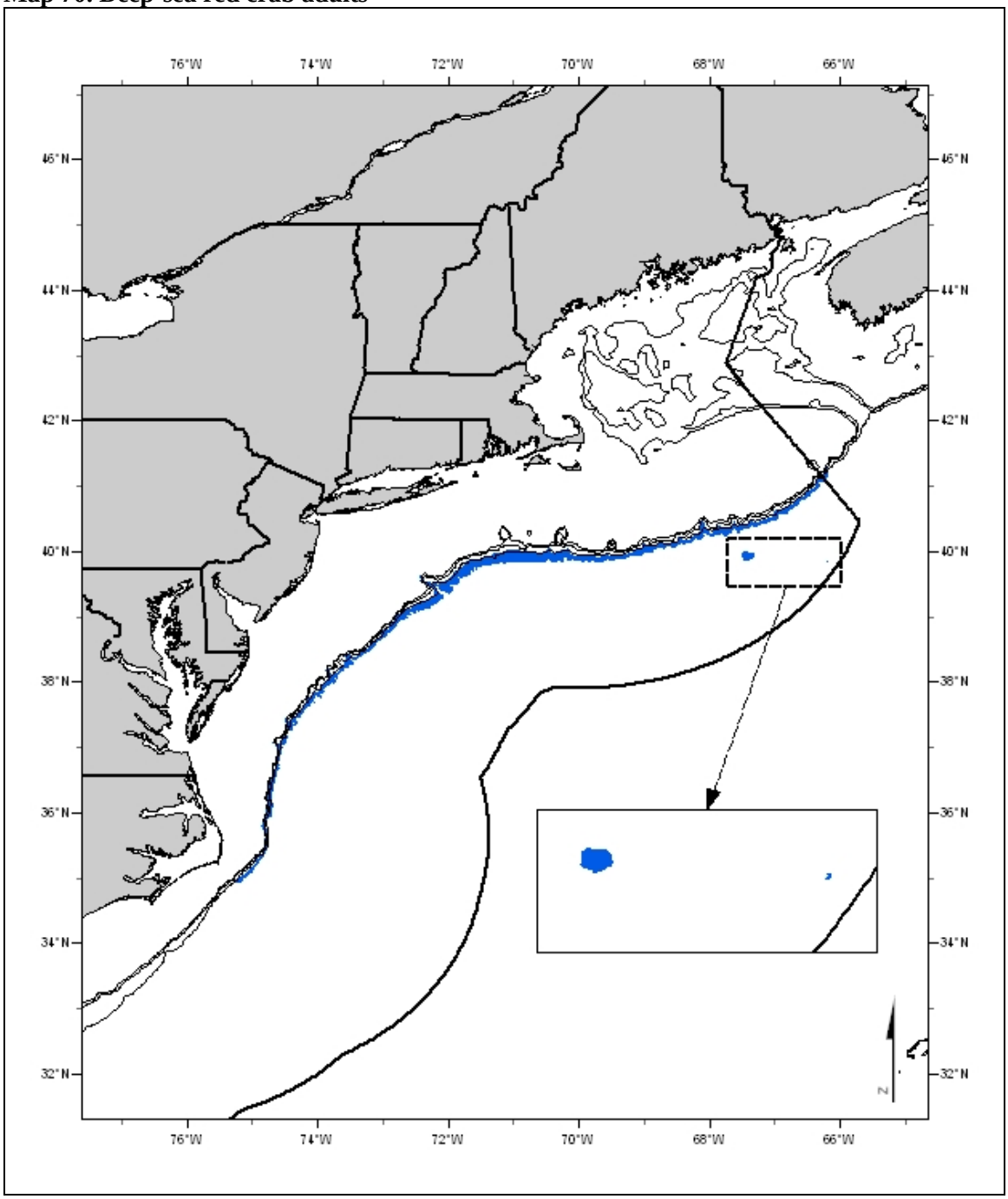
The Alternative 2 EFH designation for red crab eggs on the continental slope is based on the depth range for spawning females as described in Wigley et al. (1975).

Map 69. Deep-sea red crab larvae and juveniles

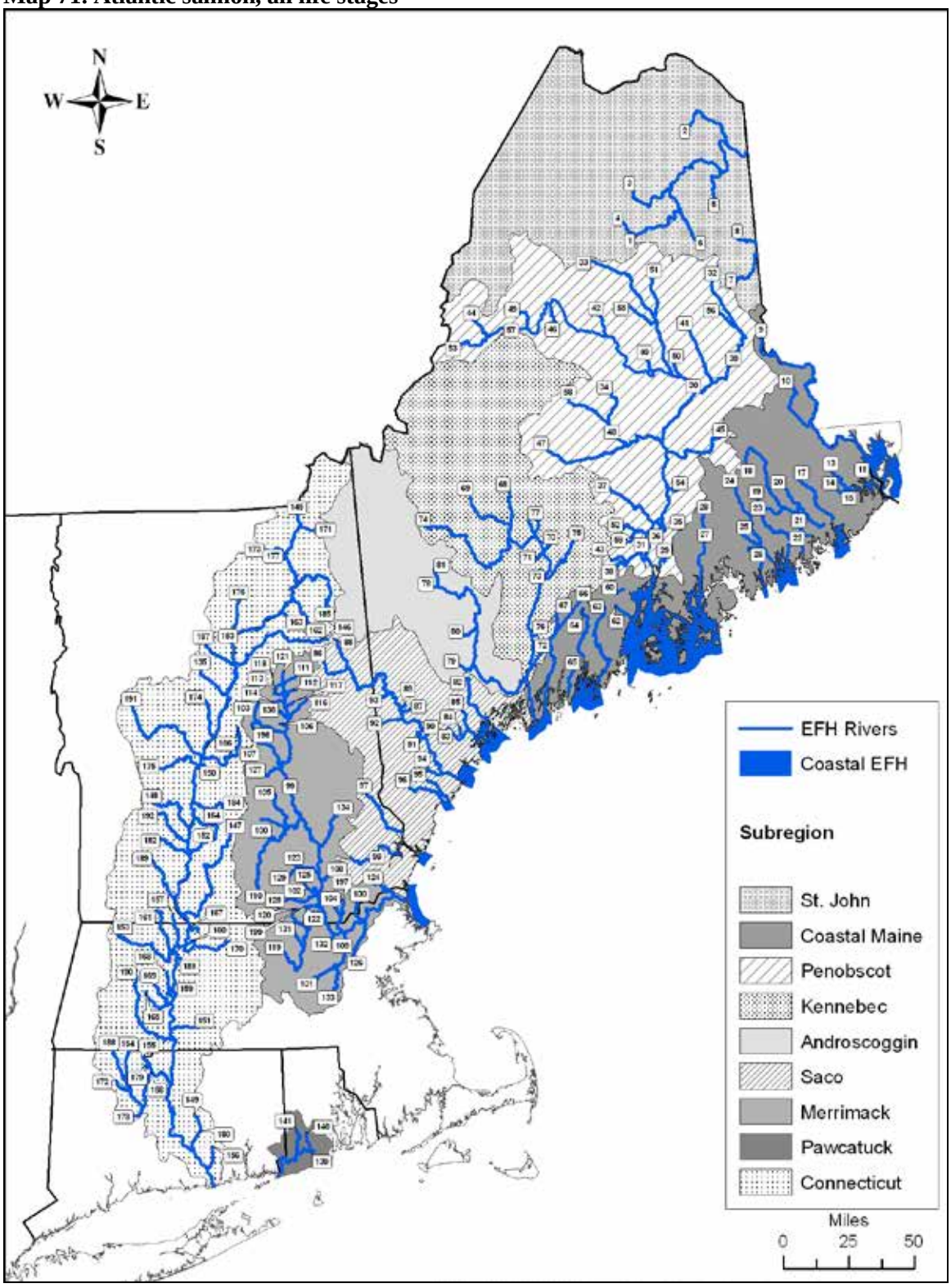


The Alternative 3A EFH designation for red crab larvae and juveniles is based on the maximum depth range for this species on the continental slope as described in Wigley et al. (1975) and on the maximum depth where red crabs have been observed on two seamounts. The seamounts are mapped according to this maximum depth (2000 meters).

Map 70. Deep-sea red crab adults



The Alternative 3A EFH designation for red crab adults is based on the maximum depth range for adults on the continental slope as described in Wigley et al. (1975) and on the maximum depth where red crabs have been observed on two seamounts. The seamounts are mapped according to this maximum depth (2000 meters).

7.0 Atlantic salmon

Map 71. Atlantic salmon, all life stages