

A historical map of the North-West Atlantic Ocean, showing the eastern coast of North America and the western coast of Europe. The map includes latitude and longitude lines, with longitude marked from 90 to 0 at the top and bottom. Various geographical features and regions are labeled, including 'N. England', 'Pennsil', 'Virginia', 'R.S. Lawrence', 'Nova Scotia', 'B. of Fundy', 'ATLANTIC OCEAN', 'France', 'Spain', 'Portugal', 'MEDITERRANEAN', 'Part of BARARY', and 'Norway'. A sailing ship is depicted in the center of the ocean. A semi-transparent white box is overlaid on the map, containing the title text.

‘... A mountain hid under water’:
**Deep Charting, GIS and Cartesian
Perceptions of North-West Atlantic
Fisheries ca 1504-ca 1786**

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The historical geographer must therefore be a regional specialist, for he must not only know the region as it appears today; he must know its lineaments so well that he can find in it the traces of the past, and he must know its qualities so well that he can see it as it was under past situations.

One might say that he needs the ability to see the land with the eyes of its former occupants, from the standpoint of their needs and capacities.

This is about the most difficult task in all human geography, to evaluate site and situation, not from the standpoint of an educated American of to-day, but to place one's self in the position of a member of the cultural group and time being studied (10)

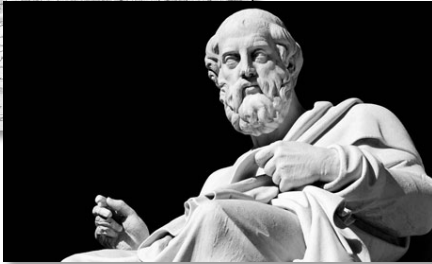
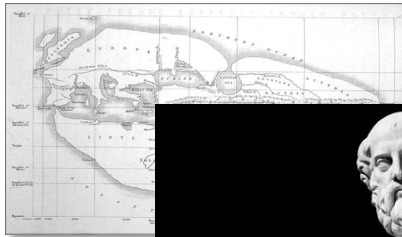


Carl Sauer 1941

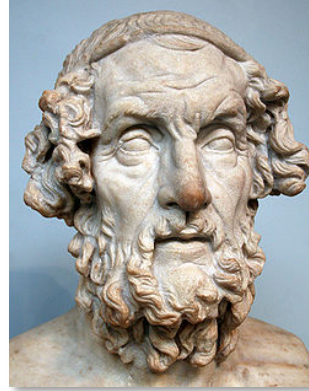
Foreword to historical geography.

Annals of the Association of American Geographers, 31(1), pp.1-24

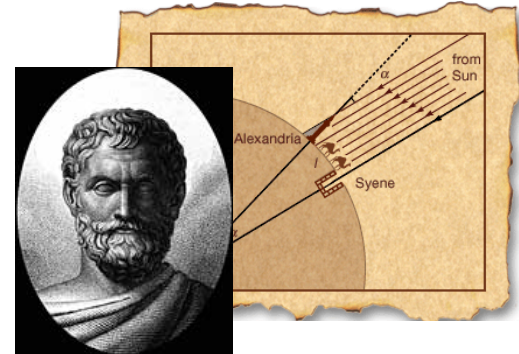
The Poetic and the Positivistic



Strabo
64/63 BC – 24 AD



Homer
850 BC

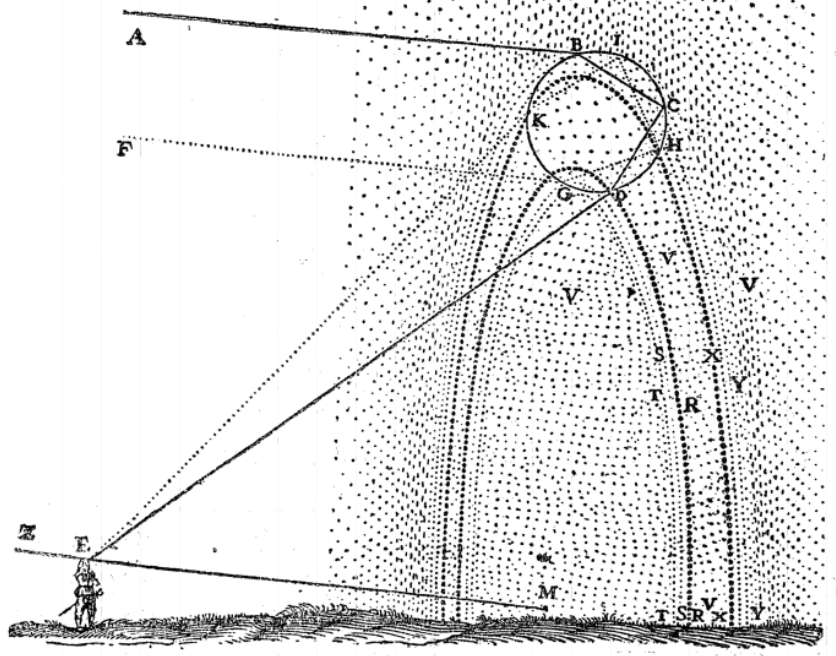
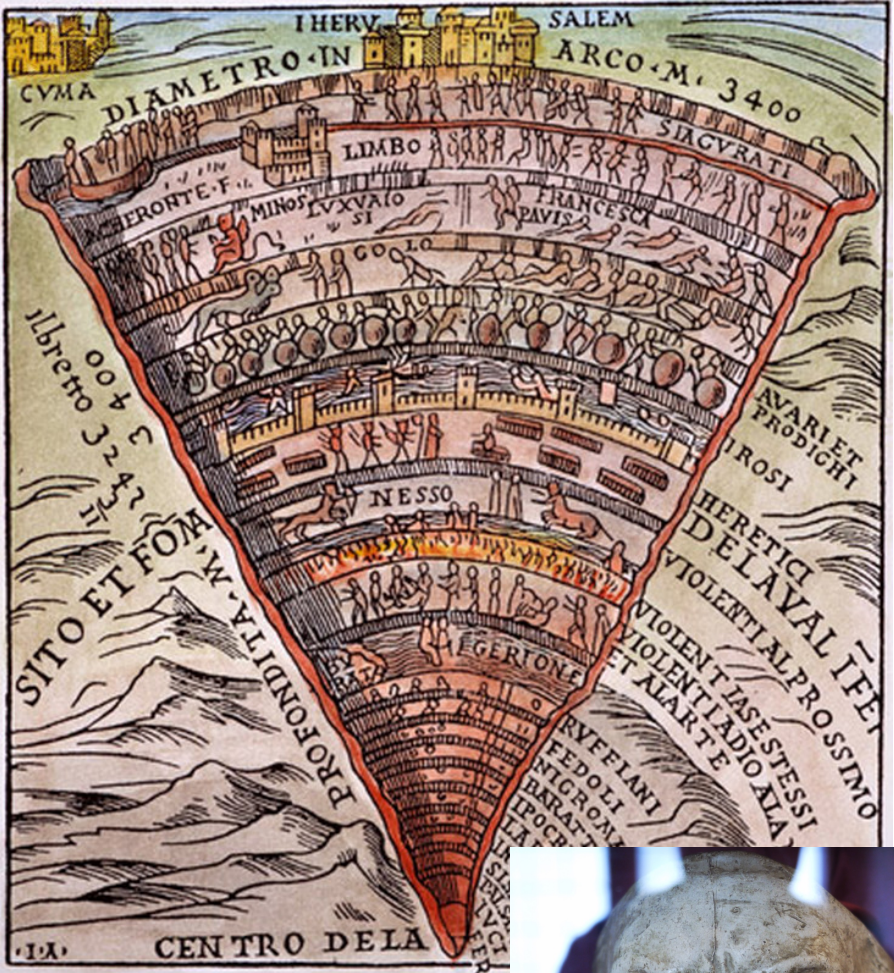


Eratosthenes
276 BC-194 BC

. . . initially ‘the geographer’s science and storyteller’s art [. . .] could not be fully detached from each other [. . .] an academic controversy was waged over the reliability of geographical data in Homer’s *Odyssey*.

Strabo, who believed the *Odyssey* to be authentic and reliable [. . .] leveled criticism against **Eratosthenes** for holding that Homer should be read as a poet and not as a scientific authority.

J. S. Romm (1992) *The Edges of the Earth in Ancient Thought: Geography, Exploration, and Fiction* (Princeton: Princeton University Press) 3-4

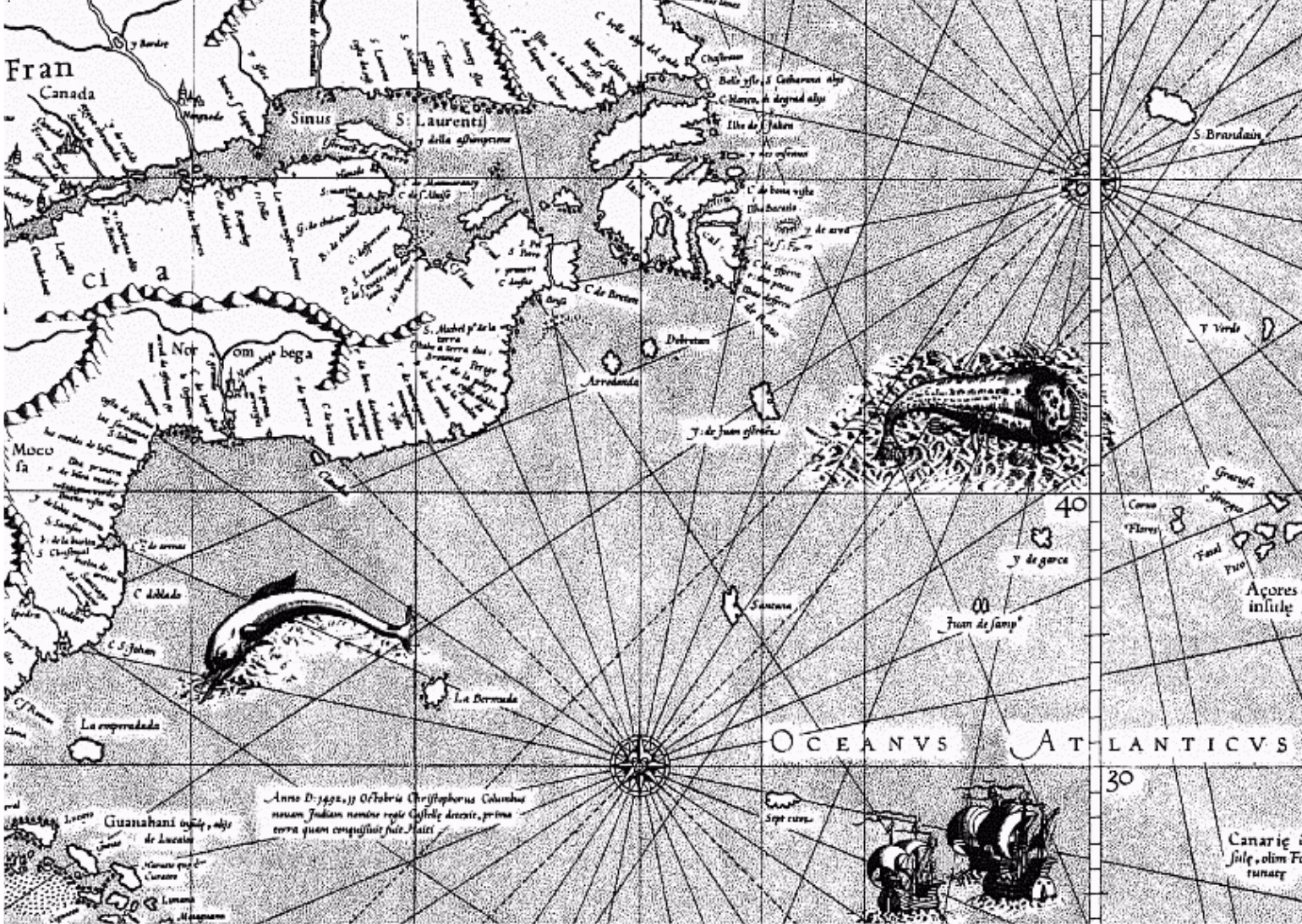




Poetic Cartography: Medieval Atlantic Maps

J.K. Wright (1965) “filled by the imaginations of the coast-dwelling peoples of the Old World with fabulous and fantastic isles.”

Seventeenth century historical philosopher Giambattista Vico coined the term *poetic geography* to describe mapping practices engaged by the ancient Greeks, that continued to the medieval ages. Map-makers would plot their culture’s belief systems, myths and aspirations upon the charts and tapestries of the seascapes and landscapes they depicted.



Collision of the poetic, the portolan, and positivistic. Section from Gerard Mercator (1569) *Nova et aucta orbis terrae descriptio ad usum navigantium emendate accomodata*. Both portolan and meridian / parallel charting techniques are featured. (wikicommons)



The North Atlantic Fish Revolution

An Environmental History of the North Atlantic 1400-1700 (NorFish)

· Professor Poul Holm (P.I.)·

European Research Council Advanced Grant (2016-2020), NorFish, ERC-2014-ADG

In 1497, John Cabot returned to Bristol from a voyage across the North Atlantic. He told of waters so thick with fish that they could be lifted straight on board in baskets. Within a few years of this journey fishermen from all over Western Europe made the journey across. This was the beginning of the Fish Revolution of the early-modern world.

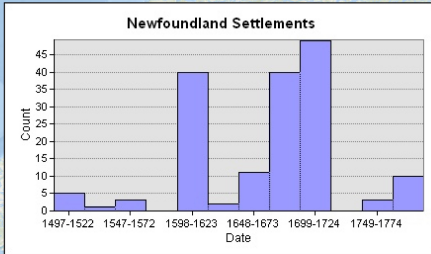


**Poul Holm | Charles Travis | Francis Ludlow
Kevin Loughheed | Kieran Rankin | Robert Legg
John Nicholls | Bernard Allaire | Al Matthews**

North Atlantic Maritime Settlements C.A. 500 BC to Present

Fish Ports 1497-1774

- France
- England

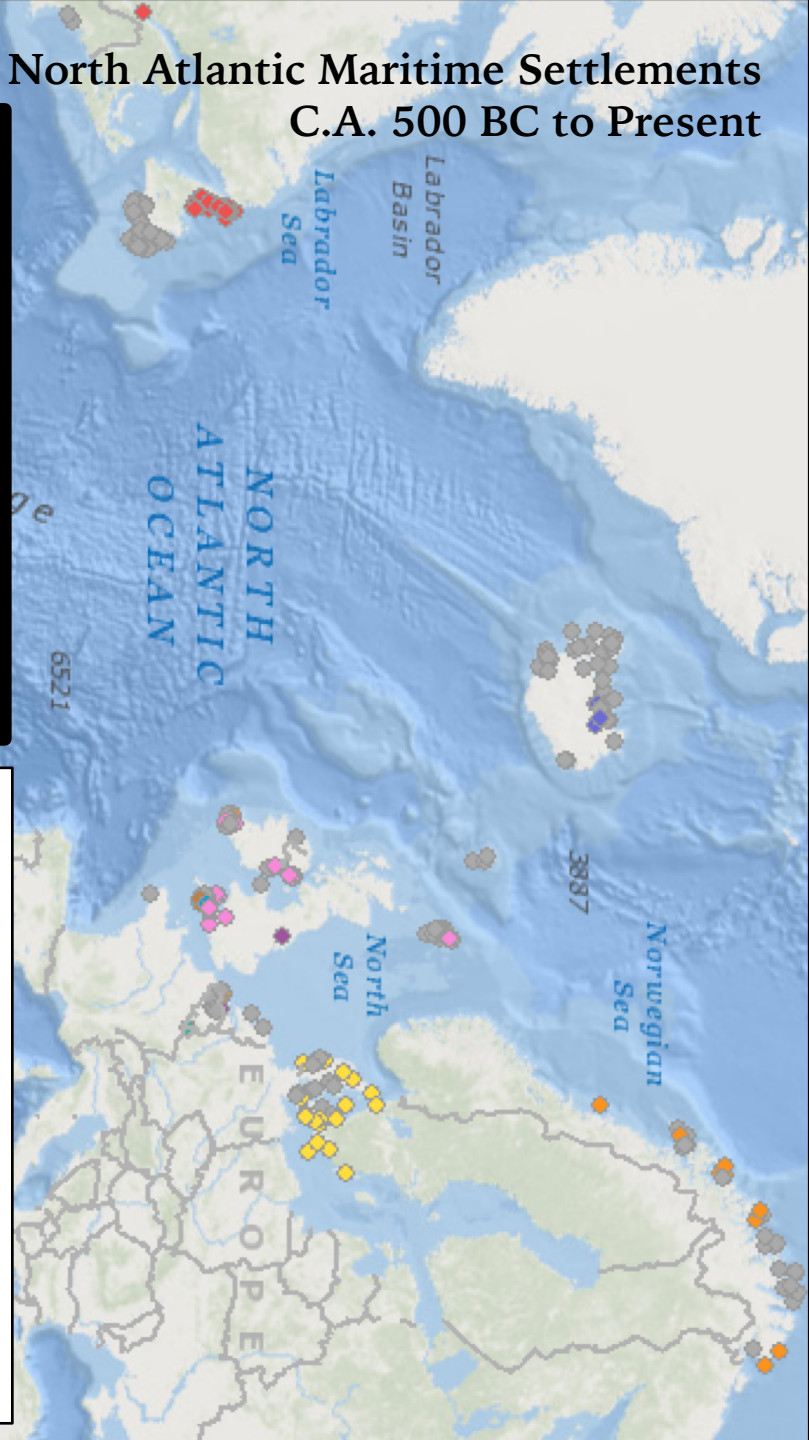


0 20 40 80 120 160 Miles

Esri, Garmin, GEBCO, NOAA/NGDC, and other contributors

Map of North Pole,
Willem Barentsz
(1598) Netherlands

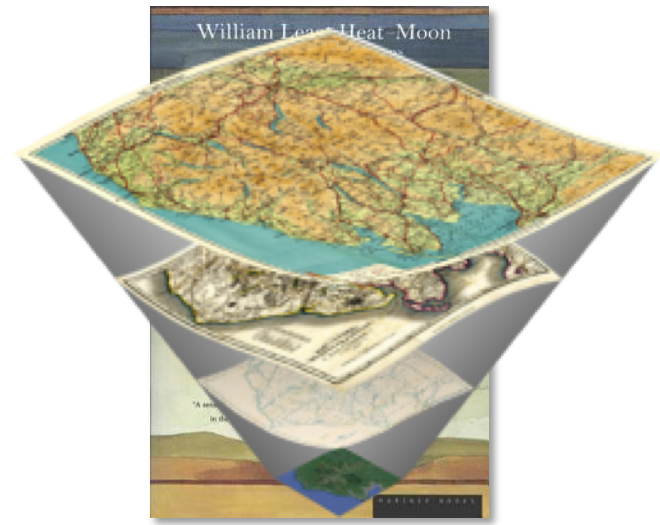
- Fishing room
- Fishery
- Monastic
- City
- fishing village
- Fishing village/fishmarket
- Port
- Fishery (fishing village)
- Town
- Farm



Deep Mapping & Charting GIS

William Least Heat Moon

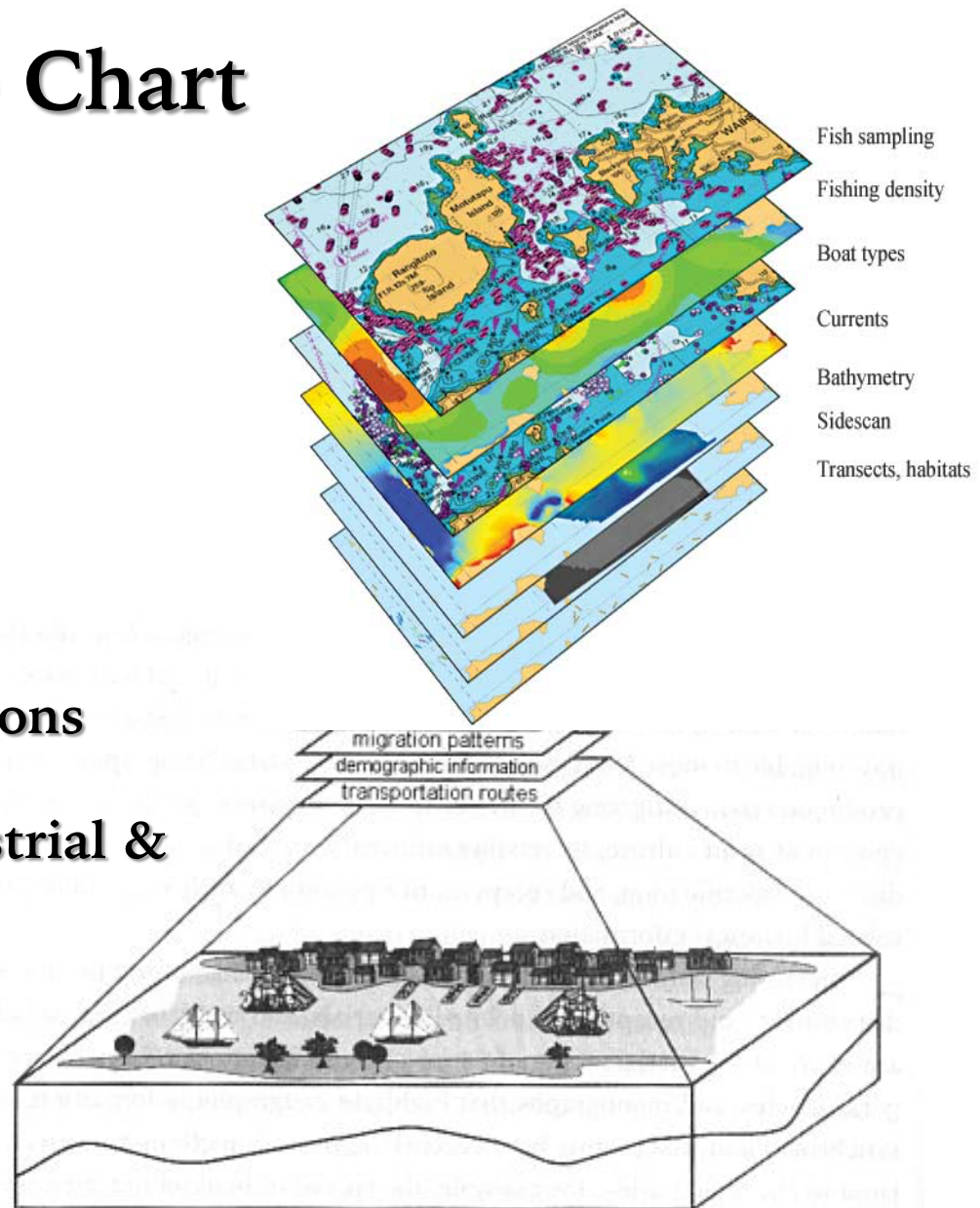
PrairyErth: A Deep Map (1991)



- **Deep Mapping:** quantitative and qualitative data / methodologies.
 - Focus on topics that cross borders links texts and images in different locations—at times in different languages, and at times reflecting conflicting interpretations of the material involved.
 - Integrating multiple forms of knowledge.
 - Dynamic visualization of agency, networks, flows and time.
 - Proprietary GIS (Esri ArcGIS)/ Opensource (Google Earth, QGIS, etc.)
- **Deep Charting:**
 - “form of counter-mapping or reclaiming the map itself,”
 - by utilizing “new geospatial technologies”
 - to “weave together multiple narratives in an attempt to capture experimental, emotional, sensual, acoustic, spiritual and metaphorical space, as well as more quantifiable signatures of a specific region.” (Eleanor Hayman, et. al., 2017, 236)

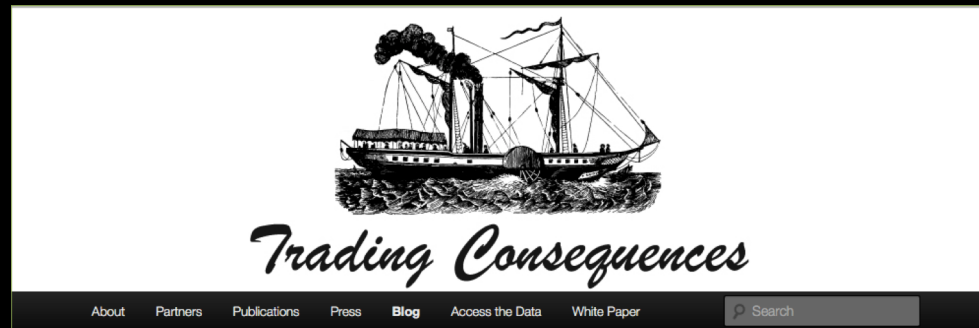
Towards a Deep Chart

- Landing records
- Price data
- Consumption patterns
- Urban and rural fishing settlements
- Investments and political behavior
- International trade
- Abiotic and biotic conditions during the period
- Digitized historical terrestrial & nautical cartography
- Ship log data, etc.



Adapted from: MacDonald and Black 2000, 510. (From Ian Gregory: *A Place in History: A Guide to Using GIS in Historical Research* (2002); Ude Shankar: 2008.

Sources & Models for the *NorFish Deep Charting*



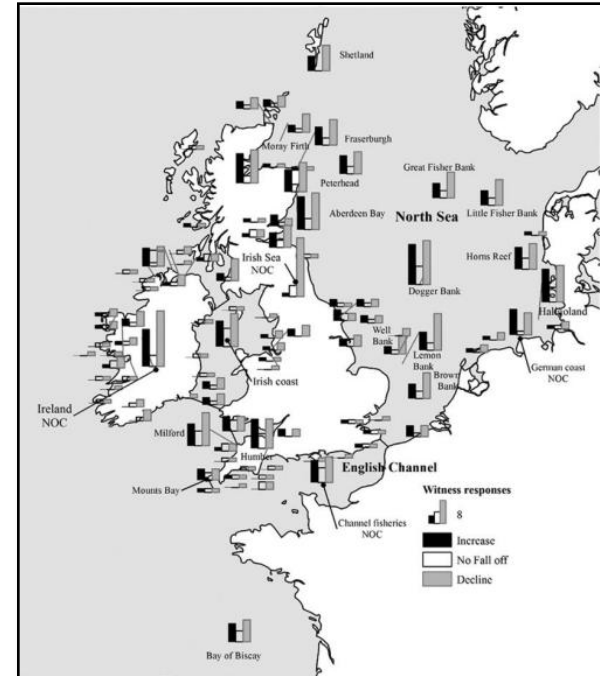
- Trading Consequences database which enables historically traded volumes of commodities to be filtered by geographical location.
- Richard Hakluyt's 'Principal Navigations' and the Hakluyt Society's Online Collections.
- Sound Toll Records.
- Medieval and Early Modern Data Bank.
- The Trans-Atlantic Slave Trade Database.
- A Deep Map of the English Lakes District.
- The Atlas of Maritime Buddhism.
- Digital Literary Atlas of Ireland, 1922-1949 (TCD).
- The Downe Survey Project (TCD).

Qualitative & Quantitative GIS Methodologies

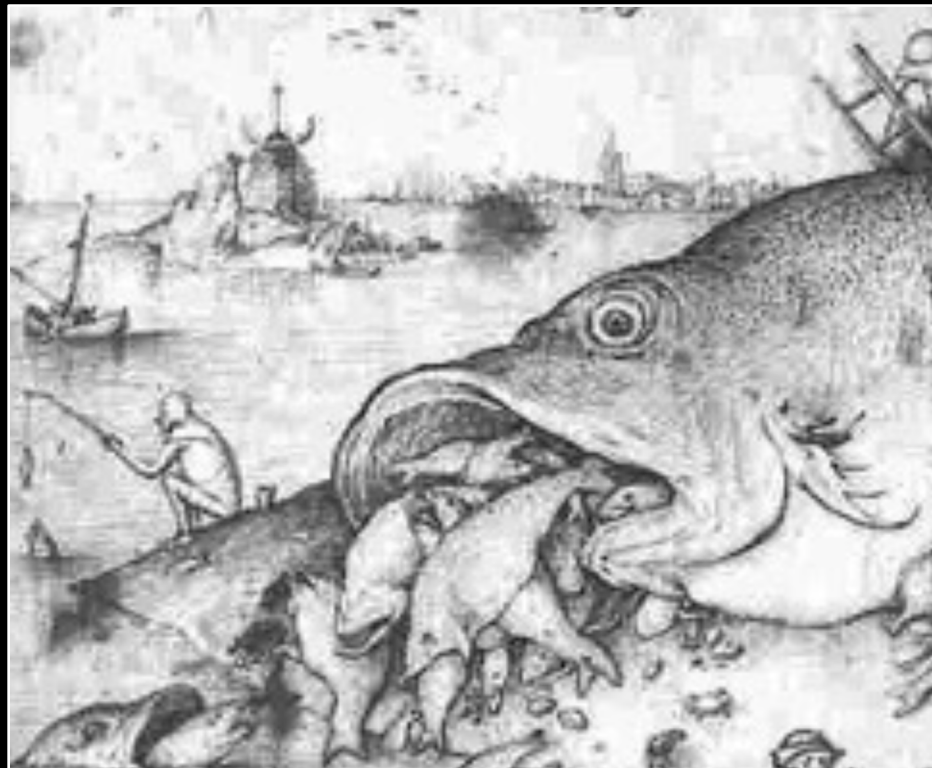
- CAQDA (computer aided qualitative data analysis) and GIS visualization greatly facilitates the task of identifying and interpreting the attitudes, events, and narrative patterns contained in archival documents.

1. Text recognition (transforming documents into searchable formats)
2. Units of Evidence: ports, witnesses, records, archeological data, etc.
3. Word frequencies / Key words; and,
4. Text codes / Geocodes.

(Schwartz, 2015)



**Witness Estimates of Fish
stocks at UK fishing sites,
1893-1894,
*Report from the select committee
on sea fisheries,
House of Commons
Parliamentary Papers
(Schwartz: 2014)***



The Fish Revolution 1400-1700

Fish transformed from a limited, high-priced resource to an abundant, low-priced commodity:

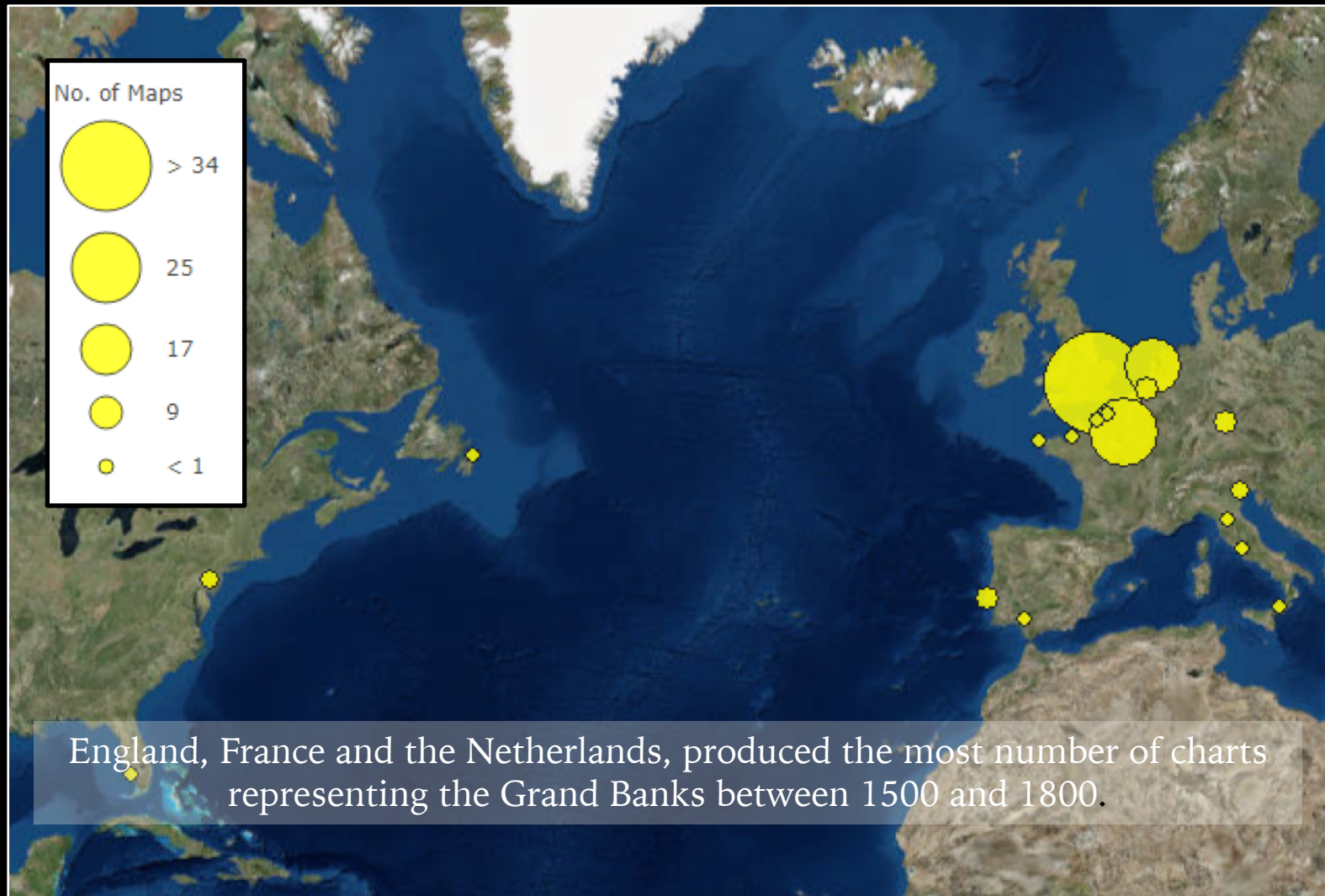
- This was contrary to the sharp price inflation of other foodstuffs in the early modern period.
- Marked by a North West Atlantic boom and North East Atlantic bust.

Poul Holm

Advanced ERC Grant (2015-2020)

USE THIS ADDRESS IN WEB BROWSER TO ACCESS THE NORFISH STORY MAP

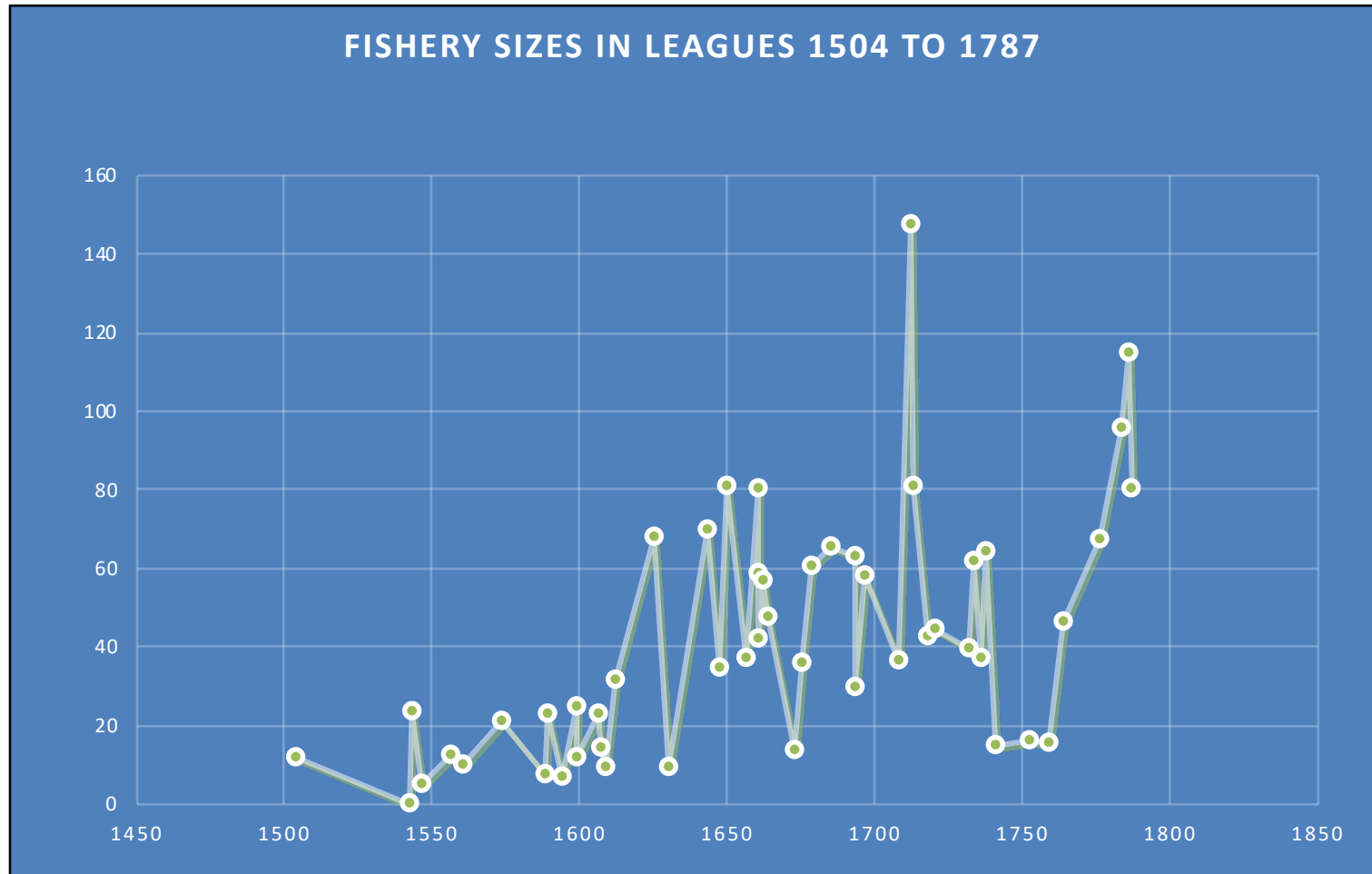
<https://ctravis.maps.arcgis.com/apps/MapJournal/index.html?appid=ab7eb4d7263349caa19793282124c63c>



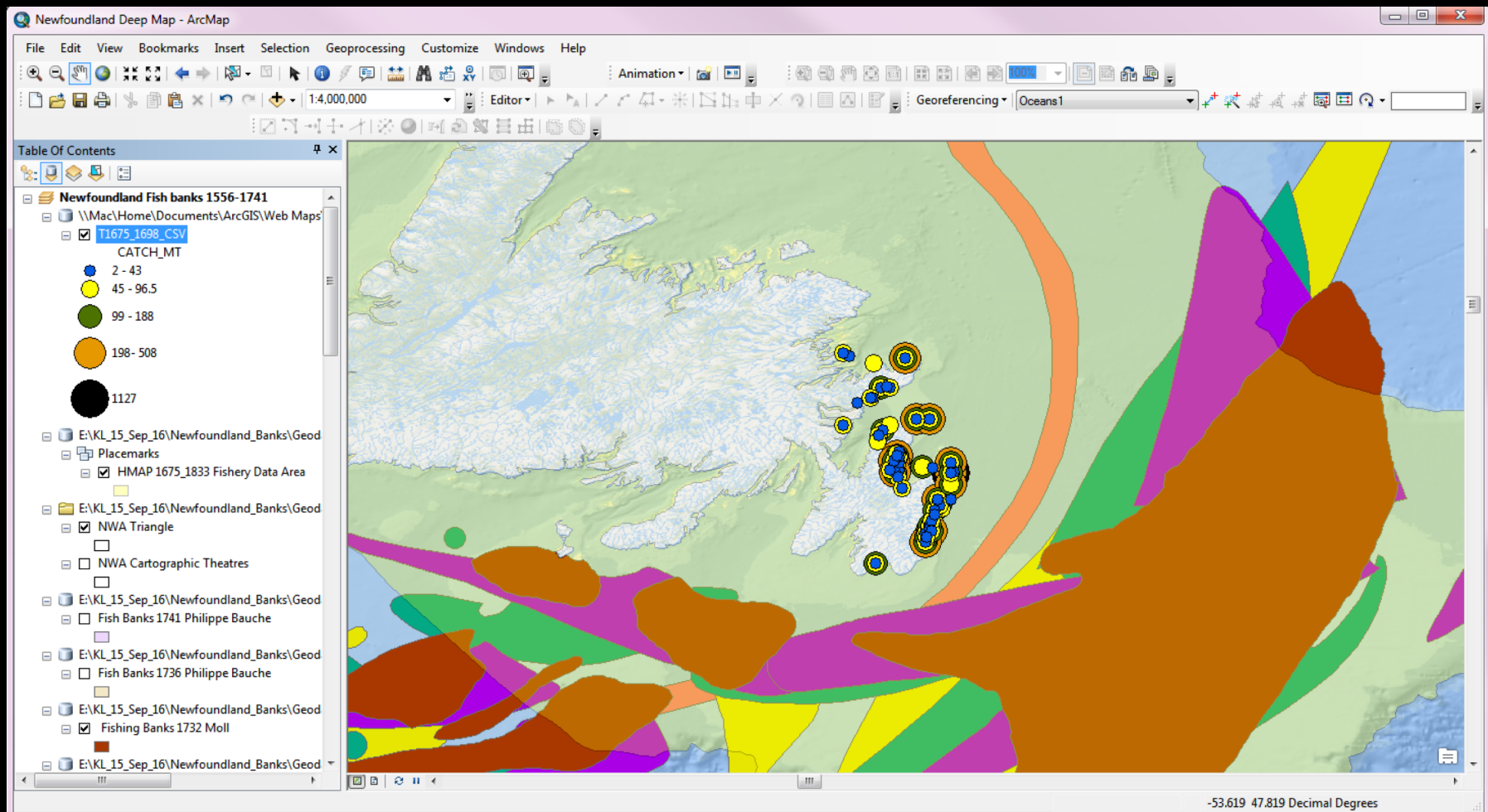
Newfoundland Grand Banks Charting 1500-1800

- 111 Maps examined 1504 to 1794.
- 51 Maps grand banks and fishery data harvested and geo-rectified.

Distant Readings: Quantifying Representation



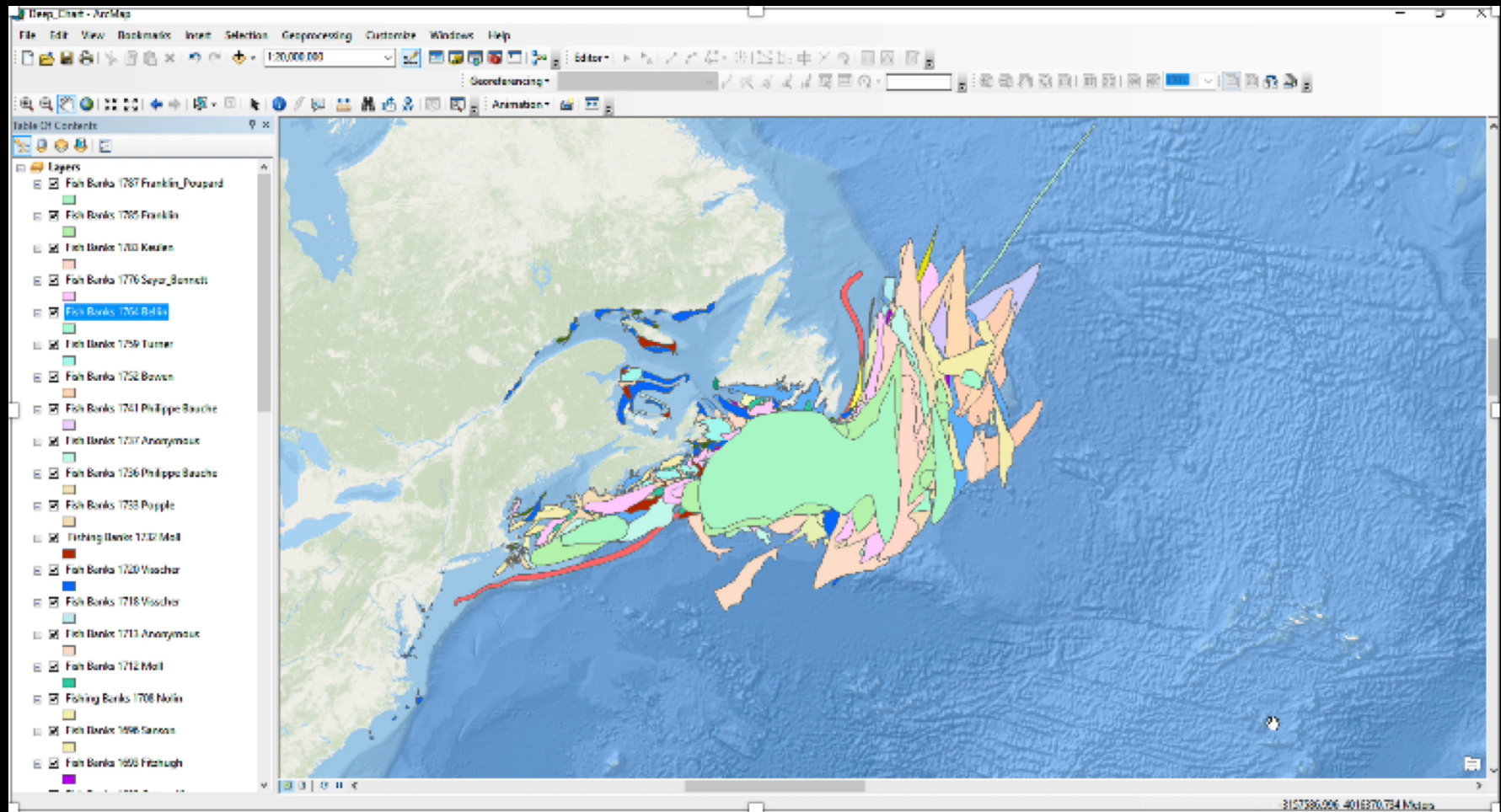
1504-1787 Map Year / Size of Newfoundland Fishing Banks



GIS Methods

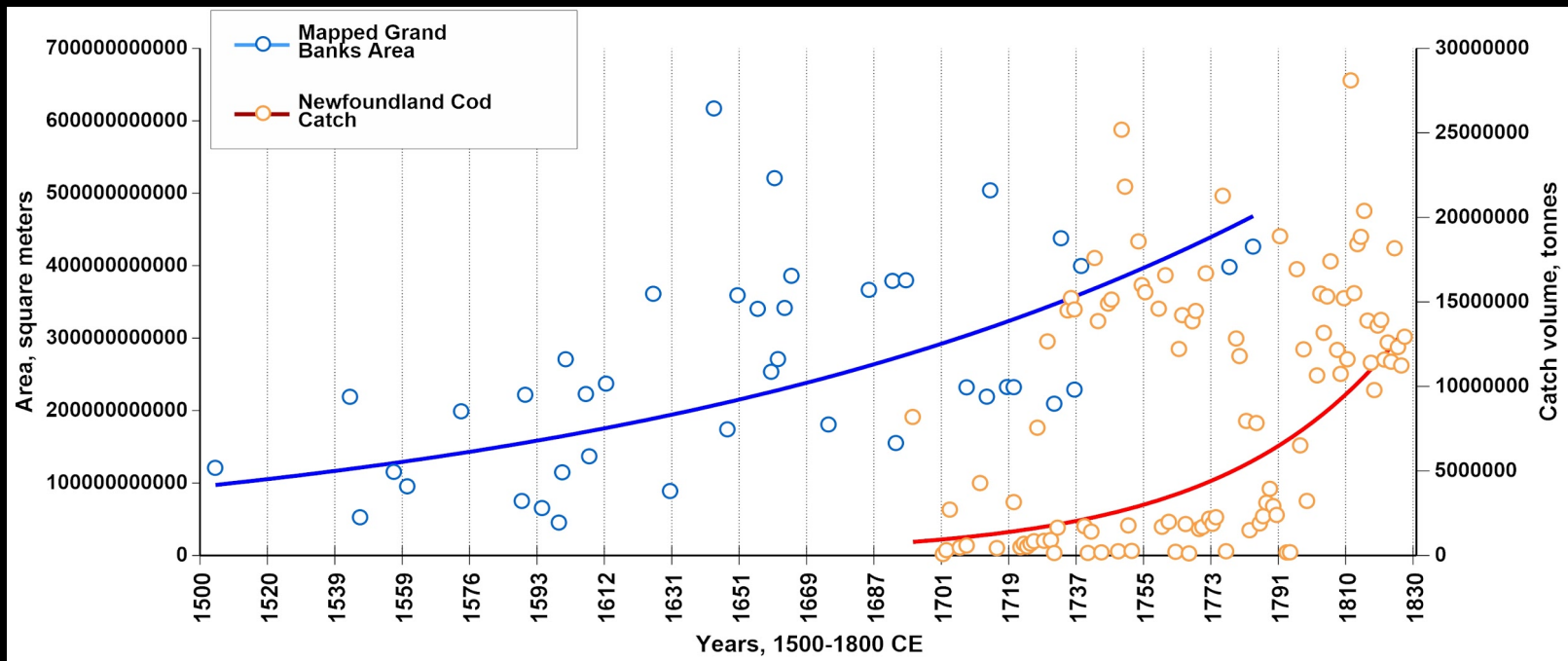
- Prosopography (Cartography)
- *Distant Reading* (Quantifying Representation)
- *Close Readings* (Qualifying Perception)

Morphology of Grand Banks Cartographical Representation: 1504 to 1787



Typically, Atlantic surveys are represented by a “a territorialized map of the continents that border the ocean rather than a chart of the ocean itself. This is rarely maritime history, or an historical geography of the sea.”

Miles Ogborn, 2005. Atlantic geographies. *Social & Cultural Geography*, 6(3)

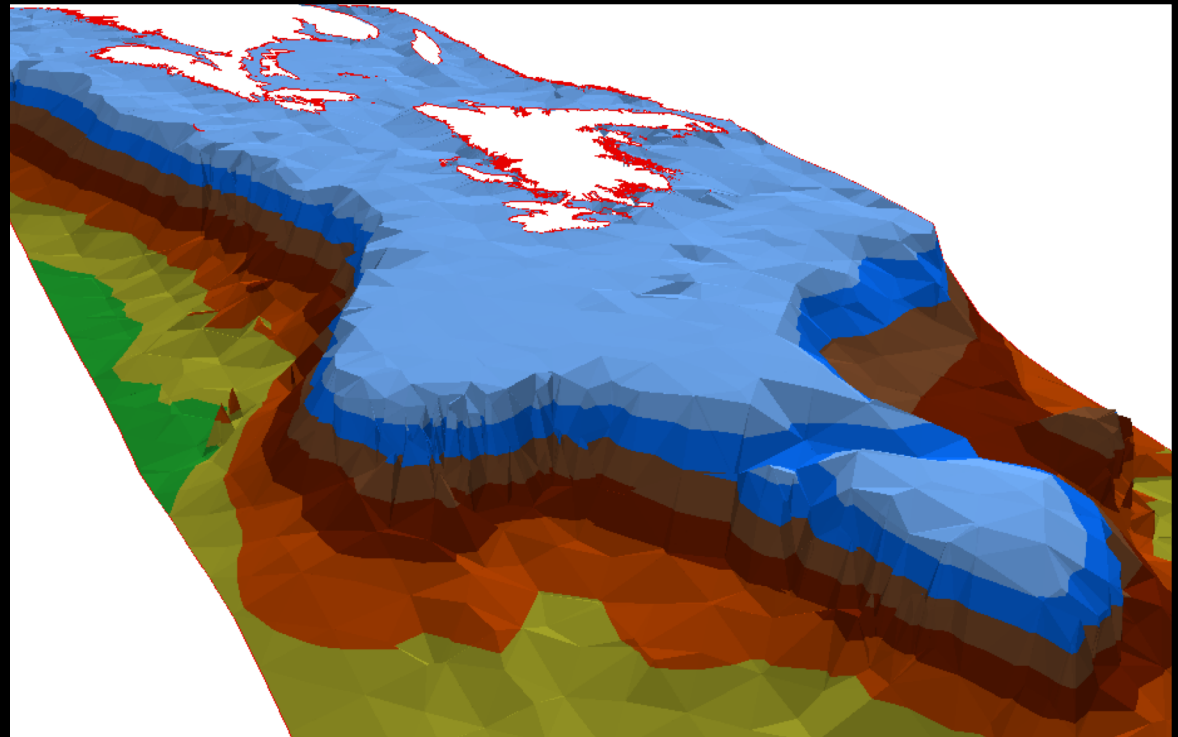
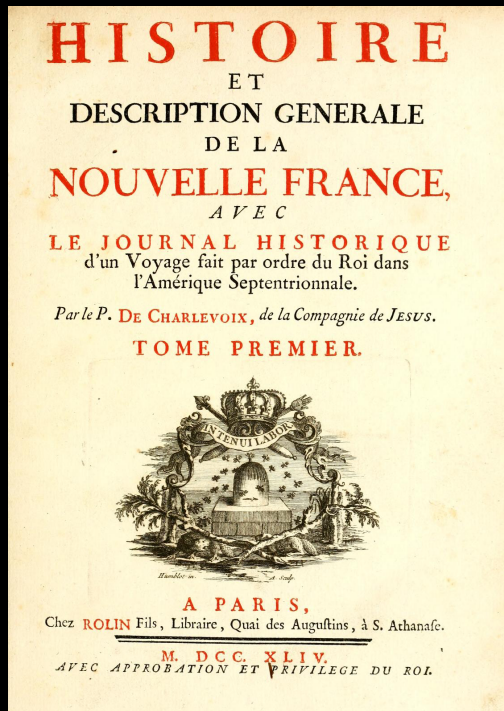


Grand Banks map area, 1500-1800 CE, and Newfoundland cod catch, 1698-1827 CE. Blue and red lines are exponential trend lines for Grand Banks area and catch volume, respectively.

- Portuguese chart-maker Pedro Reinel's 1504 *Kuntsmann I, Atlantic Chart* was the earliest chart from which fishery data was extracted.
- Benjamin Franklin's 1787 map *Remarks upon the Navigation from Newfoundland to New York In order to avoid the Gulph Stream* provides the closest approximation of the Grand Banks area in contemporary maps and charts

Close Readings (Qualifying Perception)

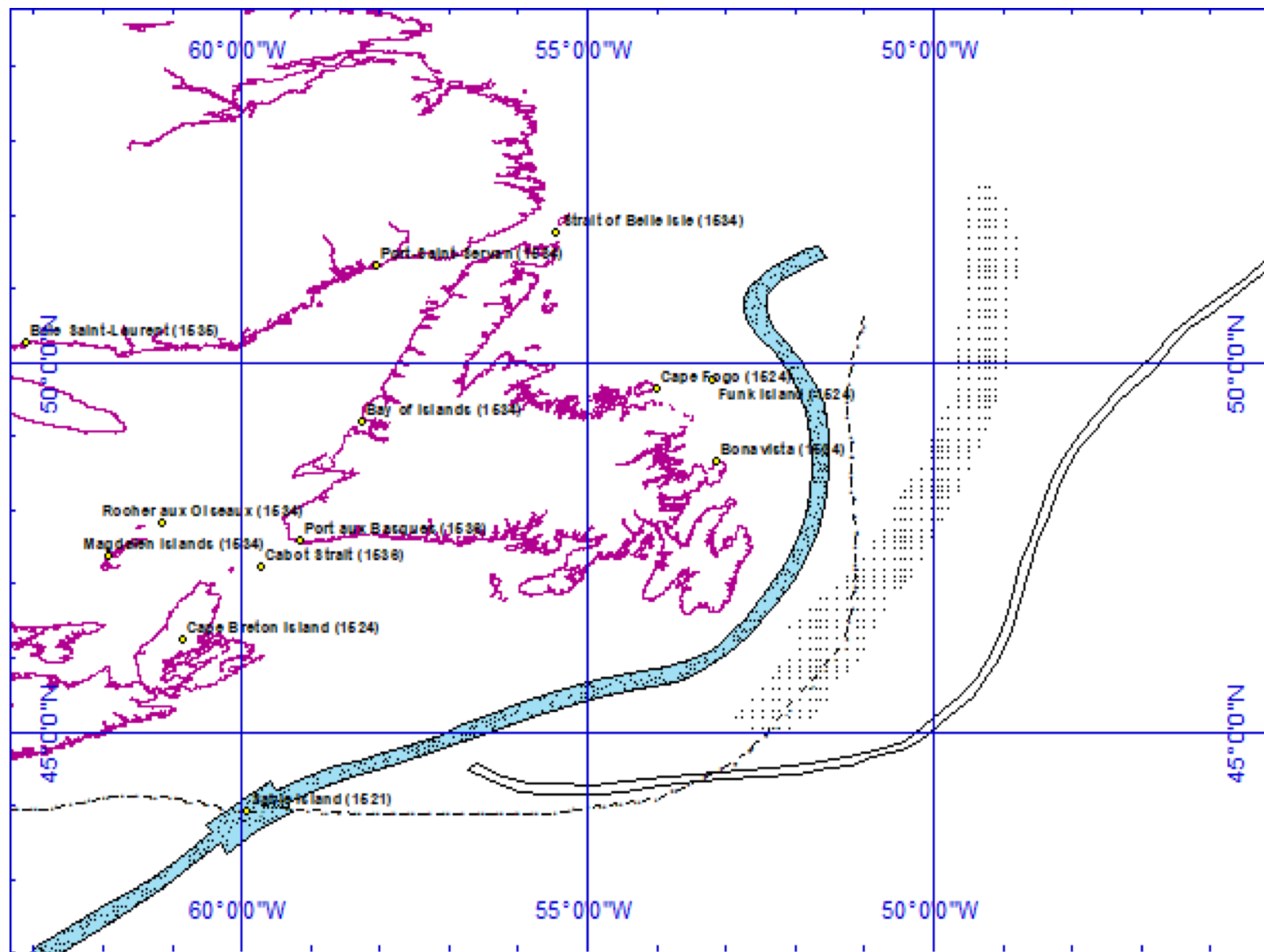
INVENTING THE GRAND BANKS



What is called the great bank of Newfoundland, is properly a **mountain, hid under water** . . . you find on it a prodigious quantity of shell-fish, with several other sorts of fishes of all sizes, most part of which serve for the common nourishment of the cod, the number of which seems to equal that of the grains of sand which cover this bank.

Pierre de Charlevoix 1719

Traces 1504-1556





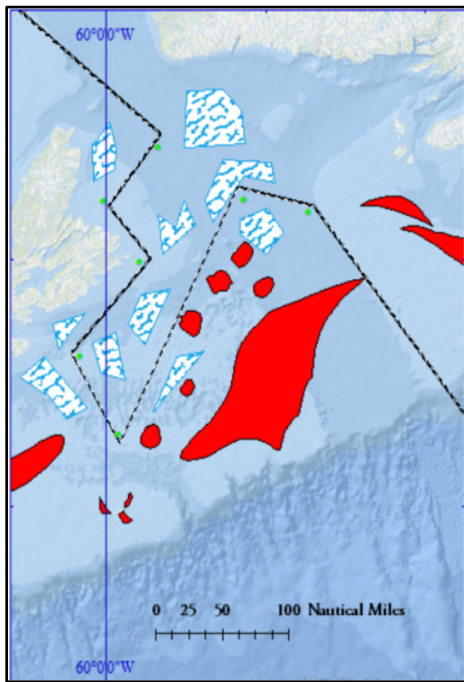
Giacomo Gastaldi, *La nvova Francia*,
(1556, Venice), 28 x 38 cm



Georges Boissaye du Bocage,
Grand banc de Terre-Neuve
(1678, Paris), 58.5 x 45 cm

Rendering of the 'Grand Banks' submarine topography was a fresh innovation compared to representing high terrain on land.

As knowledge and technical acumen grew, representing the Banks evolved from the simplistic to the more detailed.

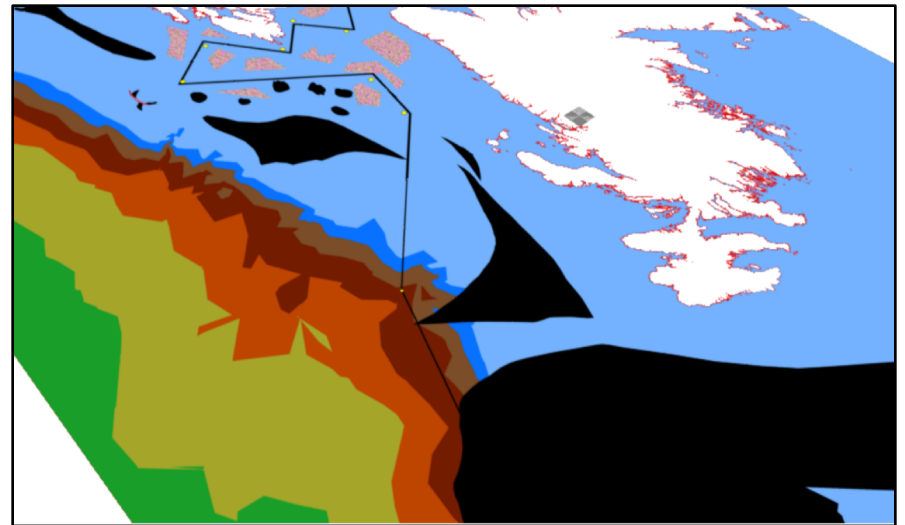


Plot of Champlain 1641 March to May Voyage with Fishery Data from 1612 Map *Carte géographique de la Nouvelle France*

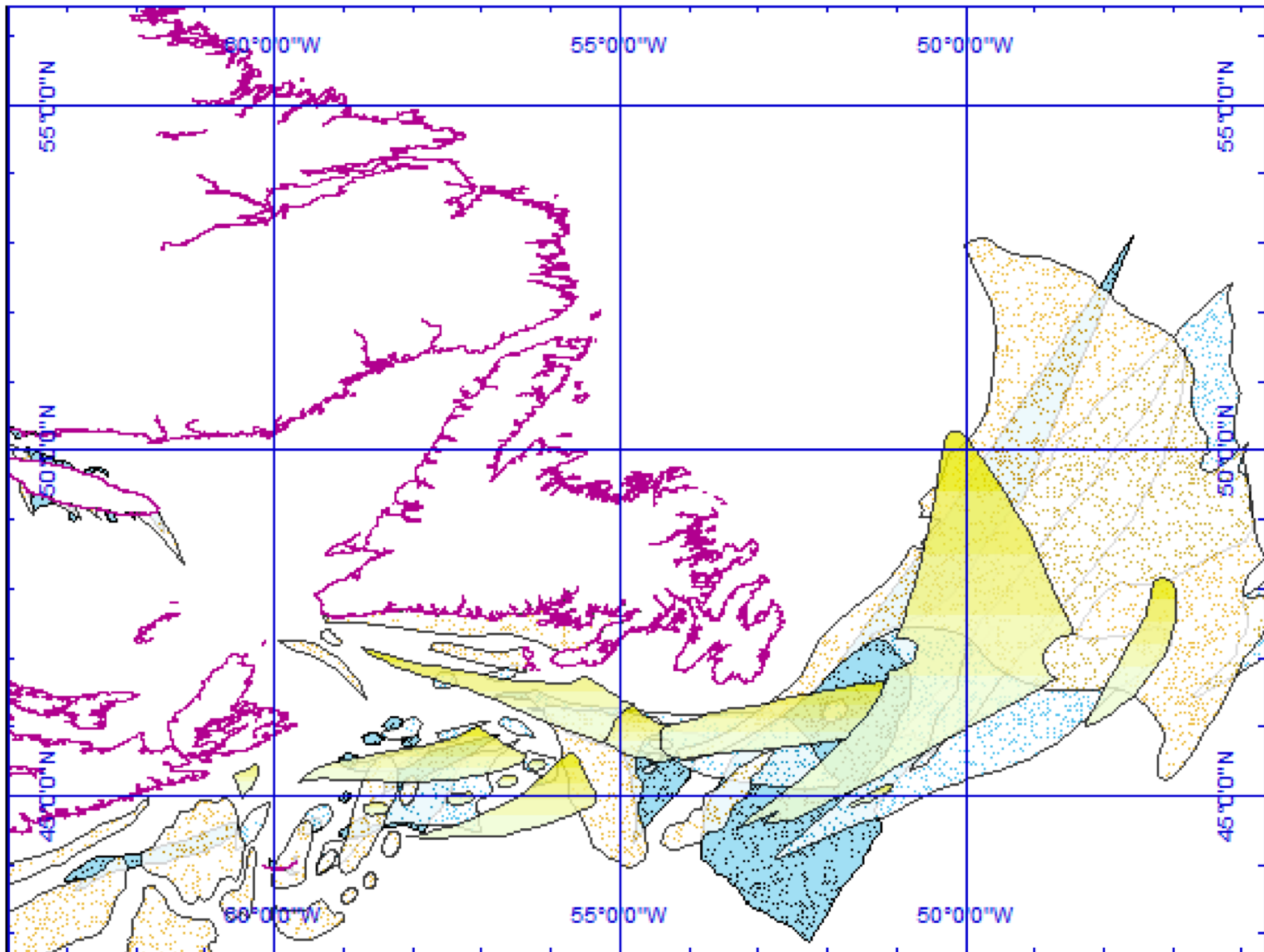
II Champlain (French Hydrography)

Themes

- Ice floes, Climate Change.
- Collecting Indigenous Geographical Data.
- French Newfoundland.
- Voyage of 1641 Navigation.

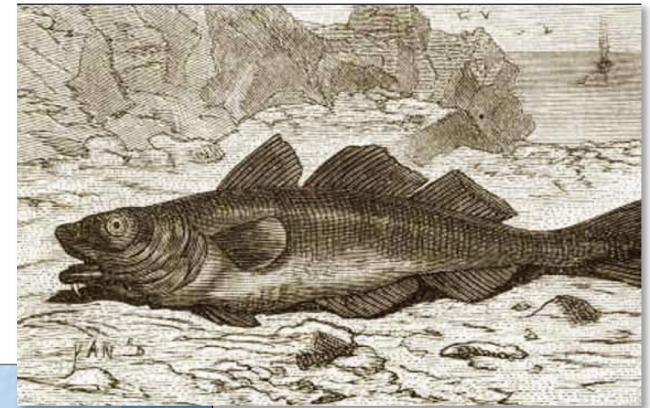


Fisheries 1613-1700



The transition to a planter fishery from a migratory fishery in Newfoundland (c. 1700s)

- What led to the situation?
- Settlement patterns.
- Economy.
- Activities.
- Where did their product go?
- Boat technology.
- Prices.



Commerce, Colonialism, and the State

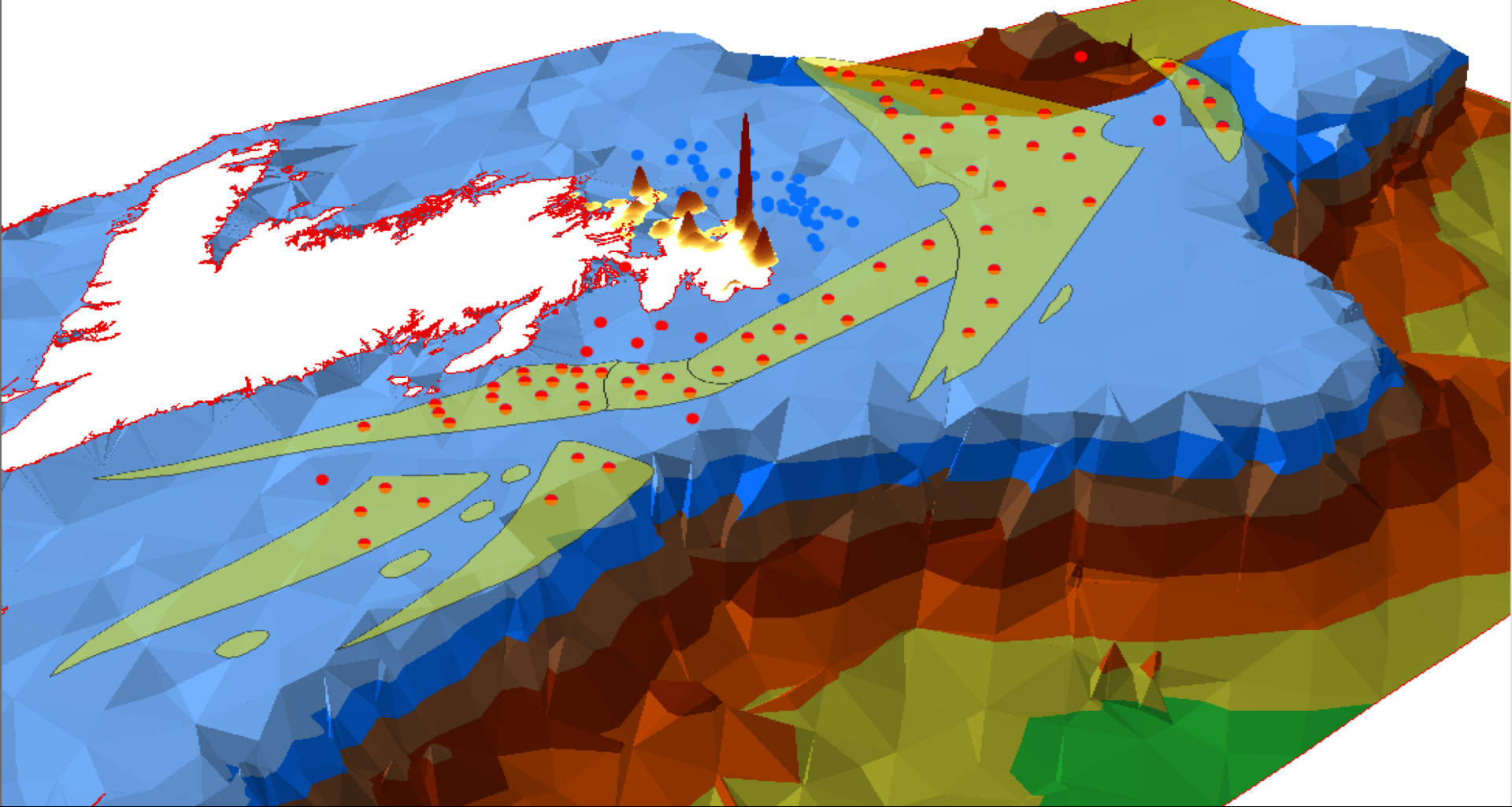
The overarching political and colonial contexts as rivalries and commercial interests intensified.

Augustine Fitzhughe
1693 Map” A chart of the
coasts of Newfoundland,
with the fishing districts
marked; “by Augustine
Fitzhughe, living next
doore to the Shipp in
Virgine Street, anno
1693” (Thames School of
Cartography)



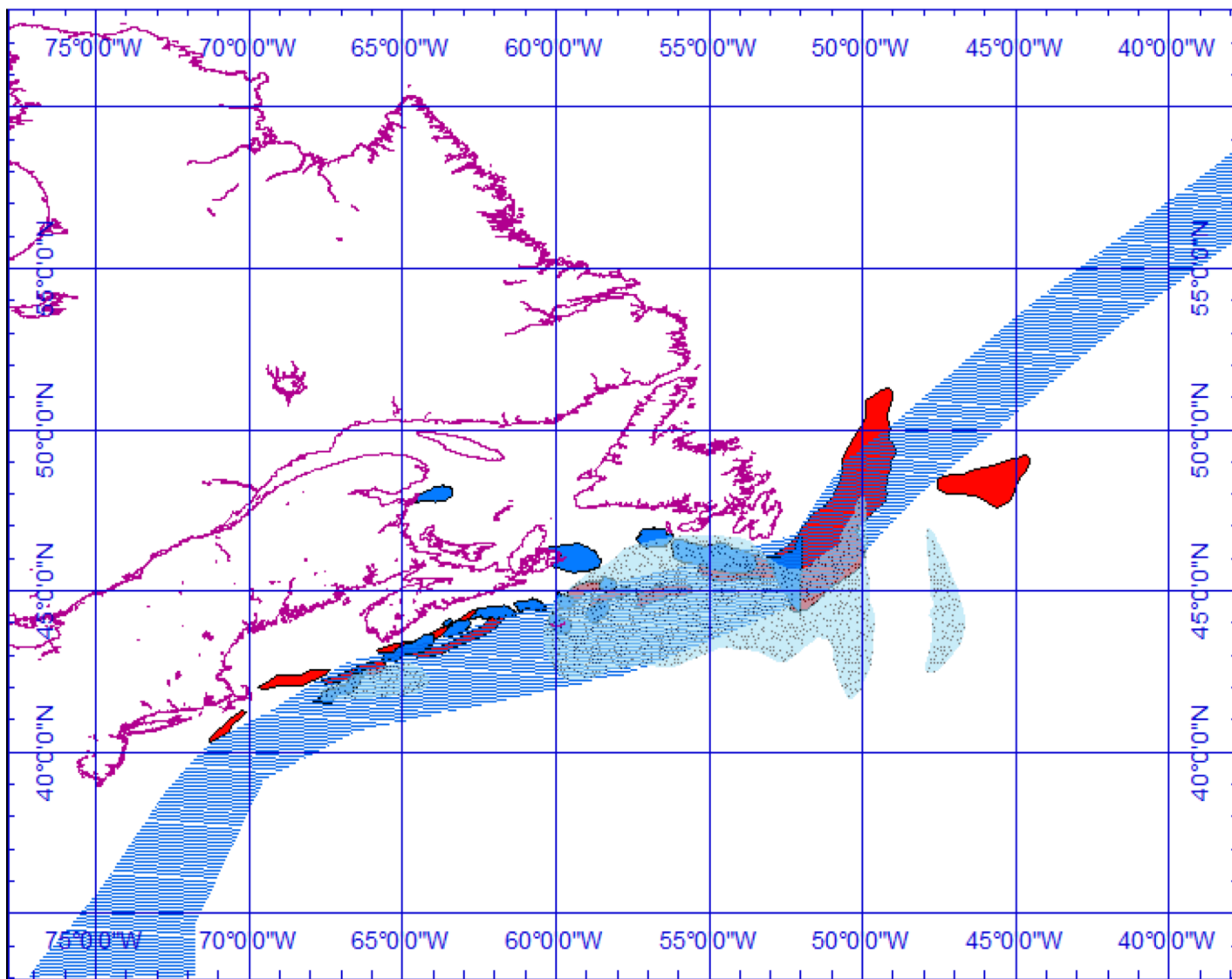
III Augustine Fitzhughe: Nautical Cartography and the Thames School

- Influence of Dutch Nautical Cartography.
- Consolidation of English Fishery.
- Plantation.
- Anglo-Franco Conflict in Newfoundland.



1675-1698 Catch per Newfoundland Port (Peter Pope) with fishery data from Augustine Fitzhughe 1693 Map” *A chart of the coasts of Newfoundland, with the fishing districts marked*; “by Augustine Fitzhughe, living next doare to the Shipp in Virgine Street, anno 1693” (Thames School of Cartography) English Boats (Blue) and French Boats (Red).

Systems 1708-1787



REMARKS
Upon the Navigation from
NEWFOUNDLAND to NEW-YORK,
In order to avoid the
GULPH STREAM
On one hand, and on the other the SHOALS that lie to the Southward of
Nantucket and of St. George's Banks.

AFTER you have passed the Banks of Newfoundland in about the 44th degree of latitude, you will meet with nothing, till you draw near the Ile of Sables, which we commonly put in latitude 43. Southward of this Ile, the current is found to extend itself as far North as 41° 30' or 36°, then it turns towards the E. S. E. or S. E. 4 E.

Having passed the Ile of Sables, shape your course for the St. George's Banks, so as to put them in about latitude 42°, because the current Southward of those banks runs as far North as 39°. The Banks of those banks lie in 41° 30'.

After having passed St. George's Banks, you must, to clear Nantucket, form your course so as to put between the latitudes 38° 30' and 40° 45'.

The most Southern part of the shoals of Nantucket lie in about 40° 45'. The Northern part of the current directly to the South of Nantucket is felt in about latitude 38° 30'.

By observing these directions and keeping between the stream and the Banks, the passage from the Banks of Newfoundland to New-York, Delaware, or Virginia, may be considerably shortened; for so you will have the advantage of the eddy current, which moves contrary to the Gulf Stream. Whereas if to avoid the Banks you keep too far to the Southward, and get into that stream, you will be retarded by it at the rate of 60 or 70 miles a day.

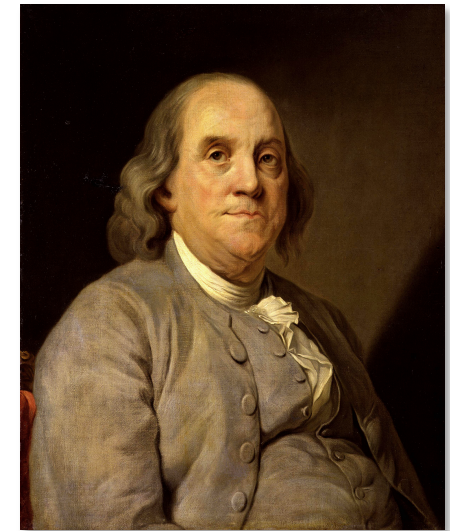
The Nantucket whaler-men being extremely well acquainted with the stream, its course, strength and extent, by their constant practice of whaling on the edge of it, from their island quite down to the Bahamas, this draft of that stream was obtained from one of them, Capt. Folger, and caused to be engraved on the old chart in London, for the benefit of navigators, by

B. FRANKLIN.

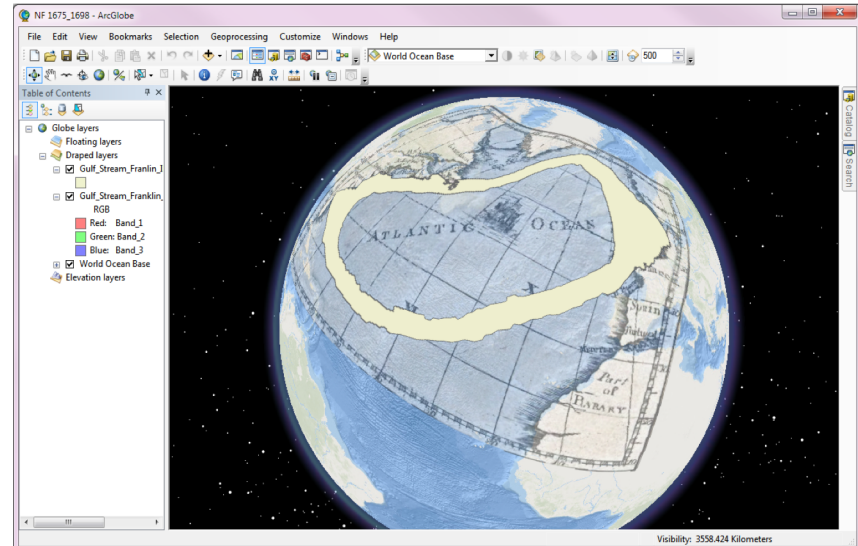
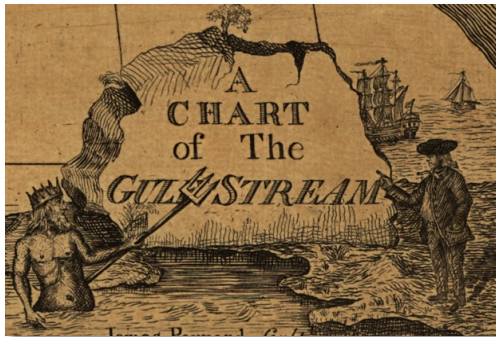
Note: The Nantucket captain who are acquainted with this stream, make their voyage from England to Boston in as short a time generally as others take in going from Boston to England, viz. from 20 to 30 days.

A stranger may know when he is in the Gulf Stream, by the warmth of the water, which is much greater than that of the water on each side of it. If then he is bound to the westward, he should cross the stream to get out of it as soon as possible.

B. F.



Benjamin Franklin
1706-1790



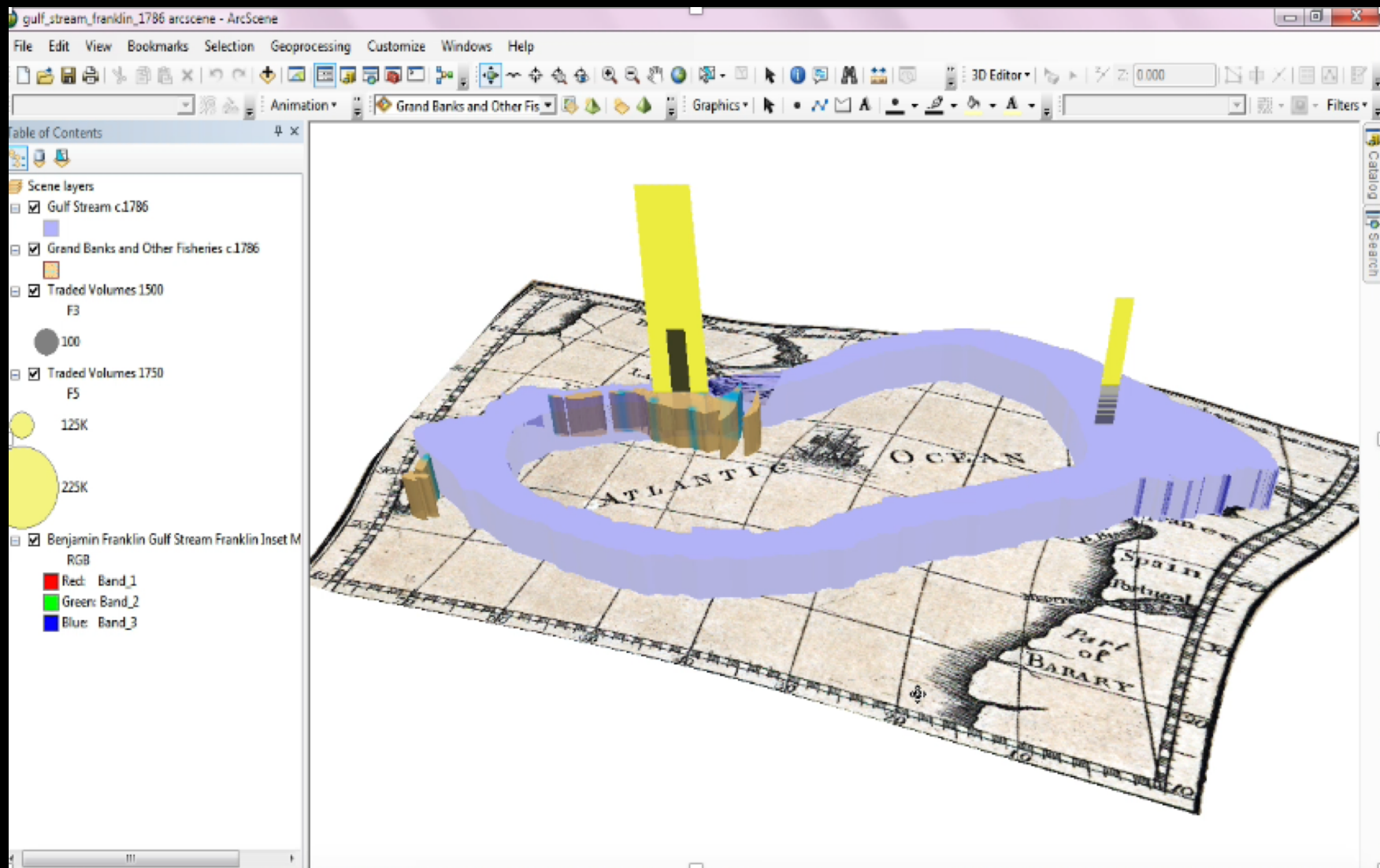
REMARKS Upon the Navigation from
NEWFOUNDLAND to NEW-YORK
In order to avoid the
GULPH STREAM

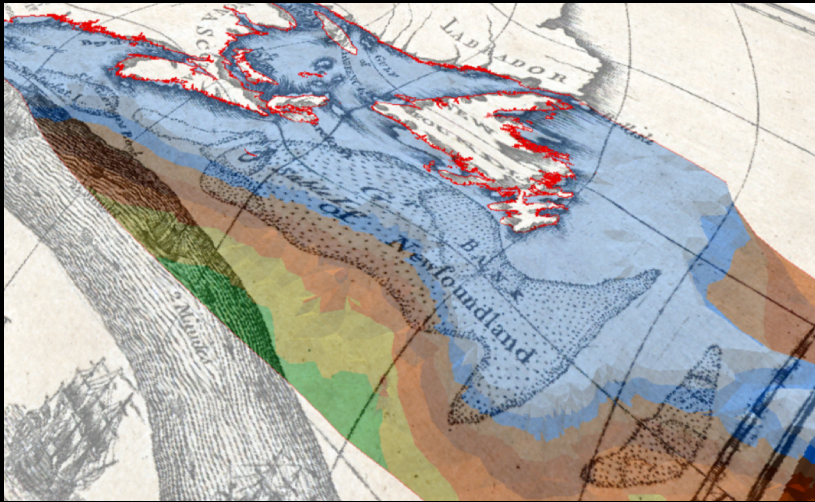
On one hand, and on the other the SHOALS that lie to the Southward of
Nantucket and of St. George's Banks (1786)



IV Benjamin Franklin, *The Gulf Stream*

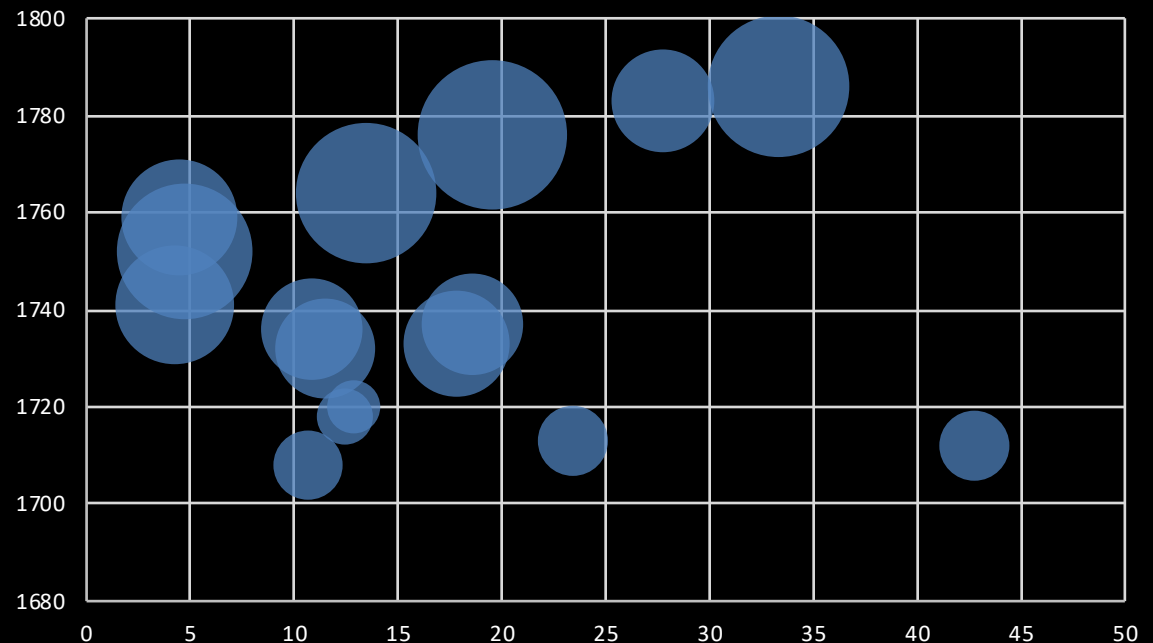
- Thermometrical Mapping.
- Ship Voyage Times.
- Effect of American Revolution on Newfoundland Fisheries.



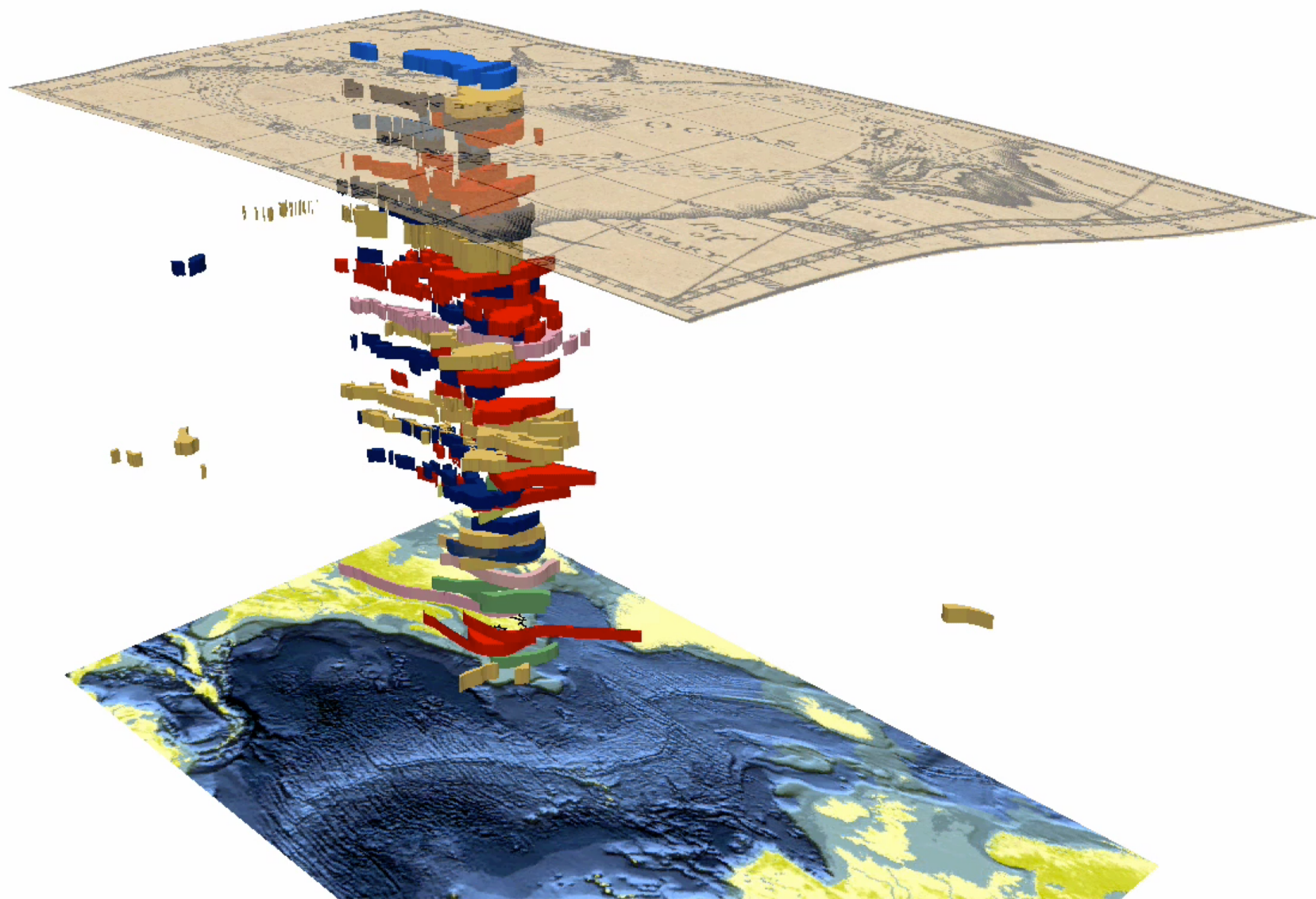


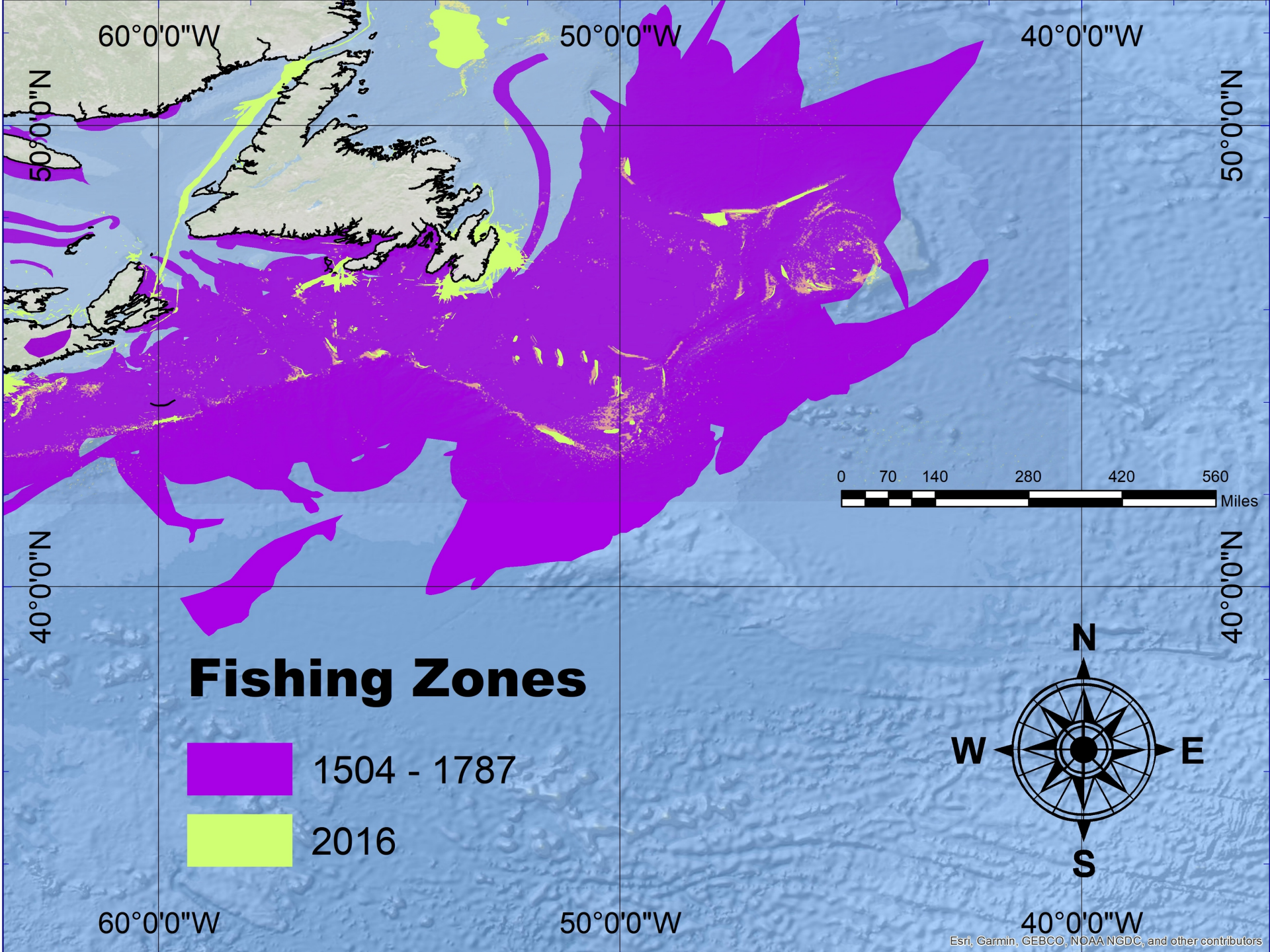
Benjamin Franklin & James Poupard *A Chart of the Gulf Stream* (1787)

Newfoundland Fishery Map Size and Cod Catch 1708-1786



Grand Bank Maps, and Cod
Catch 1708-1786
(Nautical Miles & Aggregated
Tons)

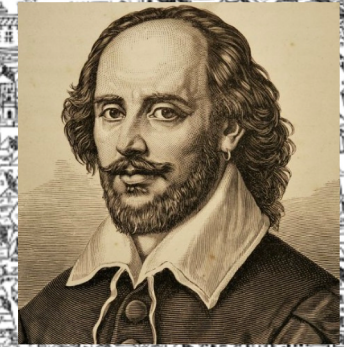






Edward de Vere, 17th Earl of Oxford
(12 April 1550 – 24 June 1604)

Civitas Londinum (Close Up) 1561



William Shakespeare
(26 April 1564– 23 April 1616)

Remapping *The Tempest* & the Fish Revolution

