



Supporting Documentation

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Barent Langenes, Map of Newfoundland [Terra Nova], Caert-Thresoor Inhoudende de tafelen des qantsche Werelts Landen (Middleburg, 1599)

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Spanish and Basque Newfoundland Cod Fishery 1520-1790

Summary

Dataset Title: Spanish and Basque Newfoundland Cod Fishery 1520-1790
Norfish Case Study: Spanish and Basque Newfoundland Cod Fishery 1520-1790
Large Marine Ecosystem: 9: Labrador-Newfoundland; 8: Scotian Shelf
Subject: Catches, Newfoundland, Spanish, Basque, Cod, 1520-1790

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Extent: 271 records

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Objectives

The Spanish data for fishing in Newfoundland in this time period are sparse and severely limited; and quantitative sources are especially rare. Numerous qualitative reports are available based on contemporary observations and reports of fishing undertaken by Spanish fishing crews, as well as several estimates of the scale of this activity made by contemporary observers. Many of these historic estimates and data of fishing in the New World by Spaniards are not presentations of national data but pertain to the fishing effort of sub-national regions: Galicia, Cantabria, Asturias, and in particular the Spanish Basque country, from which the majority of Spanish fishing ventures departed.

Subsequently, generating a complete dataset of annual values for the Spanish cod fishery must comprise of many computed data points in order to provide a reasonable insight into the probable scale of these fishing activities.

The aim of this dataset and its supporting documentation is to examine and collate all available quantitative data from archival sources and primary literature, and to use them to propose a probable level of annual Spanish-Newfoundland fishing over the period of study. This dataset can then be utilised for comparative purposes.

A holistic understanding of this industry was needed to interpret raw data (usually presented in terms of numbers of fishing ships) and convert it into total liveweight catch values, which could then then be plotted. Sparse and sporadic national data were supplemented with evaluations of available regional data. The gaps between these data points were then interpolated to provide a continuous data series for the entire period.

To maximise the robustness of this annual data series, the Capacity Trend Method was employed in lieu of linear interpolation so that the gaps in the series were filled in a more informed and justifiable fashion which mirrored the known fluctuations of the international fishing effort. The French Newfoundland Cod Fishery, with annual catch data based on actual port and notarial records provides this trend.

Sources

Total annual catch data have been based on a combination of informed opinion derived from a few actual reported data points available from archival and printed primary documents, and research conducted by maritime historians. Archaeological data for Newfoundland Spanish and Basque cod fishing activities is extremely rare; no detailed information was available to provide any further statistical figures that could directly inform the dataset. However, archaeological investigations on the Iberian Peninsula have revealed evidence of cod from Newfoundland having been landed and disseminated at various Spanish and Spanish Basque ports.

Remarkably little research has been done to verify the scale of the early Spanish fisheries in Newfoundland. Generations of Spanish historians have repeated the dubious postulation that there were 200 Spanish ships, mainly Basque, fishing for cod and whales in Newfoundland each year between the mid-16th and early-17th centuries (Barkham 2000, p.58) This statement appears to be based largely on a single source of 1611, which may actually suggest that there were 'dozientas' (dozens) and not 'doscientos' (two hundred) Viscayan ships fishing for whales and cod in Newfoundland in earlier decades (Cano, 1964, p.96). Also much cited is the estimate made by the Englishman Anthony Parkhurst in 1578, who stated that there were 100 Spanish cod fishing ships in Terra Nova– which could only have been the roughest of estimations. This lone qualification led Richard Hakluyt, the famous chronicler of overseas ventures, to speculate that there were “one or two hundred Spanishe and Portingale shippes” at Newfoundland each summer (Hakluyt 1584, p.86).

Stephanus Parmenius, the Oxford-educated Hungarian scholar who accompanied Gilbert's Newfoundland venture, had witnessed a sizable fleet of 20 Spanish and Portuguese vessels fishing near St John's in the summer of 1583 (Hakluyt 1583, p.22). But Spanish ships were known to frequent coastlines from Labrador to Arcadia, and as one of Parkhurst's contemporaries noted, it was impossible to count the ships over this thousand-mile length for “you shal understand that some fish not neere the other by 200 leagues, and therefore the certaintie is not knowen” (Parkhurst 1578, p.7). No other sources verify Parkhurst's and Hakluyt's quantifications, yet these figures have been promulgated by English experts of the Newfoundland fisheries such as Harold Innis, Ralph Lounsbury and Keith Matthews (Innis 1954, p.15; Lounsbury 1934, p.23; Matthews, 1968, p.38) Thus, Laurier Turgeon suggested that “the Iberian countries sent at most 200-300 ships” annually to the Newfoundland fisheries in the mid-to-late sixteenth century, despite no Spanish sources corroborating these large numbers (Turgeon 2005, p.6).

In the past five decades, thanks largely to the work of Selma Huxley Barkham and later by Michael Barkham, historians have slowly realised that these figures are hugely exaggerated (Barkham SH 1977, p.59; 1982, p.58; Barkham M 1990; Barkham SH 1997, 2006). Their evaluations of notarial records for individual ports, contextualised by further local documentary records, suggest that only about 40 Spanish Basque ships (from a total Basque merchant fleet of less than 100 large ships and 2,500 mariners) sailed to the New World during the peak years of the trade, of which only 20 to 25 fished for cod while the rest hunted whales (Huxley 1977, p.76-9; Barkham 1990, p.12; 2009, p.237). These records indicate that the Terra Nova trade was restricted to only the most well-capitalised merchants and the larger ships of the region, and that much of the Newfoundland fish being consumed in the Spanish Basque country was instead being imported by French Basque ships (and, by the seventeenth century, by Englishmen) (Barkham 1994). Not since the work of Harold Innis have historians attempted to verify the scale of the entire Spanish nation's fishing effort in Newfoundland (Innes, 1931; 1940, 1952). But the Barkhams' focussed archival research regarding the Basque fisheries has been vital in showing that this industry was far smaller than had previously been assumed.

In her similar survey of Galician notarial archives, Caroline Ménard identified records of just 15 fishing voyages from the North Western Spanish kingdom to the New World between 1517 and the 1614, 10 of which pertained to the years of 1578 to 1583 (Ménard 2006, Archival documents listed in Table 1 p.77 and Appendix 1 pp.417-57). Her evidence shows that these enterprises were occasionally set out via Portugal, and that they ceased altogether around 1604. So small was this industry that the Galician officials who sought to stimulate Newfoundland fishing in the 18th century were entirely unaware that a previous regional interest in the trade had ever existed (Ménard 2006, pp.71-4, 254-5; 297-304; 380-403, 407-13).

Although similar work is not available for the other Spanish regions which set out Newfoundland voyages, namely Cantabria and Asturias, there is no evidence that they sent many more vessels to Newfoundland than the Galicians, instead focusing their fishing effort on other Spanish and Irish coasts (Starkey et al 2009). The existence of some voyages from Cantabria to Newfoundland were vaguely referred to by some Spanish statesmen (Duro 2007; Aladrén 1979, Doc 72 1643) and there is evidence of New World cod being landed in Asturias in the 16th century (Ménard 2006, p.161). But very little else is known of their New World fisheries. The relative involvement of these regions in the Basque-dominated Spanish Terra Nova fisheries is best identified in the copybooks of the Burgos Consulate, one of

Europe's largest and best-preserved insurance registries of the 16th century (Barkham 1980, p.90). Of 4,372 surviving insurance policies underwritten there between 1565 and 1615, Casado Alonso identified 414 for Terra Nova ventures, with all but four predating 1586. Just over half of these (224) were for cod fishing ventures with the rest either set out for whaling (164) or unspecified enterprises (27) (Alonso 2013, p.121, Annexe 1). Between 1566 and 1572 registers were fairly complete, and from this point the numbers peaked (Barkham 1980, p.89). A high of 99 Terra Nova policies were underwritten in a single year (including fishing and whaling ventures) and 56 specifically cod fishing ventures insured in another, indicating that the Spanish fisheries may very briefly have exceeded the Barkhams' estimates (Ibid., p.121, Annexe 1). It is difficult to tell how complete and representative these figures are, and there is no guarantee that all these ventures actually set out and returned with cargoes of fish. But while the majority of these policies were for ventures from the nearby Basque ports some also relate to Newfoundland voyages from France (17.5% of all Terra Nova policies), Cantabria and Asturias (7.6%), and Portugal (4.6%), as well as distant ports such as Bordeaux or Seville (Alonso 2013, pp.114-5, 122, Annexe 2). Notably, Burgos was the dominant Iberian insurance market that catered to a wide international market (Barkham 1980, p.90). Admittedly, the destinations of ships in notarial and insurance policies are vague, with the destination 'Terra Nova' applying not just to Newfoundland but potentially to anywhere from Labrador to Maine, but in this era it is clear that all would have been prosecuting fisheries or whaling, and only infrequently supplemented by fur trading (Pope 1997, p.15)

Therefore, Michael Barkham appears justified to state that the entire Spanish Terra Nova fleet – including both whaling and cod fishing ships – was unlikely to have exceeded 80 ships per year (Barkham 2000, p.58; 2009, p.237). Only briefly did this fishery exceed the Spanish cod fisheries in European waters (Ireland, Iceland, Northern Norway, and more proximate waters) (Barkham 2000, p.61-3). The records at Burgos may suggest that there were more ships venturing to the New World around the year 1570. But these are only records of planned voyages, and the true number of voyages was probably marginally less. Moreover, these data included New World ventures for fish, whales, trade or privateering voyages leaving from anywhere between the Garonne to the Guadalquivir. Thus, with the Barkhams' comprehensive research suggesting that the Basque fleet numbered around 20 to 25 ships cod fishing ships, it is proposed that the entire Spanish cod fishing effort most likely comprised 30 to 40 ships.

Chronology of Spanish fishing in the New World

The 16th century historians Isasti and Hernado de Mena suggest that Spanish Basques only began voyaging to Newfoundland in the mid-1520s, a suggestion which Michael Barkham's archival research corroborates (Barkham M [unpublished], p.30, 38 and passim). In doing so, they began exploiting these fisheries only about a decade after French Basque fishermen (who first sailed to Newfoundland in 1517), both arriving later than Portuguese, Norman and Breton crews (Ibid.). Several Gallician ventures also took place between 1517 and 1526 (Ménard 2006, p.77 and Appendix 1 pp.417-57).

The 1530s and early 1540s saw most Spanish Basque ships in North American waters involved in privateering against the larger French fisheries, rather than fishing for themselves (during the Franco-Spanish wars of 1536-8 and 1542-4). Until this point, most Northern Spanish long-distance fishing had taken place upon the coasts of Ireland, but the decline of this fishery in the early to mid sixteenth century appears to have hastened the growth of the alternative cod fishery in Newfoundland (Barkham M 2001). Only after the peace of 1544 did the Spanish Basque fishery begin to increase significantly, but this was again disrupted by war with France from 1551 to 1559 (Quinn 1978, pp.95-8)

The heyday for Spanish fishing in Newfoundland (carried out mainly by Basques) was short, lasting from the peace of 1559 until the outbreak of war with England in 1585 (Barkham M 2009, p.237). It was midway through this period that the numbers of insured Newfoundland voyages peaked, with almost 80 Spanish Terra Nova contracts being underwritten in a single year (of which half were for cod fishing ventures): almost certainly the highpoint of the industry (Alonso 2013, p.121, Annexe 1)

Brad Loewens argues the decline of the Spanish fisheries began in 1579 when an English ban on Spanish train oil "caused huge financial losses to Gipuzkoan outfitters and generated a crisis from which the Basque whaling industry never recovered" (Loewen 2009). Also, in 1579, Spanish authorities requisitioned Basque fishing ships to replace and reinforce the West Indies fleet which had been sustaining significant losses to pirates and privateers (Loewen 1999, pp. 125–36). Subsequent war with England decimated the already weakened Spanish fisheries (both economically and in terms of captured/lost ships) and caused mass bankruptcy among Burgos insurers, thereby bringing the industry to "virtual cessation" between 1586 and 1599 (Barkham 1990, p.127)

The Spanish fishery showed few signs of recovery in the earliest decades of the 17th century (Barkham 1990, Ch.4; Innes 1954) However, a Spanish fishery in the New World did exist at a reduced rate until the mid-seventeenth century. Brad Loewens states that the

“anecdotal” evidence, resting largely upon comments by Samuel Champlain and other such visitors to the New World, shows that Spanish voyages continued at a significantly reduced rate until the 1630s (Loewen 2016, p.65). Customs data shows that northern Spanish ships were still arriving at Bilbao with landings from Newfoundland in the 1610s (Grafe 2006; 2011), and 29 voyages from Motrico and Zumaya were noted between 1600 and 1629 (compared to 188 between 1560 and 1599) (Barkham 1990, p.249). Efforts were made to stimulate the Basque fishery in the late 1630s, and it appears that 6 ships were set out in 1642. Meanwhile, the Assembly of Guipuzcoa told Philip IV that in 1632 “the Terranova fisheries, to which 30 or 40 ships used to go every year, have ceased, and not even four ships go” (Barkham 1990, p.248).

Basque fisheries

The fluidity of Basque commercial networks across the French-Spanish border means that it is often difficult and not wholly useful to segment analysis of the Basque fisheries into two national categories. Even though the Franco-Spanish wars of the 1550s disrupted the efforts of Basque fishers, cross-border cooperation remained common for both, setting out ventures and selling their catch (Barkham 1977; Loewen 2016, p.63). However, for practical reasons, this qualitative study artificially splits the data among national boundaries and only counts Spanish Basque ventures within the category of the ‘Spanish fisheries’. For reference, it appears that roughly half of the Basque ships came from the Gipuzkoa province in Spain, and the rest mainly from Bizkaia in Spain and Lapurdi in France (Loewen and Delmas 2012, pp.357, 378–79). For the purposes of data analysis, French Basque catch values are recorded within the French Newfoundland Cod Fisheries and are not included in this survey.

There is some evidence for fish being landed in the northern ports of the Basque country in the 16th century and distributed by a network of traders and caravans radiating out from Vitoria/Gasteiz for the distribution and financing of cod fishing in Northern Spain as far as Castile (Apiazu 1988).

Tonnage and catch data

While Basque whaling ships were often up to 800 toneles in size, such as the 200-250 toneles wreck of the San Juan found at Red Bay, the cod fishing ships were smaller, generally

between 50 and 200 toneles (Barkham 2009; Loewen 1999; Grafe 2006, pp.92-4). The Spanish toneles was between 10 and 20% larger than an English ton burthen (Castro 2013, pp.1137-8). Therefore, an average ship size of 100 tons¹ is proposed. This figure may appear conservative, especially in the context of more general Spanish maritime historical literature, which often focuses on the large Spanish naos and gallions of over 500 tons. But this figure of 100 tons is still far larger than the average size of the French and English ships in the 16th and early 17th centuries fisheries.

With an average burthen of 100 tons a 30-ship cod fishing fleet would catch around 5,000 metric tons liveweight of fish, and a 50-ship fleet around 8.250 metric tonnes. This matches Peter Pope's estimates used for the later French fishery: "That cargo of fish comprised 75% of the stated tonnage of a ship (very conservative), and that the average cargo was 50% wet cod and 50% salted cod. The ratio between tons burthen and metric tons liveweight caught was calculated to be 3.4" (Pope 1995, pp.13-4; Pope 2004, p.20, fn 11).

For the Spanish and Basque fleets, the effect is that a typical 100-ton vessel carried a cargo of 75 tonnes. Of this 75-ton load, 50% was dried and a ratio of 3.4:1 may be applied to represent liveweight. With the adjusted weights, each vessel produced about 165 metric tonnes of liveweight cod.

Archaeological evidence

Despite the significant number of historical sources relating to Spain's cod fishery off the coast of Newfoundland, we have extraordinarily little archaeological evidence of this industry. If these early Iberian fishermen landed in Newfoundland, the impact of their short stay would have left little or no archaeological traces. However, we do have examples of cartographic maps from the period which note a number of Spanish and Basque place names on its coastline suggesting their familiarity with the coastline. The nature of this evidence is heavily truncated towards sources from the later 17th and 18th centuries relating to the Basque fisheries in the north Atlantic.

The lack of related (and relevant in this study) archaeological material is down to two factors which have influenced the formation of pertinent records relating to this industry. Firstly, the lack of large archaeological deposits in Newfoundland from this period is reflective of the small scale of the Iberian based fishing fleets which had visited Newfoundland during

¹ The "ton" measurement refers to the English Long Ton which equates to 1.02 metric tonnes.

the 16th century. By their nature, the archaeological impact of these early fishing expeditions would have been small due to the long distance and short time on shore during this period. Whereas French and English counterparts in the fishery off Newfoundland actively forged settlements along the coasts of Newfoundland, Spanish fishermen favoured a more migratory approach. Past archaeological investigations of the earliest fishing settlements in Newfoundland conducted by Peter Pope qualify typical Spanish landing sites as temporary fishing camps and they are characterised as being archaeological ephemera and hard to define or identify (Pope 2013). The harsh environmental conditions in the coastal zone of Newfoundland cause a lack of soil formation in the thin glacial land cover and thus inhibit the preservation of organic archaeological deposits (Pope 2004 p.45). On a small number of fishing sites from the later 17th and the 18th centuries, there are significant archaeological organic deposits which formed in locations of long-term settlements, such as Ferryland which was settled by the English (Betts et al. 2014). Hand lining with metal hooks was almost certainly the catch method deployed by fishers and has been documented as the traditional method of fishing in the later 18th and 19th century (Cole 1990).

The lack of known archaeological sites of Spanish fishing in Newfoundland supports the notion that cod were lightly salted for transport and were landed at Iberian ports to be processed there. Major coastal ports such as San Sebastian were known to have large shore areas called *arenales* which were used for processing fish (Azpiazu 1990 p. 85-110). Fish were taken to *cabanas* or “tents” on the seashore to be cured for transportation inland to the major terrestrial markets of the region. It appears that there was a relatively short fishing season based on the north Atlantic weather which would encourage fishers to return swiftly to port with semi-cured fish.

Lacking any major archaeological deposits in Newfoundland itself from this early period that form a link to the Iberian fisheries, we must rely on the zooarchaeological evidence that sites in Spain can provide us with. A zooarchaeological study, especially that of fish, is slowly developing in Spain and has only started to gain traction in the past two decades.

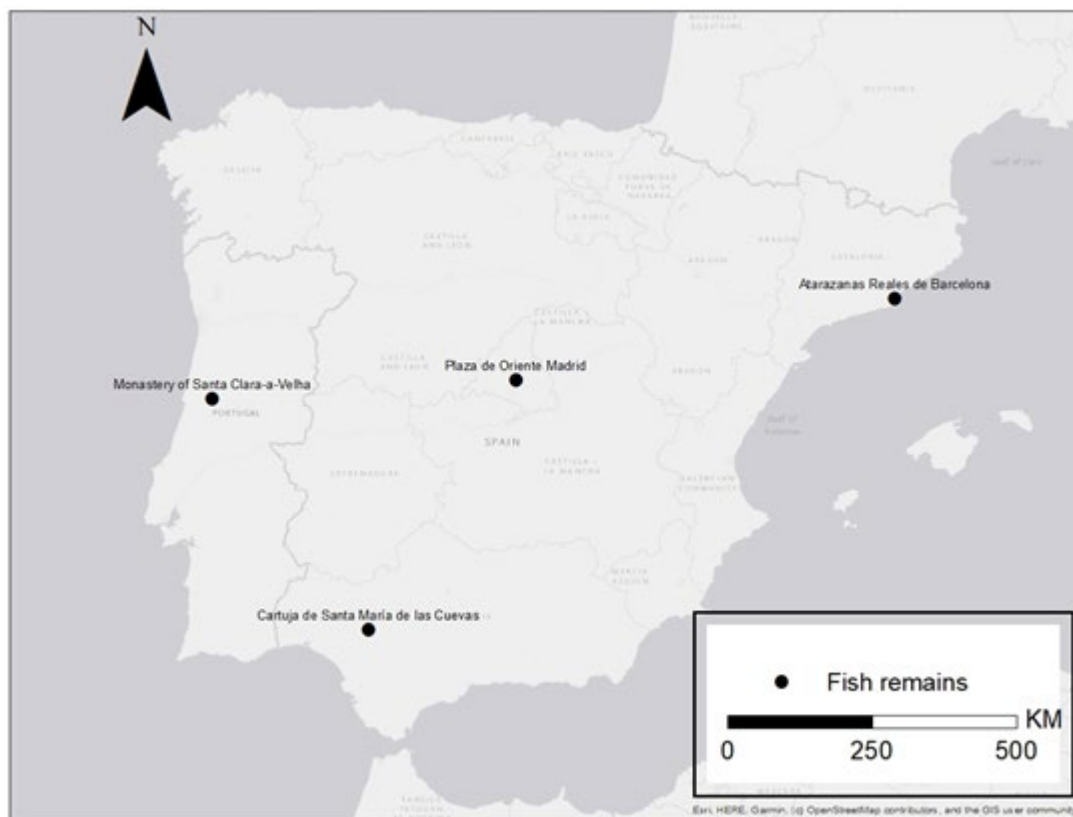


Figure 1: Site of known cod remains from 16th century records and archaeological excavations in the Iberian Peninsula.

The earliest known site is at the Monastery of Santa Maria de las Cuevas Cartuja de Santa María de las Cuevas located in modern Sevilla, Andalusia, Spain. The monastery is believed to have been founded in roughly 1400 and was established as an important ecclesiastical centre by 1500. The site was excavated between 1988 and 1989 by Dr. F. Amores from the University of Seville (Morales et al. 1999). The methods employed in this excavation focused on a series of deposits of sediment reflecting the drainage and cesspool for the monastery. The food residue analysis from context C-139 (carbon) dated to the 15th and 16th century revealed 785 identified fish bone fragments from the deposits covering 43 different fresh and saltwater fish species, of which 4 samples were from cod. The only bones recovered came from the fish's cleithrum and caudal vertebrae (see Figure 1). The presence of this bone collection is suggestive of the process of butchery for the cod in which the head, internal organs and the anterior vertebrae had already been removed as the fish was split in half at the start of the caudal vertebrae. Dr. F. Amores noted distinctive fracturing of the bones in the cod samples. These suggest a process of prior preparation (decapitation and salting)

prior to landing. Given the context of a wide range of species of fish at the site, it may not be surprising to observe a relatively small percentage of cod made up the fish diet. Measurement of the vertebrae recovered from the site, when compared with fish of compatible size, indicated that the fish being delivered to the site were between 1500 grams to 1700 grams in size (of butchered cod pieces). Morales reports that these would be significantly larger than the current average size of Newfoundland Cod reported in the late 20th century (Morales et al. 1999, 21), but they may rather be more in line with the late 20th century catches. In any event, the presence of cod remains highlights that cod was part of the typical diet.

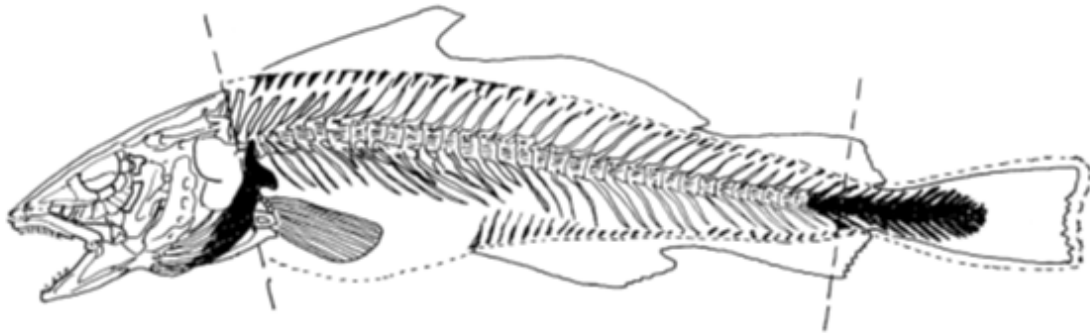


Figure 2: Image of a cod skeleton depicting the fish's cleithrum and caudal vertebrae where fractured bones were found at the Monastery of Santa Maria de las Cuevas (Morales et al. 1999, 21)

The excavations conducted at the Plaza de Oriente Madrid represent deposition and refuse from one of the largest late medieval markets in Spain. The deposits were discovered during excavations at the site and possibly represent municipal refuse waste from houses in the area. These deposits almost certainly came from domestic waste and are dated from as early as the 10th century and as late as the 15th and 16th century (Muñiz, 2009). Currently the only other site in mainland Spain that has been identified with cod bones is the Barcelona Royal Shipyard (Catalan: Drassanes Reials de Barcelona; Spanish: Atarazanas Reales de Barcelona) in modern Cataluña. The site is currently under excavation (at the time of writing) by a team from the University Autònoma de Madrid led by Professor Arturo Morales Muñiz (personal communication Arturo Morales Muñiz 14 September 2020).

Overall, the archaeological evidence is sparse, but current, ongoing work in the field may reveal further insights into Newfoundland cod being consumed in Spain and Iberia as a whole. The evidence of pre-treated salted and decapitated cod suggests processing at a rudimentary level that corroborates the concept that Spanish and Basque fishers were less



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actively engaged in settlement type activities in Newfoundland where drying and processing were primary functions.

Other Processes

The Capacity Trend Method was used to calculate values for years where no data was available. This process entails a trending process where a trend of annual data is applied between available points in order to determine a series that reflects general trends rather than a simple straight line (Nicholls, Allaire, Holm 2020)

The marine species information that informs the dataset is obtained from the World Register of Marine Species (WoRMS 2020) which validates common species names, scientific names and sources.

The Metadata system underpinning the dataset is based on Darwin Core (OBIS 2017; 2020) which provides static formulations of all data fields as outlined in the Data Fields section of this document.

Data Fields

Darwin Core Field Name	Description
occurrenceID	A globally unique "per record" identifier based upon the concatenated institutionCode, collectionCode, catlogNumber and ID fields (TCD_Norfish_SpalviNicMonCod_1)
type	Description of data series type. (Dataset)
modified	Most recent date the data was modified; ISO 8601 metric date/time standards apply. (2021-01-19)
license	Data licensing conditions that apply. (http://creativecommons.org/licenses/by/4.0/legalcode)
bibliographicCitation	Author citation for the dataset. (Ivinson, J, Montgomery, P and Nicholls, J. 2020. Norfish Spanish and Basque Newfoundland Cod Fishery 1520-1790. Dublin: TCD)
references	Link to further information about the project and dataset(s). (http://www.vliz.be/imis?module=project&proid=5064)
institutionCode	Identifies the institution which owns the data - Trinity College Dublin. (TCD)
collectionCode	Code of the project or research group (Norfish)
datasetName	Name of the dataset. (Spanish and Basque Newfoundland Cod Fishery 1520-1790)
basisOfRecord	Specifies the nature of the observed or researched specimens or data. (HumanObservation)
dataGeneralizations	Information that informs the dataset; sources of the data are quoted.



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(Barkham M. 2000. La industria pesquera en el País Vasco peninsular al principio de la Edad Moderna: ¿una edad de oro? Itsas Memoria. Revista de Estudios Marítimos del País Vasco. 3. Untzi Museoa-Museo Naval. Donostia-San Sebastián. 29-75.: p.57. Modern day estimate, not a historic source)

catalogNumber Identifier of the data within the institution and project – “Spa” refers to Spanish, “lvi” refers to Ivinson, “Mon” refers to Montgomery, “Nic” refers to Nicholls, “Cod” refers to Cod.
(SpalviMonNicCod)

occurrenceRemarks Comments about the occurrence record.
(Catch is determined from number of vessels; extrapolated value based on French Newfoundland trend)

recordedBy Researchers who recorded the data (Josh Ivinson | John Nicholls)

organismQuantity Quantity of fish represented in the record shown in Kg live weight.
(8285162)

organismQuantityType organismQuantity unit of measurement.
(biomass in kilograms (kg))

occurrenceStatus Stipulates the physical presence or absence of animals relating to the record.
(present)

eventDate Actual date and time at which an occurrence was recorded. ISO 8601 metric date/time standards apply.
(1520)

year Year taken from the eventDate field.
(1520)

locationID Marine Region unique identifier.
(<http://marineregions.org/mrgid/8544>)

locality Local name for the overall location or region.
(Newfoundland coast and Grand Banks)



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locationAccordingTo	MRGID location identifier based on the marineregions.org/mrgid system. (MRGID)
locationRemarks	Description of location identifier. (Newfoundland coast and Grand Banks, may extend into Scotian Shelf area. NOAA LME (Large Marine Ecosystem))
decimalLatitude	Latitude shown in decimal notation based on the WGS 84 (EPSG:4326) geodetic datum standard. (50.13898)
decimalLongitude	Latitude shown in decimal notation based on the WGS 84 (EPSG:4326) geodetic datum standard. (-54.93281)
coordinateUncertaintyInMeters	The smallest circle (radius) in metres from the ground zero point depicted by the decimalLatitude and decimalLongitude fields. In this instance, "1351881" depicts a radius of c. 1,351.881 Km.
georeferenceRemarks	Remarks indicating the geographic area identified – Large Marine Ecosystems are used. (9: Labrador-Newfoundland)
scientificNameID	The WoRMS LSID associated with the scientificName, based on the Marine Species database: (urn:lsid:marinespecies.org:taxname:126435)
scientificName	Scientific name of the animal based upon the vernacularName. (Gadus morhua)
kingdom	Together with taxonRank assists in determining broader animal characteristics for darwinCore search engines. (animalia)
taxonRank	Together with kingdom assists in determining broader animal characteristics for darwinCore search engines. (species)



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scientificNameAuthorship	Based on the scietificNameID field and discoverable through the WoRMS database. (Linnaeus, 1758)
vernacularName	Literal common name applied to the animal involved. (El bacalao del Atlántico)
identificationRemarks	Comments about identification of the species. (Local Spanish name for Atlantic Cod is El bacalao del Atlántico)
conversion	Conversion formulae to determine <i>catchMT</i> . (1 tonele = 1.2 tons; 1 ton = 1 metric tonne; 1 vessel = 100 tons = 75 metric tonnes load; 1 vessel carries 50% dried cod (3.4:1 ratio to fresh) and 50% liveweight fresh cod; 1 vessel load = 165 metric tonnes liveweight equivalent.)
numberOfVessels	Count of vessels involved in the fishery. (80)
catchMT	Derived metric tonnes value based on the calculated fields as shown in the conversion field, or as shown in the codes field.
trafficLight	Traffic Light coding system denotes level of certainty, and/or level of accuracy that can be described for each record; see Appendix 1 for details.
codes	Explanation codes that highlight the process for each record; see Appendix 2 for details.

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Appendix 1

Traffic Light System

Traffic Light	Explanation
green	Original values derived from sources is given.
amber	Calculated values based on two or more given values from sources.
red	Calculated or estimated values based on trends, qualitative reports or simple extrapolations. Specific method is stated per record based on the accompanying codes.

Appendix 2

Codes

Codes	Explanation
a	catchMT calculated based on given number of vessels
b	Zero values assumed based on reported nil or negligible activity
c	Capacity Trend Method applied: values calculated based on trend of French Annual catch values for Newfoundland and extrapolated between nearest available given values. French Series