

# One Hundred Rotten Fish in a Pit

## Historical and Archaeological Evidence of Seizure and Burial of Fish improper for sale in 15th-16th century city of Tourcoing, France

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**ABSTRACT:** The Main Square of the city of Tourcoing (France) underwent excavations in 1982. The dig revealed a shallow pit filled up with fish skeletons still bearing their scales. The excavator bulk sampled the entire filling of this AD 15<sup>th</sup>-16<sup>th</sup> century feature, and in 2016 the materials were sieved and analyzed in the zooarchaeology laboratory of the University of Lille. Over a hundred haddock skeletons, representing complete specimens between 35-71 cm (total length) were identified. The contemporaneous archives of the cities of Lille and Douai shed light on the common practice of the discard and burial of fish improper for sale and may provide an explanation to our unusual discovery. The paper describes how fish markets operated and the type of controls imposed upon fishmongers. Examples of violations to the rule, seizures and trials recorded in the local archives will be described.

**KEYWORDS:** FISH, MARKET, ZOOARCHAEOLOGY, TOWN HALL ARCHIVES, MEDIEVAL

**RESUMEN:** La plaza principal de la ciudad de Tourcoing (Francia) fue excavada en 1982. La excavación evidenció un foso lleno de esqueletos de peces que aún conservaban sus escamas. La totalidad del relleno de esta estructura datada entre los siglos XV-XVI fue recuperada y en 2016 los materiales fueron tamizados y analizados en el laboratorio de zooarqueología de la universidad de Lille. Más de un centenar de esqueletos completos, representando eglefinos completos entre 35-71 cm de longitud total fueron identificados. Archivos contemporáneos de las ciudades de Lille y Douai evidenciaron la práctica de desechar y enterrar peces no aptos para el consumo y permiten valorar el hallazgo desde una perspectiva no anticipada. El trabajo relata como operaban los mercados de pescado y los tipos de control a que se sometía a los pescaderos. Se describirán, por último, ejemplos de violación de las ley, confiscaciones y juicios de los referidos en archivos locales.

**PALABRAS CLAVE:** PESCADO, MERCADO, ZOOARQUEOLOGIA, ARCHIVOS MUNICIPALES, MEDIEVAL

## INTRODUCTION

Discoveries of unmodified whole fishes in archaeological settings are rare. They translate a state of an acquired resource that has not been consumed. In some cases, ritual practices lead to such deposits as within food offerings in Roman tombs (see for instance Oueslati, 2013, 2017). In other cases, whole fish were interpreted as fish which may have become improper for consumption (Van Neer *et al.*, 2009). Preserved fish can also be found articulated in transport vessels during Antiquity or more recent eras (Desse-Berset & Desse, 2000; Klippel & Falk, 2002; Heinrich, 2002). Finally, fish can die in their biotopes in the form of thanatocenosis such as in fishponds, drainage ditches or palaeochannels (Wheeler & Jones, 2009; Needs-Harwarth *et al.*, 2013).

This paper presents a late medieval discovery of an estimated 116 whole articulated haddock still bearing their scales. They have been found within a pit beneath an end of 16<sup>th</sup> century pavement of the Grand Place of Tourcoing, a city of northern

France. The conjunction of the archaeological setting and contemporaneous archives from neighboring cities of Lille and Douai suggests that this stock of fish was corrupted. This discovery may be related to the control of the freshness of fish, the seizure and the burial by authorities in order to protect consumers.

## ARCHAEOLOGY: SETTING AND DATING OF THE PIT 163

The excavations in Tourcoing in the early 1980's have unveiled various public buildings and houses of the medieval and modern periods (Ameye *et al.*, 1985). Pit 163 was discovered in 1982 during the digging of Grand-place which was the market place of the burg in the middle Ages. The structure is fairly small measuring 50cm wide by 95cm in length and 16 to 17cm deep. The presence of whole fish was noticed by J. Barbieux who photographed some articulated bones and intact portions of skin *in situ* (Figure 1). This atypical

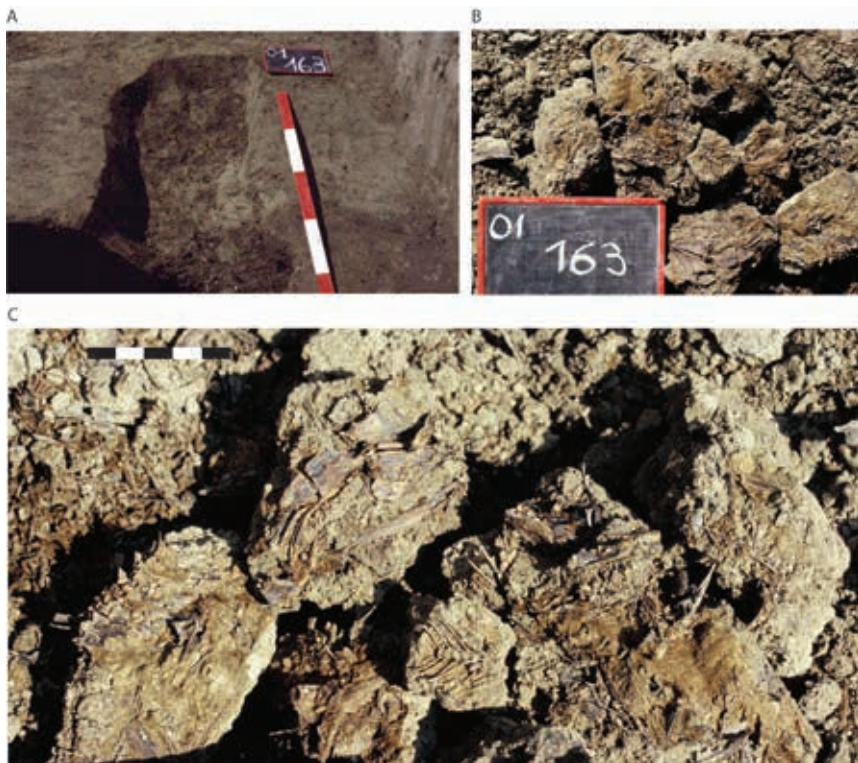


FIGURE 1

Discovery of pit 163 during excavations in 1982 (top left), field photo of articulated fish (top right) and detail (below).

deposit lead to the bulk sampling of the sediment in bags. No other artefacts such as ceramics were found in the fill. According to stratigraphy the pit was dated between the middle of the 15<sup>th</sup> and the middle of the 16<sup>th</sup> century. We conducted a Radiocarbon dating on one fish bone and obtained a date of 1488-1688 cal AD 68,2% (Figure 2). This lack of precision of this absolute date is due to the poor calibration profile for marine resources within our chrono-spatial context. The best available data to define the *terminus ante quem* is the overlying paving dating to the end of the 16<sup>th</sup> century.

## ICHTHYOARCHAEOLOGY

### *Material and methods*

The bulk sampled pit contained one single species, haddock, that was identified with the reference collection of the University of Lille. The identification of the gadid was based on the dis-

tinct morphology of most of its skeletal elements relatively to the other Gadidae occurring in the east of the channel and the North Sea. We examined the whole pit-fill in order to estimate the minimum number of individuals (MNI). This screening of the sediment laid the path to a more precise approach based on two bags that benefitted of systematic sorting and counting of all parts of the skeleton in order to validate or invalidate the observation made on the field of a deposit of whole fish. In this paper we focused on the subsample that provided the largest MNI with a value of 37. Skeletal part profiles are expressed as minimum number of elements (MNE) for each of the regions of the body following the nomenclature of Cannon (1987). In addition to the distribution of the parts of the skeleton, we sought to estimate the total length of the buried individuals based on the size of the posttemporals that were more often measurable than the frequently broken cleithra. Size was estimated on the basis of eight reference skeletons the total lengths of which ranging from 37 cm to 61.5 cm. All bones were carefully examined in

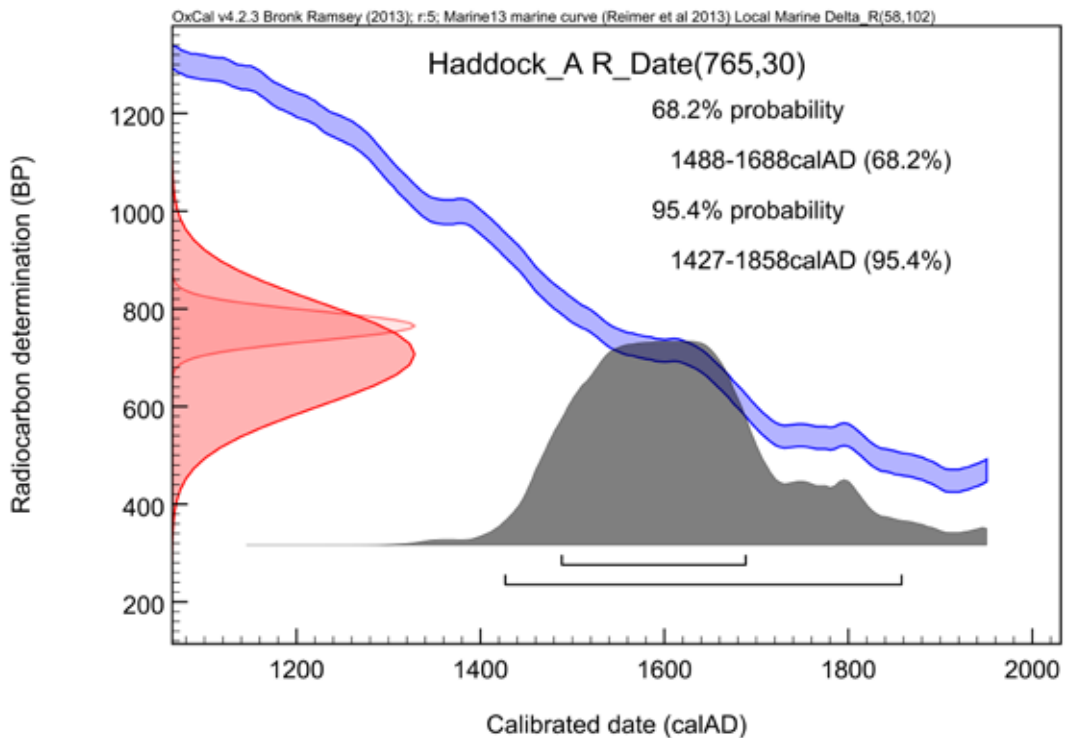


FIGURE 2

Results of radiocarbon dating.

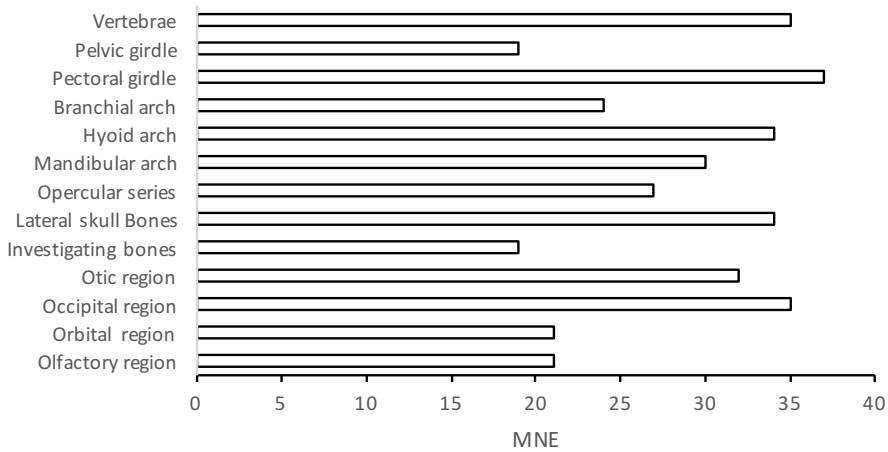


FIGURE 3  
MNE of selected bone elements.

search of any modification of surfaces in relation with the transformation of the fish such as filleting, gutting or the removal of gills. Finally, once all identifiable bones were isolated, the sediment was sieved on a column with meshes of 4mm, 2mm and 1mm. The residue was carefully examined in search of small fish or other elements that could have been trapped within the digestive track such as shells, debris of urchins or crustaceans.

RESULTS

The examination of the whole assemblage indicates that the best represented bone is the cleithrum. The cranial portion of this element is thickened by hyperostosis and it is easy to side, thus providing an estimation of the MNI with a count of 116 left specimens and 106 right ones. The other distinctly enlarged cranial element is the posttemporal with an estimate of 102 individuals. The latter element was found complete more often and was measured for the size estimation.

Within the subsample of 37 individuals, most skeletal elements have been sorted and counted except for some tiny elements which were absent or scarce (alisphenoid, supratemporal, retroarticular, suborbitals, radials). The MNI for each of the 13 regions fluctuates from 19 to 37 individuals with an average of 29 individuals (Figure 3 & Table 1). The cleithrum (MNI=37) is the best represented bone along with the vertebrae (36), basioccipital (35),

hyomandibular (34), pterotic (32), sphenotic (31), articular (31) etc. Scales were also very abundant but were better preserved when they were still supported by clumps of sediment.

This result leads to the conclusion that most regions are well represented. It may then be assumed that whole individuals were buried in this pit. Discrepancies within some regions of the body suggests that biases are introduced through taphonomical processes such as collecting in the field, brittleness of the bone and difficulty in identification of some fragmented elements.

Olfactory region	Lat	N	NMI
mesethmoid		10	10
vomer		19	19
prefrontal	l	21	21
	r	19	
Orbital region	Lat	N	NMI
alisphenoid			
parasphenoid		21	21
Occipital region	Lat	N	NMI
basioccipital		35	35
exoccipital	l	15	
	r	18	
supraoccipital		30	
Otic region	Lat	N	NMI
pterotic	l	30	32
	r	32	
epiotic	l	10	10
	r	8	

sphenotic	l	31	31
	r	24	
opisthotic	l	14	19
	r	19	
prootic	l	19	19
	r	10	
otolith	l	9	12
	r	12	
<b>Investigating bones</b>	<b>Lat</b>	<b>N</b>	<b>NMI</b>
Nasal	l	8	13
	r	13	
frontal	l	19	19
	r	14	
parietal	l	18	18
	r	12	
<b>Lateral skull bones</b>	<b>Lat</b>	<b>N</b>	<b>NMI</b>
premaxilla	l	22	22
	r	17	
maxilla	l	27	27
	r	27	
supraorbital		+	
lacrymal	l	21	25
	r	25	
suborbital		+	
dentary	l	21	25
	r	25	
articular	l	31	31
	r	29	
preopercle	l	34	34
	r	30	
<b>Opercular series</b>	<b>Lat</b>	<b>N</b>	<b>NMI</b>
opercle	l	24	24
	r	24	
subopercle	l	22	27
	r	27	
interopercle	l	21	21
	r	19	
branchiostegal ray	l	24	24
	r	15	
<b>Mandibular arch</b>	<b>Lat</b>	<b>N</b>	<b>NMI</b>
ectopterygoid	l	15	16
	r	16	
palatine	l	18	22
	r	22	
quadrate	l	26	30
	r	30	

mesopterygoid	l		2
	r	2	
metapterygoid	l	14	14
	r	8	
<b>Hyoid arch</b>	<b>Lat</b>	<b>N</b>	<b>NMI</b>
hyomandibular	l	29	34
	r	34	
ceratahyal	l	22	22
	r	21	
epihyal	l	25	26
	r	26	
symplectic	l	19	19
	r	16	
lower hypohyal	l	16	20
	r	20	
<b>Branchial arch</b>	<b>Lat</b>	<b>N</b>	<b>NMI</b>
urohyal		24	24
<b>Pectoral girdle</b>	<b>Lat</b>	<b>N</b>	<b>NMI</b>
posttemporal	l	26	26
	r	23	
supracleithrum	l	33	33
	r	28	
scapula	l	18	26
	r	26	
cleithrum	l	32	37
	r	37	
postcleithrum	non lat	39	20
coracoid	l	1	1
	r	1	
<b>Pelvic girdle</b>	<b>Lat</b>	<b>N</b>	<b>NMI</b>
basipterygium	l	8	19
	r	19	
<b>Vertebrae</b>			
1st precaudal		33	33
precaudal		600	35
caudal		684	24
hypural	25	25	25

TABLE 1

Inventory of haddock bones for each anatomical region (Canon, 1987) from the sample studied in detail.

Despite the fine sieving of the sediment we recovered only one badly preserved bivalve of the family of Semelidae (*Abra* sp.) that could have derived from the digestive track of haddock (Figure 4). This lack of small vertebrates or invertebrates suggests that the fish may have been gutted beforehand.



FIGURE 4

Left: probable stomach content of haddock with shell fragment of Semelidae, right: second hypobranchial with cutmarks.

The search of cut marks on over 3000 bones of haddock from this subsample led to only one case of cut mark on a second hypobranchial (Figure 4). We must note that gills haven't been removed, as suggested by an MNE of 19 according to the fourth epibranchial and 14 individuals according to the fifth ceratobranchial. Therefore, the cutmarks on the second hypobranchial can only be associated with the opening of the abdominal cavity.

Finally, the estimation of the fish total length has been undertaken on the basis of the posttemporals from the entire sample accounting for 90 individuals. The average size is  $TL=49$  cm with a maximum of 71 cm and a minimum of 35 cm (Figure 5).

#### FISH TRADE THROUGH ARCHIVISTIC DATA

The municipal archives of the city of Tourcoing were destroyed in 1711 during the burning of

the building that hosted them. Nevertheless, the knowledge of daily life in the neighboring city of Douai in the Middle Ages benefits from a study, certainly old but still valid by Espinas (1913). It relies on the wealth of Municipal Archives (AM) of Douai (series AA 94, 95, 97, 99, 100 to 103).

The organization of the fish trade in Douai is attested as early as the 13<sup>th</sup> century, whereas it generally appears from the 14<sup>th</sup> century onwards in other towns of Northern France. In Lille, the collection of trading rules within a specific register dates from 1405 with the first ban registered in the municipal archives from 1396 (Archives Municipales (AM) Lille BB2).

In 13<sup>th</sup> century Douai, freshwater fish were sold exclusively in the location named "à la croix du marché au blé". The commercial circuit seems to be short, in the hands of fishmongers, buyers in large and retail salesmen (Espinas, 1913: 356). Within the same city and as early as the 13<sup>th</sup> century, the sea fish trade was centralized in one place, "au

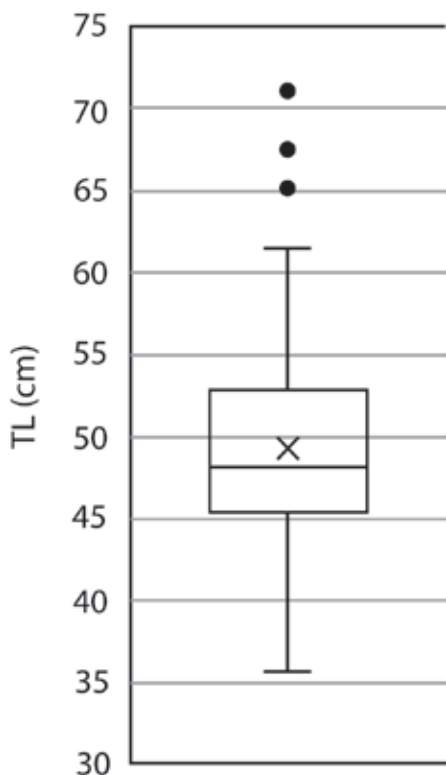


FIGURE 5

Boxplot of total length estimation of 90 haddocks from pit 163 based on direct comparison of posttemporals with reference skeletons.

maisiel-marché du poisson de mer”. The fish considered as being of second choice could possibly be sold on another remote place called the Barlet<sup>1</sup>. The commercial circuit for marine fish is more complex than for freshwater fish. The merchandise brought from the coast by the “sonmeliers-chasse-marées” was delivered to wholesale fishmongers, the fish was then inspected by the “égards-inspecteurs” and, if it was considered fit for consumption, it was sold to consumers by “venderes-vendeurs au détail”.

This trade has been increasingly regulated through time. Indeed, the bans of the Middle Ages have only a few items (6 in Lille in 1396 AM Lille BB2 f°8) whereas the 18<sup>th</sup> century regulations have several dozens of them (55 in Douai in 1761 AM

Douai HH 222) going into closer scrutiny in terms of organization and obviously trying to prevent any fraud or bribery.

## THE MINC

The minc (minck, mincq, myn, min) is the fish market. The word is of Flemish origin. In the Middle Ages and the modern era, it refers to the place where fish is brought to upon entering the city and where it has to be cleared within the same day. Under the authority of the aldermen, the “égards” officiate there controlling all fish put on sale. All cities in northern France and Belgium created such a dedicated space for the trade of fish even though the facilities are sketchy, the stalls and bowls are made of wood and may be mobile or fixed and at best protected by a roof. One or more valets are responsible for the daily preparation and cleaning of the minc and one or more sergeants can also be assigned. Within this market, a reversed or decreasing auction took place, where the buyer is the one who shouts “minc” when the price has lowered enough for him. In modern times, like many institutions, the minck is leased. It is a wholesale and retail-wholesale market, where whole baskets or half-baskets of fish are sold even though large cods may be sold by the unit. This market is by then reserved for the professionals, the “minqueurs” who are resellers obliged to debit their goods in the day. This process was an obligation, requiring a speed that was primarily a measure of hygiene, but was also an economic measure, as it was estimated in Lille in the 18<sup>th</sup> century that if the merchant commissionaires were allowed to store this merchandise, “they would be the masters to sell them at excessive prices” (AM Lille AG 1057/1). Once the wholesale market over, resellers can settle in the minc for the day.

The “égards” distinguish two qualities of fish. In Douai, the freshest fish are labeled “bon-lez” but if the quality is insufficient, fish are sold “à dos tourné” which means that the fish is declassified by operating a deep slit, on one side of the body, from the head to the tail and cross-shaped incisions are made on both extremities of the fish. If the fish is considered bad “malvais-mauvais” it is destroyed.

The “égards” intervene on the fresh fish, from the opening of the market. They also officiate at the sellers of smoked fish, and in Douai, they are the

<sup>1</sup> Le Barlet is a large square on the outskirts of the city center, first intended for the cattle market, it and also hosted public executions.

only ones who can proceed to the opening of the barrels of salted fish to control their state of preservation (AM Douai AA 101, 1663).

## THE DESTRUCTION OF FISH

In Douai, a first mention of destruction appears in 1509, a “psaulmon pourry” (rotten salmon) is cut and “gieté en l’eauwe” which means thrown in the Scarpe river (AM Douai HH 222). In 1595, the law introduces the practice of burial “...sy tost que les esgards voiront ou scauront aucuns poissons mauvais, ilz le feront conduire pour l’enfourir au Barlet...” (AM Douai HH 226) which means that as soon as the “égards” know about bad fish it is seized and buried at the place du Barlet. The settlement of 1761 orders bad fish to be thrown into the river or buried as the commissioners will judge to be suitable. In 1783 it is mentioned that barrels of herring are transported out of this city to be buried in the customary way (AM Douai HH 266).

In the case of the city of Lille, in 1680 a plot of 285 yards (2500 m<sup>2</sup>) is bought in order to fix the place of the “voirie” where dead animals (horses and cattle) and the waste from the fish market were buried. For this purpose, a long trench 1.20 meters wide and 1.50 meters deep is dug and when it is almost full another is dug parallel to it.

Destruction by burying becomes compulsory in Lille in 1698 when five “égards-poissonniers” expertise 38 barrels of red herring which are deemed bad. The trader intervenes but is not allowed to return this commodity to his agent in Dunkirk. The herring are buried two days later (AM Lille AG 1053/21). The procedure becomes regulated in Lille in 1701 when two aldermen discover a bad barrel (one ton) of fish, and summon the market police and the “égards”. An agreement is finally reached on December 3rd, between the seller of 16 barrels and fishmongers who bought them. The cod are buried the same day as attested by the sergeant of the mincq (AM Lille 1053/21). The destruction was conducted by the sergeant and two valets. The costs of the operations included the transport with the use of a chariot and the burial. It was financed by a tax of one liard which was a small-value bronze coin, on each basket of fish, increased to two liards in 1708.

## DISCUSSION

The burial of corrupt fish is a well-documented practice in the archives of Lille and Douai during middle ages and modern times. Pit 163 discovered under market place of Tourcoing dated between mid-15<sup>th</sup> mid 16<sup>th</sup> c contained an estimated 116 whole haddock ranging between 35cm and 71cm total length with an average of 49cm. The preserved skin documented by imbricated scales observed during excavation and on some clumps of sediment handled in the laboratory is a proof of the presence of the flesh over the articulated bones. The absence of filleting cut marks or other transformations usually associated with the preserving of marine fish such as removal of abdominal vertebrae leads to the conclusion that we are in presence of fresh whole haddock. Exploration of local archives provides an explanation to this find and it may be linked to seizure and burial of corrupt fish following the rules of this period.

The examination of traces of potential stomach content within the sieved sediment provided only one badly preserved shell of Semelidae. This suggests that the fish may have been gutted beforehand. In evidence of this, a cutmark was observed on a second hypobranchial. It may be associated with the opening of the abdominal cavity as this is suggested in the dried cod of the Bertrand Steamboat (Klippel & Falk, 2002). Nevertheless, before concluding that the haddock were gutted, it must be born in mind that haddock has a specific feeding behavior on small to medium-sized endobenthos, and secondarily at ophiuroids along an adaptation of the stomach of this species to powerful crushing and grinding (Mattson, 1992). These factors may explain partly the lack of preserved stomach content.

From a methodological point of view, the MNE per region of the fish supports the presence of complete fish. Nevertheless, we observed some discrepancies within some regions which may be linked with the size of bones and their capacity to resist to breakage. These factors restrict the possibility of identifying some bones despite the good preservation conditions. As a consequence, the interpretation of skeletal part profiles is more efficient when specific bones of each area of the body is used as an indicator of the presence of this region or not.



## CONCLUSIONS

Through the combination of careful digging in the early 1980's, knowledge of local archives and ichtyoarchaeology, it has been possible to give a meaning to an unusual deposit of 116 whole haddocks within a single pit dug out for the purpose of the burial. We have suggested the hypothesis of fresh fish. Excavations in other areas of modern era Tourcoing have provided other cases of buried whole fish that were only photographed but left on the field. This indicates that our 15<sup>th</sup>-16<sup>th</sup> century find is not isolated and other potential discoveries may improve our understanding of fishing, market regulations and health issues.

As an additional element to this present work, we are investigating whether the studied assemblage was derived from the presently extinct haddock population that once lived in the Channel and was exploited since roman times and during the middle ages (Oueslati, 2017, 2019). The biology of this population is not known and the process of extinction of the southern part of the North Sea and the eastern part of the channel is not yet understood. Therefore, this work will be targetting the genetic characterization of the assemblage. Finally, the isotopic study of 116 specimens that could have come from a single fishing event is of interest to test the variability of isotopic signatures and its significance in terms of fishing grounds.

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