

Tuna traps of andalusian coast under the rule of the Medina Sidonia ducal house. Typology, production and problems.

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# Introduction

- No record has been kept of accounts and diaries of tuna traps before Sixteen century . The first information about production of tuna traps is from 1503: 1283 tunas in Conil y 221 in Zahara.
- In the will of Maria Alfonso Coronel (1267-1330), widow of Guzmán “el Bueno”, we can see that she ordered to pay Paricio Pérez, his servant, 5000 maravedis, which he used to put up the tuna traps.
- The Guzmanes assembled it in Hulelva and Cádiz under his jurisdiction, but the right to run all the tuna traps is not seen in an official record until 1371. In 1379, Juan I admitted the Count of Niebla’s ownership of all the tuna traps on the coasts belonging to his patrimony. The following kings endorsed it.

# Duke's tuna traps



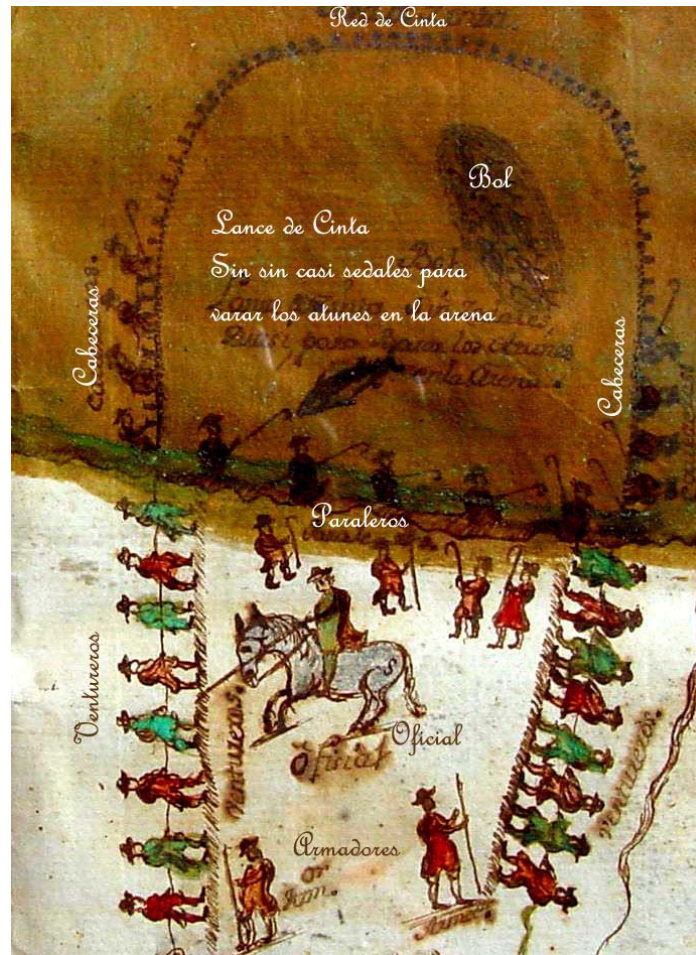
# Tipology (Sañez Reguart, 1791)

- Tiro's tuna traps. It doesn't have an armature set in place in the sea, but ships with their nets, confine fishing, perceived from a guard from an watchtower which put ships in alert . They knew the direction of tuna and went, rowing, to cast their nets and drove tunas to shore. There , men and boys with ropes pulled to get the tunas out to slaughter them and to be preserved in salt. It is suitable for open coast exposed to winds, storms for until four o five days with strong streams in waxing moon' days: Zahara, Conil, Carboneros.

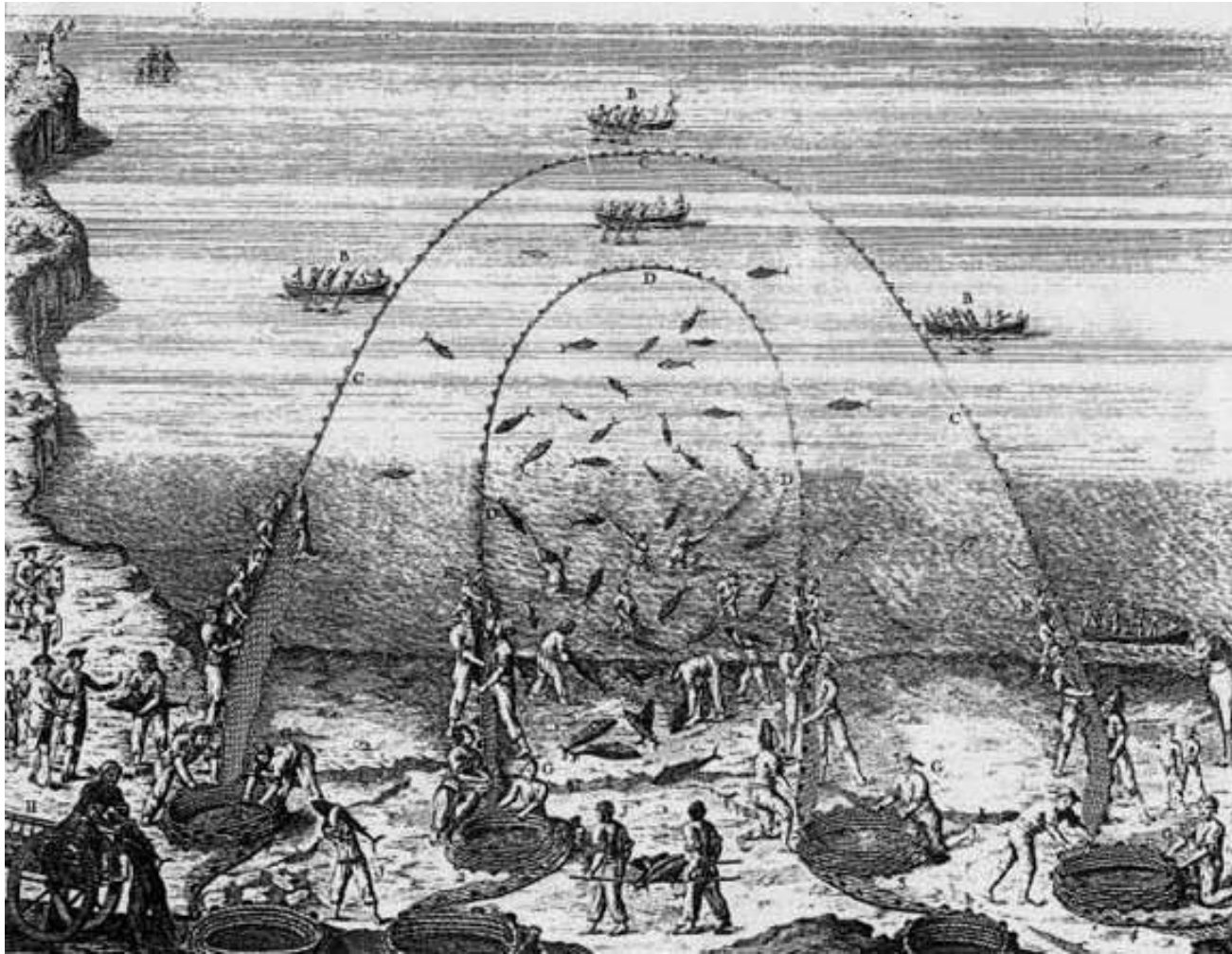
# Almadraba de tiro: Conil



# Lance desde la playa (Catching fish from the shore)



# Almadraba de tiro: Conil



# Conil: faenas en la playa





# Tiro's tuna trap. Equipment(1727)

- Hempen nets. 7 in the real almadraba
- 5 esparto nets
- 4 Fishing line for boliche system
- 5 boats for hampen nets (cintas). 11meters.
- 3 boats *de segunda*. 10mt.
- 2 boats for *boliche*. 10 mt.
- 5 boats for measuring the depth of water(calones) . 6mt.
- 3 skiffs propelling by oars 11 per unit, for hampen nets and segundas.
- 2 skiffs for boliche's ships. 7 oars per unit.
- 20 oars for the 5 calones
- 1 hawser. 457mt long and 5cm thick.
- 1 hawser of hempen. 54mt long and 5cm thick
- 6 or 8 levers for boats.
- 3 or 4 for boliche
- 300 esparto ropes
- 100 paraleas. For lanching and stranding ships.
- Pails for bailing water
- Trazallón (thiny esparto ropes for enlisting fishing lines) and estrobos for oars
- Cork bark used for making stoppers for nets
- Esparto arizanes for them
- Ristra y Tomento (esparto ropes for fishing lines)
- 14-16 carts
- Tinajas(barrel) for water
- Wooden boots for flours
- Weights
- Palas for pilas and salt shaker
- 1 drum
- Lanterns
- Runny suet for lanching and stranding ships
- Hempen thread for sewing

# Tiro's tuna trap. Staffing

- Captain and his servant
- Manager of Chanca
- Accountant
- See guard
- 4 captain assistants
- Treasurer
- Salt manager
- Majoordomo of Chanca
- Supplier
- Flour manager in the Casa Blanca mills
- Carts manager
- Main Sheriff
- Main watchtower guard and apprentices.
- Main shipowner
- 4 auxiliary shipowner
- 2 *almocadenes* ( foreman ) and oarsmen unit
- 2 *bolicheros*. East and west.
- 4 *proeles*. Especialized oar in tying ships and boats up.
- 2 gangs
- 20 men of *cabecera*
- 12 *breviones* leading by an ancient.
- 16-20 carriers leading by an 2 or 3 foreman.
- 12 salters leading by one foreman
- 80 *paraleros* leading by 2 or 3 foreman.
- Ventureros (all sort of work)
- 1 drummer and crier.
- 1 equerry.
- Barber and laundry woman

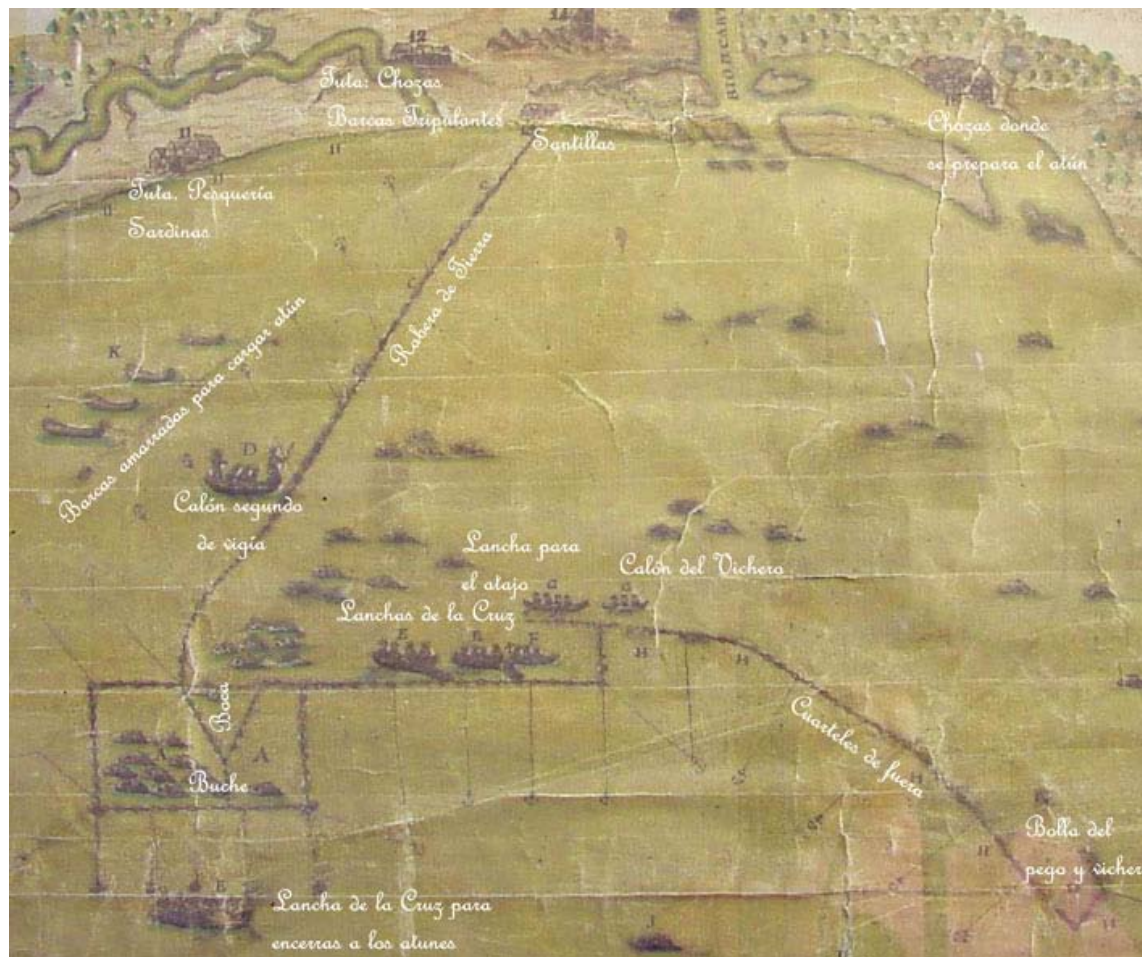
# Typology (Sañez Reguart, 1791)

- **Buche's tuna trap:**
- It needs, at least, 11 ships, with a crew of 50 men. His season begun in the middle of june and finished in the middle of august.
- It comprise implements to fix as anchors, ropes, etc and nets with ropes to sorround tunas when they got in the grounds of the tuna trap. The tunas got into the Buche and there they were slaughtered . It was named," la Sacada".
- It's tipycal of Mediterranean sea. It was suite for coves and bays not exposed to winds, storms or tidal waves that could ruin it. 44-50 workers: **Tuta o Terrón.**

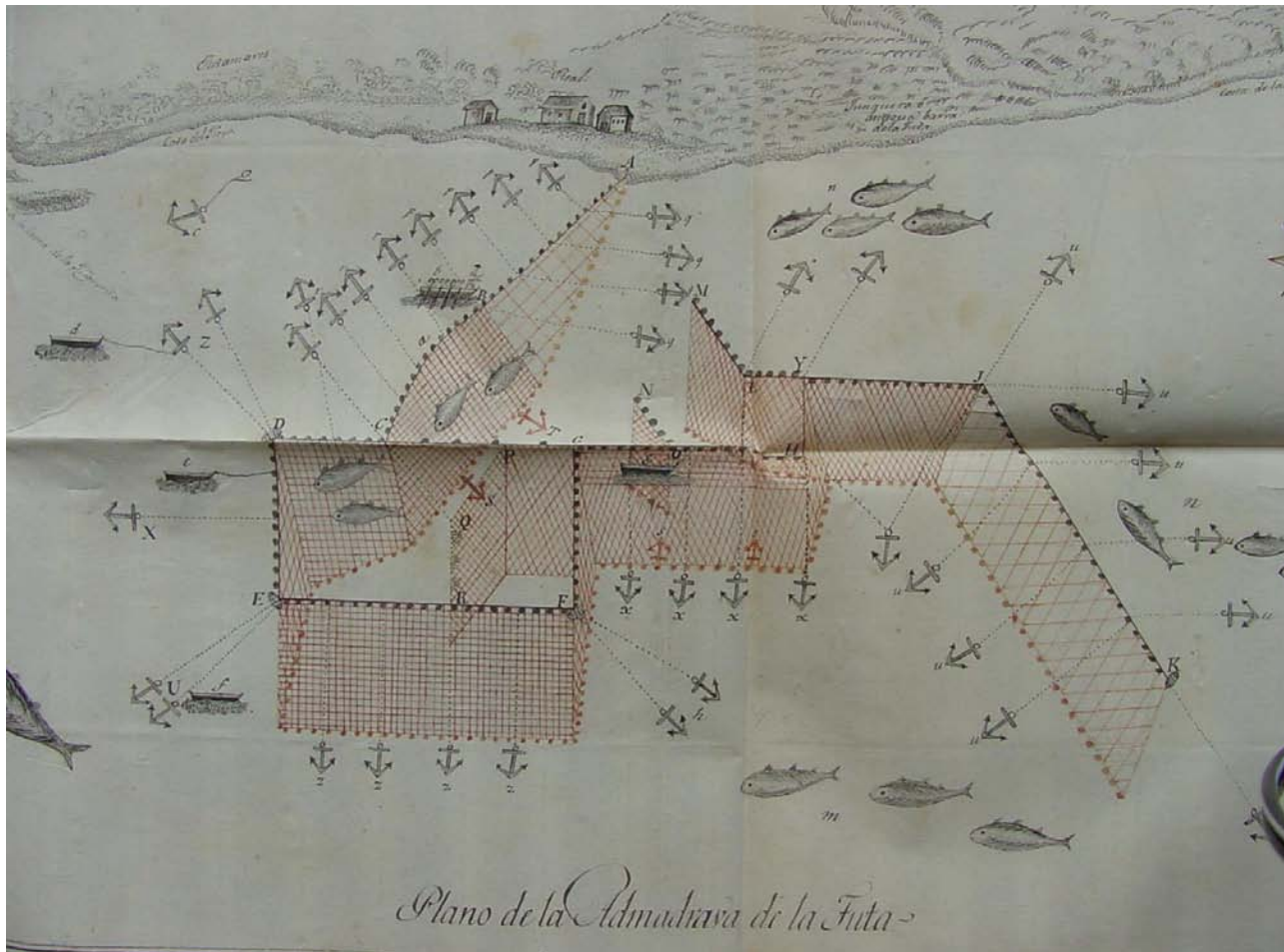
# Cost of the equipment for a Buche's tuna trap.

|                                     | Cost (reales de vellón) |
|-------------------------------------|-------------------------|
| Boats and Calones                   | 30150                   |
| Anchors                             | 48000                   |
| Ropes                               | 9741 y 16 maravedis     |
| Hempen nets                         | 16785                   |
| <i>Esparto</i> nets                 | 7702 y 22 maravedis     |
| Cork barks                          | 2760                    |
| Bolones, clocles and other supplies | 2484                    |
| Total                               | 117623 y 4 maravedis    |

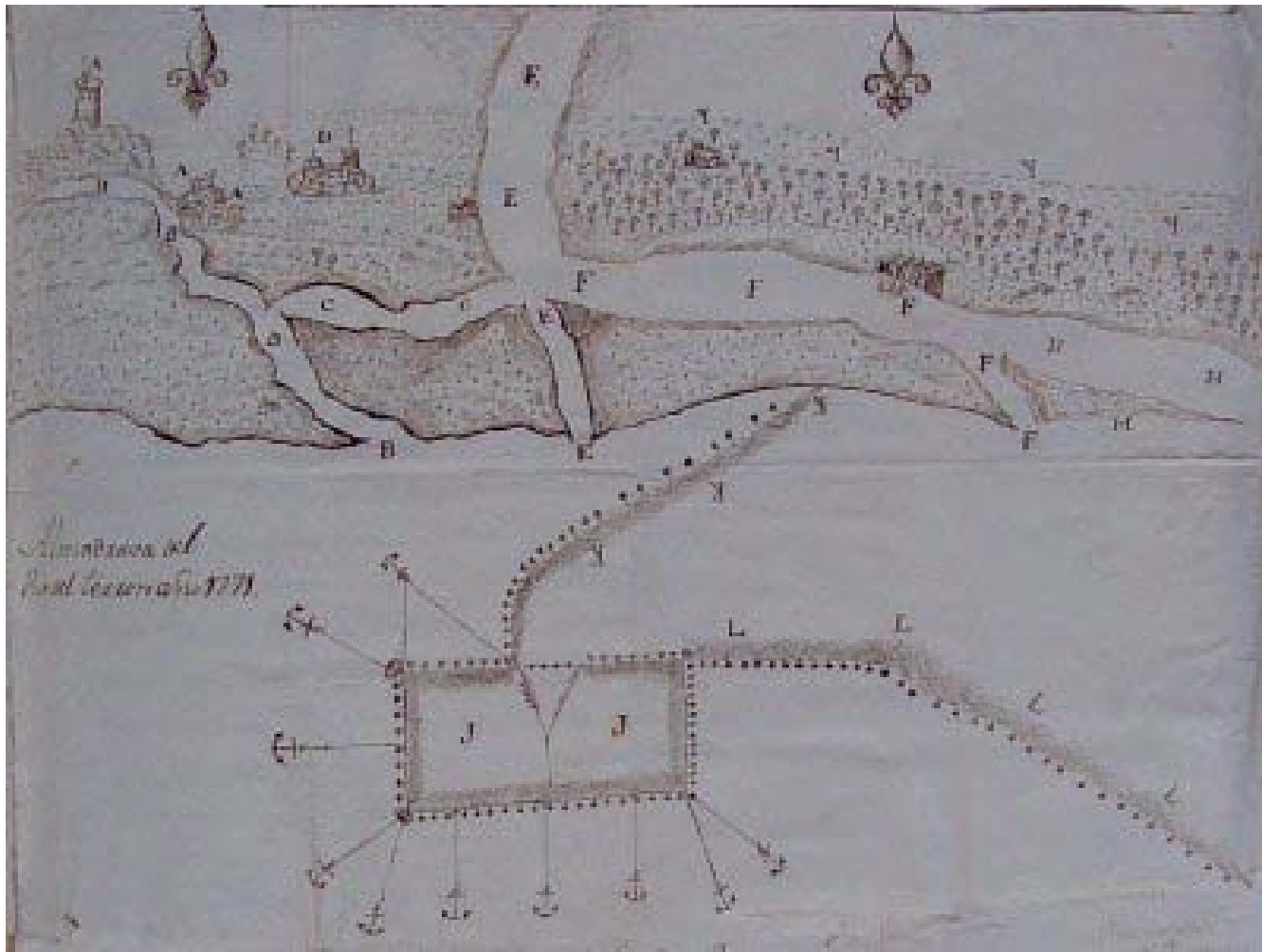
# Almadraba de Buche: Tuta



# Almadraba de anclas: Tuta

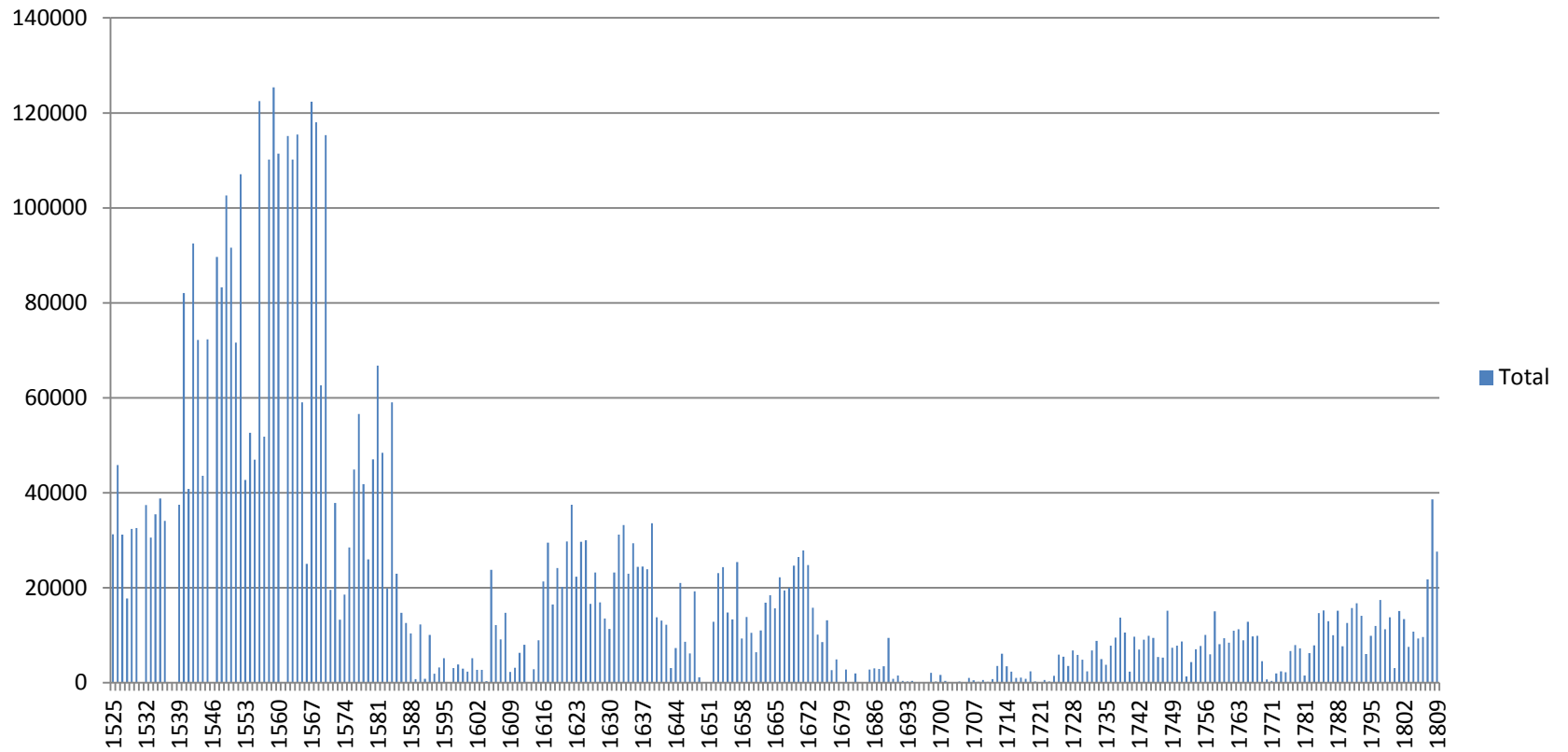


# Almadraba de la Tuta



# Total Output

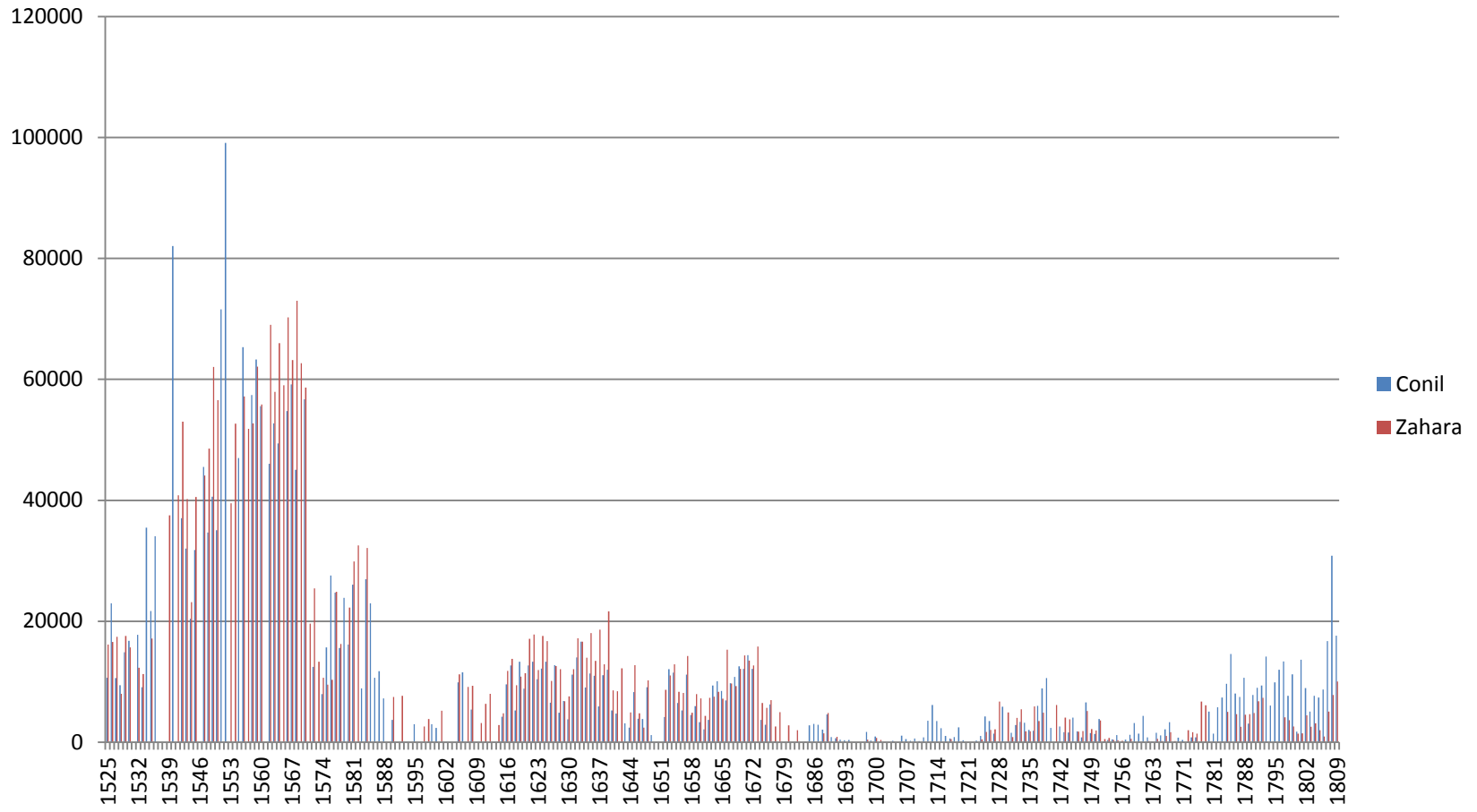
Número atunes







# Conil and Zahara output



# Castilnovo's tuna trap impact on Tuna traps of Conil and Zahara

## Number of tuna fished in the three tuna traps:

| Año  | Número de atunes |
|------|------------------|
| 1525 | 31918            |
| 1526 | 31262            |
| 1527 | 31156            |
| 1528 | 31156            |
| 1529 | 22333            |
| 1530 | 32442            |
| 1532 | 37405            |
| 1533 | 30550            |
| 1534 | 35500            |
| 1535 | 38711            |

## Fishing in Conil y Zahara since 1540 when Castilnovo tuna trap stopped its activity

| Año  | Número de atunes |
|------|------------------|
| 1540 | 82074            |
| 1542 | 90061            |
| 1543 | 72874            |
| 1544 | 43584            |
| 1545 | 72322            |
| 1546 | 89110            |
| 1547 | 83430            |
| 1548 | 102693           |
| 1549 | 93638            |
| 1550 | 91056            |
| 1551 | 71606            |
| 1552 | 99111            |

# Problems of the 16th century

- At the end of the 16th century, shortage of tuna induced withdrawal of buyers. The reason was the lack of respect to ancient prescriptions firmly established in the 14th century, forbidding tuna fishing out of season. As a result tunas fled to Moroccan coasts.
- In 1583 a ban was enacted forbidding fishing out of season in the contour of the tuna traps and it was later accepted by the Chancillería of Granada. However it was impossible to prevent the damage.

# Problems (report from 1577)

- Incorrect arrangement of the tuna traps: Tuna came near the coast towards Gibraltar Strait. In Cádiz Bay they arrived at Santipetri, afterwards to Conil, then to Castilnovo and finally to Zahara. Drawing tunas in Santipetre damaged Conil fishing and, in the same way, drawing tunas in Castilnovo damaged Zahara fishing.
- Tuna is a fearful fish. Everything ( a cry, a net, a blow, etc.) get it run away and change his way to open sea.
- Proposal: not to set up tuna traps in Castilnovo and Santipetri

# Problems (report from 1598)

- Damages produced by back fishing: Fishing , in general, had considerably diminished . “ On Andalusian coast and Algarve kingdom it was usual to catch 300.000 tunas. Six years later, only 20.000. The cause of this huge loss is the back fishing”.
- The tuna fished when coming back was of worse quality, and this point was very important because this food was essential for the Royal Navy because its long preservation as well as for convents, inland villages and the Royal Court during the lent.
- Proposal: prevent fishing out of the season of return of tunas: from April 25th to June 25th.

# Problems of the 17th century

- In prison and exiled, the ninth duke of Medina Sidonia was compelled to run the tuna trap by mail.
- His son, the tenth Duke (1664-1667), without experience and with few experienced servants, forgot that the important thing was the quality rather than quantity, so return tuna traps were set up.
- His brother, Juan Carlos (1667-1713) was less interested in tuna and became a courtier. For this reason he let the fisheries or let the local people to exploit them. They went fifty-fifty, but as a result the tuna traps became a local and limited industry.

# Problems in 17th century in Carboneros

- Hostile climatology conditions (tidal wave, storms, strong winds, etc) for many days don't let fix the almadrabas many days. In 1570 appeared three dead bodies between Zalabar y Asperillo towers .
- Sea conditions: In rainy years, Guadalquivir's floods brought about a diminish of salinity near the coast and prevented fishes from getting to the coast. This accounts for the higher number of captures in the back season than in summer, when coastal waters were clearer.



# Roaces y espadartes (orcas)

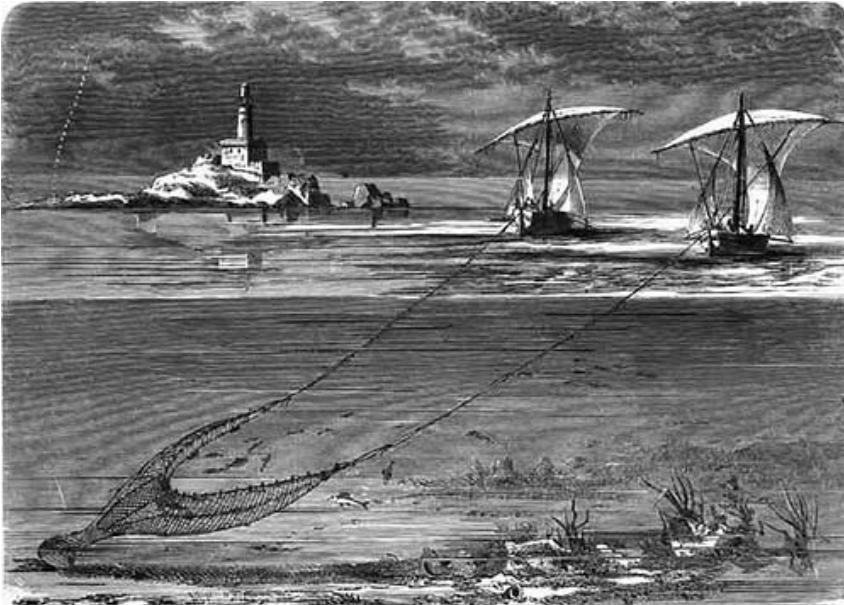


- The lack of *roaces y espadartes*: these cetaceans pursued tunas on their way. They ran away coming close to the beach. The cetaceans stopped chasing for fear of being agrounded. This fact made it easier for tuna to get into tuna traps. In 1774 the lack of tuna could be explained because many roaces were agrounded in the portuguese coast. However, in Conil y Zahara, the espadartes made tunas flee out of the tuna traps and so it happened in 1652 and 1713.

# Problems: Plagues and natural disasters

- Plagues: near to the river mouths, in marshes, there were frequent malaria outbreaks . In 1785 y 1787 in Carboneros tuna trap workers went down with the illness and were replaced by inexperienced workers. This also happened in 1590 when Conil and Vejer hospitals were packed out. In 1599, 1600, 1649 and 1650 there were also outbreaks.
- In 1755, the Lisbon tsunami killed a coastguard and his family in Conil and destroyed boats and equipment. In the following years, lack of people and continuous floodings made people give up fishing.

# Problems in 18th century in Carboneros



- Introduction of fishing by Bou system near tuna traps. Trawling was given up in Levante area, but it was introduced in 1764 in Sanlucar de Barrameda. According to a document of this period, by trawling younger fishes ran out and tunas were frightened ; most of them fled to portuguese tuna traps.

# The reverend Martín Sarmiento (the 18th century)



- The reverend Martín Sarmiento, an expert in natural history, developed a report, at the request of the fourteenth duke of Medina Sidonia, where he showed his point of view on the problem of the reduction of tuna fishing and provided ideas about how to find a solution.

# The reverend Martín Sarmiento. Causes of tuna traps' decline.

- Weather.
- Portuguese set up almadrabas more inside the ocean.
- Cádiz maritime traffic. Maritime traffic towards América had moved from Seville to Cadiz.
- Divine retribution because no contribute was given to same convents ,as it used to be done since ancient times
- Greed and human miserliness. It was preferable to fish small amounts but for a long time than a big quantity just at a time. He told us a simil: “if you slaughter sheep instead of shearing them once a year you run out of wool, skin and the future lambs”

## The reverend Martín Sarmiento. Proposals for changing this circumstance.

- Adapt some tuna traps in order to save workers and money.
- Replace tuna trap framework with simple fishing tackle: fish-hook, *volantes*..
- Take care of species preservation as for young fishes. He proposed not to set up tuna traps in two or three years in spring season, when it is time to spawn, and if possible not to fish females. Every tuna female lays one million eggs.

# Resistance to change.

- 1727. Conil's local people refused to replace the traditional tuna trap of *tiro* with one of *buche* because it caused the reduction of workers. Many workers lived on this wages. Tiro system was destroyed but further investigations attributed it to a strong storm.
- In 1746, the duke brought that system in Zahara for the same reasons. A popular riot prevented his introduction.

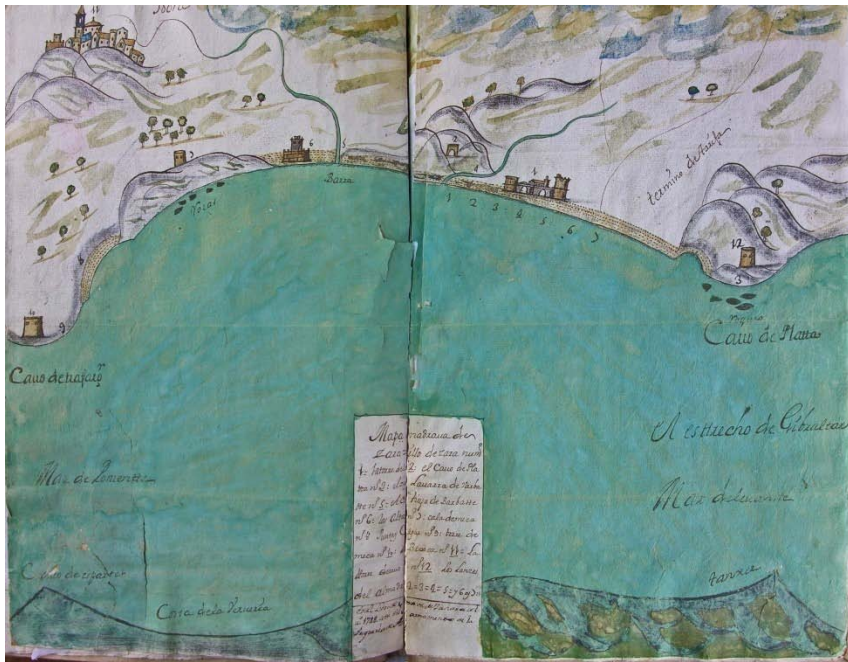
# Conil (1727)



- Since 1689, it had been noticed that from may 28th to june 12th, east winds provoked gales and high tide which made water muddy, so tunas went past the almadraba and this fact brought out big losses. A worse thing took place when the Punta de Roche, a rope that convert Conil Almadraba into a cove, became a breakwater with troubled waters that pushed tunas to Trafalgar cape.



# Zahara (1727)



- The post of Captain of the tuna trap was appointed directly by the duke. As a rule, he was a reliable and experienced servant. But custom wasn't always followed when the tuna trap was leased. For this reason, in 1724, there was a noticeable decrease.
- This tuna trap was damaged by Barbate estuary in rainy winters because waters from La Janda lake were poured through its mouth into the ocean. In the spring season, less rainy, damage was lesser.

# Proposal of fixing seines in Conil y Zahara(1725)

|                      | Jabegón | Almadraba real |
|----------------------|---------|----------------|
| Workers              | 250     | 550-600        |
| <i>Cinta</i> boats   | 3       |                |
| <i>Segunda</i> boats | 2       |                |
| <i>Calones</i> boats | 4       |                |
| Operating costs      | 1/2     | 1              |

# Risks from sea

- The emergence of pirates that looted almadrabas, broke nets, stole all sort of objects and captivated people, especially in almadrabas out of village as Zahara one. In 1559 Aligur landed in Conil and caught ten prisoners. The pirate came back to Azahara in may 19th in 1562. He killed the beasts, demolished the church, boat and fishing tackle and caught 49 prisoners.
- The arrival of the army to undergo conscriptions during work season in almadrabas, , against Medina Sidonia House privileges, provoked the workers' flight. The first time the army caught 20 men on 21st june of 1780. The other workers ran away. In 1790 150 men were taken.
- Lack of experienced men in sea jobs due to wars.
- Imports of great deal of cod at the end of 16th century. In 1609, the war against France and England caused a rise of tuna price due to the lack of cod, but peace enabled cod imports again and prices lowered.