European Commission, DG MARE

Studies for carrying out the Common Fisheries Policy:
Lot 3 Socio-economic dimensions in EU fisheries

Isola delle Femmine case study report

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1. **Methods**

1.1 **Secondary data sources**

The secondary data used in this report are mainly fisheries data collected by IREPA which have been disaggregated to obtain estimates at local level. The IREPA database consists of annual landings data aggregated by species and fleet stratum and annual cost data by fleet stratum. The level of geographical aggregation of this data (fleet stratum) is represented by the northern coast of Sicily, while the “technical” aggregation level consists of the predominant fishing gear (as for DCF) and vessel length class.

For each fleet stratum, data per unit of LOA (landings, revenues and added value) or per vessel (number of employees) have been estimated. The values for the fleet segments of Isola delle Femmine have been calculated by multiplying the unitary data by the total LOA or number of vessels of that fleet segment. The level of reliability of this data is not calculated, however, data collected by IREPA have an acceptable level of reliability at GSA level (as this is the geographical level requested by DCF). At a higher level of detail, like the local community analysed, data cannot be considered as reliable and needs confirmation by local stakeholders.

Data on the annual number of vessels, gross tonnage, LOA and engine power have been collected through the Italian fishing fleet register and extrapolated by IREPA.

Outside the fisheries sector, data on the number of firms (active firms) have been collected through the Provincia di Palermo which has produced estimates based on data from the local Chambers of Commerce. These data have been further disaggregated to ensure homogeneity over the period. Unfortunately, data for 2006 are missing.

Some additional information on the main features and problems in the area has been obtained through the local management plan for the management unit “Palermo west and Ustica isle”, prepared by the CO.GE.PA “Castellamare del Golfo e Palermo Ovest” in collaboration with Mazara del Vallo Operative Unit of IAMC CNR. This information has been discussed and revised with local stakeholders during the focus groups.

1.2 **Interviews with focus groups**

A meeting with local stakeholders and fishermen of Isola delle Femmine was held in a cafeteria close to the local fishing port. The meeting was held on 8th June 2013 at 10:30.

The group of participants at the meeting was selected in an attempt to include representatives of all fleet segments (vessels owners), who were also representative of the different fishing cooperatives operating in Isola delle Femmine, and representatives of fishers employed on vessels with Isola delle Femmine as base port.

Unfortunately the meeting was attended by only 6 people, however, they covered all three fleet segments active in the local port. Although other people were invited, some could not participate because they were involved in fish commerce and other activities at the time. Given the low number of
participants in the meeting, additional interviews were carried out over the following days at each single stakeholder place of work including fishing ports, fish marketing points and the municipality office.

Notwithstanding the economic difficulties the local fishing community is experiencing, the participants were very cooperative in terms of answering the questions. They recognised the importance of using studies like this to communicate their views to European institutions. The meeting was very useful in terms of collecting information on the local fishing sector and its evolution but participants were not very competent in answering questions regarding the evolution of other economic sectors at a local level. To overcome this problem, an interview with the municipality staff involved in collecting local statistics was held two days later, on 10th June.

1.3 Questionnaires
The sample of people interviewed for the group of vessels owners and the group of people employed on the vessels were larger than the number of people involved in the focus groups. However, problems were encountered in interviewing fishermen other than the owner employed on vessels below 6m as a consequence of the extremely low number of people employed in this category. Problems were also encountered with attempting to interview vessels owners and fishermen employed on vessels classified as purse seiners as this fishing method was not in operation during the study period.

A total of 48 questionnaires were submitted to the local fishermen. 20 questionnaires were compiled for vessels owners (5 for polyvalent lower than 6m, 11 for polyvalent over 6m and 4 for purse seiners) and 28 questionnaires were compiled for crew members (5 for polyvalent lower 6m, 17 for polyvalent over 6m and 6 for purse seiners. Most of the tables reported below are based on questionnaires submitted to vessels owners, while the other questionnaires are used to complete the information and the qualitative description of the local social context.

2. Settings

2.1 Description of case study sites
Isola delle Femmine (Isle of Females) is a single local level 2 administrative unit (LAU2) located in the province of Palermo (NUTS3: ITG12) in Sicily (NUTS2: ITG1). Sicily is an Italian region and is the largest island in the Mediterranean Sea. The area of Isola delle Femmine is 3.54 km², at a latitude of 38° 11’ 53” N and longitude of 13° 14’ 58” E. With a population of 7,336, this results in a population density of 2,072.32 people per km². The nearest administrative centre is the Municipality of Isola delle Femmine (Comune di Isola delle Femmine). The distance from Isola delle Femmine to Palermo, the capital of Sicily, is 16 km.
Isola delle Femmine has a Mediterranean climate, hot and dry in summer and with rainfall concentrated in the winter months. Rainstorms and windstorms are not unusual in the colder months, but temperatures never fall below zero. The summer, although hot, is well ventilated (due to the breezes that blow frequently along the coast of Sicily) and generally not too wet. The average temperature of the coldest month, January, falls between 9°C (minimum) and 14°C (maximum), while that of the warmest month, August, is between 22°C and 30°C. The average annual rainfall is about 741 mm with the wettest period taking place from October to February with a monthly average of about 100 mm, while the driest month is July at 6 mm. The average length of the day is 12 hours and 13 minutes with a maximum in June (14 hours and 47 minutes) and a minimum in December (9 hours and 35 minutes).

The name of the town comes from the name of the small island situated in front of it, named Isola delle Femmine. This name is the result of a long process of Italianisation of the Latin word "insula fimii", or "Island of Euphemius", the name of the Byzantine general Euphemius of Messina, the governor of the province of Palermo. On an unspecified date a fixed tunny-fishing net of fimii, from the Latin fimis, transcription of the Arabic word fim (mouth), was constructed. The name was transformed in the dialect term Fimmini and then in the Italian Femmine. The fixed tunny-fishing net was donated by William II the Good to the abbot Theobald, bishop of Monreale in 1176. Around 1400, a small church was built adjacent to the fixed tunny-fishing net for the fishermen. Between the fifteenth and eighteenth centuries, piracy which was practiced throughout the Mediterranean basin created the need to strengthen the coastal urban centres with a system of towers. The ruins of the two towers, at sea and on land, dating back to that period are still present. In the sixteenth century, both the island and the land belonged to the family Bologna. The Count Gilberto Bologna, the owner of the ground of Capaci including the present territory of Isola delle Femmine, rented houses and warehouses to fishermen. In 1799 the territory forming part of the ground of the Counts of Capaci was granted to the fishermen to build a
village around the church and the fixed tunny-fishing net, which became the house of the family Bologna after the abandonment by fishermen. This territory represents the core of the city centre of Isola delle Femmine.

The region is not suitable for cultivation, so fishing has always been the dominant economic activity. The tuna fishery was particularly important because of the seasonal migration of the tuna across the territorial waters. This has affected the economic, social and urban development of a territory linked to the sea as a source of livelihood, still one of the main resource for local activities. In 1831, the wealth generated from sea-related activities and the warm climate enabled the establishment and urbanisation of the seaside village, Tonnara. In 1854 the village of tuna, belonging to the town of Capaci, became an independent municipality named Isola delle Femmine with its own civil state. In 1997, the Region of Sicily established the Natural Reserve of Isola delle Femmine (the small island) and in 2003 the Minister of the Environment established the Marine Protected Area of Capo Gallo - Isola delle Femmine.

2.2 Demographics
As reported in Figure 2, the population of Isola delle Femmine has increased from 6,200 people in 2002 to 7,300 people in 2011. Although the population has also increased in Sicily and Italy as a whole, the magnitude of population growth in Isola delle Femmine is significantly higher than that of Sicily and Italy. From 2002 to 2011, the population of Isola delle Femmine has increased by more than 18% compared with an increase of 1.7% in Sicily and 6.4% in Italy. This difference is probably associated with the decline of the population of Palermo over the same period as a consequence of a phenomenon of suburbanization of the Sicilian capital and the movement of inhabitants from Palermo to neighbouring areas like Isola delle Femmine and Santa Flavia.

![Figure 2. Trends in population of Isola delle Femmine over the period 2002-2011](source: Italian National Statistical Institute (ISTAT).

The age structure of Isola delle Femmine population is typical of developed countries with an older population due to long life expectancy, a low death rate and a low birth rate. In terms of age structure, the population of Isola delle Femmine is slightly younger than that of Sicily, which is slightly younger
than the Italian one. Over the last 10 years, as in Sicily and Italy, the population of Isola delle Femmine has aged. The increase in population reported above is concentrated in the older age classes, 41-65 and over 65, which show an increase of 43% during the period under analysis, while the younger classes increased by only 3%.

Figure 3. Age structure of the population of Isola delle Femmine over the period 2002-2011
Source: Italian National Statistical Institute (ISTAT).

More than 98% of the population of Isola delle Femmine are Italian, while just 0.5% are from other EU countries and 1.3% are from non-EU countries. Unfortunately, official statistics on the place of birth of Isola delle Femmine inhabitants are not available so a comparison between the local (less than 30 km from the community) and national levels cannot be drawn. Nevertheless, qualitative information collected during the focus groups with local stakeholders and fishermen indicate that the majority of the population are of local origin. The presence of people resident in Isola delle Femmine while working in Palermo was confirmed, however, these people generally just use Isola as a place to sleep at night as very few live in the community at the weekend.

Figure 4. Origin of the population of Isola delle Femmine for the year 2011
Source: Italian National Statistical Institute (ISTAT).

Figure 5 shows that the number of immigrants has generally been higher than the number of emigrants. In 2005, 2006 and 2010 the number of immigrants and emigrants were almost equivalent. As reported above, the prevalence of immigrants (especially those from Palermo) is the main reason for the increase in local population.
As data on life expectancy at birth is not available at the local level, Figure 6 shows the data for the province of Palermo. This data, which is almost identical to the data registered for Sicily, shows a life expectancy slightly lower than that estimated for Italy.

2.3 Employment opportunities/sector overview
The economic structure of Isola delle Femmine is strongly affected by its proximity to Palermo. Over the last ten years in particular, as reported above, the number of inhabitants has increased by almost 20 % as a consequence of suburbanization of the Sicilian capital and the movement of inhabitants from Palermo to neighbouring areas. Local stakeholders stated that most of the people who commute between Palermo and Isola are employed in the public sector. Even though they use Isola as a temporary neighbourhood, from a statistical perspective, the prominence of economic sectors like Public Administration, education and welfare services has increased in terms of the number of employees. The staff of the municipality involved in local statistics estimated the current composition of employment by economic sector as follows: 40 % in the public sector, 20 % in the manufacture sector, 20 % in the fisheries sector and 20 % in other sectors. Even though the local fishermen interviewed in the focus group consider the data on the fishery sector derived from the IREPA database to be an overestimate, fishing is undoubtedly an important sector in the economy of Isola delle Femmine. In
2001, as reported in Table 1, 1,211 people (9 % of the total employment) were employed in this sector and this number appears to have increased since then. In 2011 it was estimated that from IREPA data that a total of 235 fishermen were employed on the vessels registered in Isola delle Femmine. However, local stakeholders and fishermen considered these data to be overestimates as many vessels registered in the maritime district of Isola delle Femmine use the nearby Sferracavallo (a different LAU2) as their base port. Furthermore, the average number of employees on purse seiners has been overestimated because local purse seiners are different to those generally operating in the North of Sicily. They estimate the real number of vessels based in the port of Isola to be around 100 units with approximately 120 people employed which implies that the number of employees in the sector has been stable over the last ten years.

Unfortunately, the only official statistic on the relevance of economic sectors at municipality level is provided through the census carried out by ISTAT (Italian national statistical institute) every ten years. The last census was carried out in 2011, but data are still not available. Based on ISTAT census, in 2001, 542 people, accounting for 39 % of total employees, were employed in the manufacturing sector, the most important sector in the area. The importance of the manufacturing industry is due to the presence of the cement plant of Italcementi which opened in Isola delle Femmine in 1957. Local stakeholders stated that the number of people working in this plant has reduced over the last twenty years, however, Italcementi reports on its website that there are a current total of 125 employees and estimates there are another 250 involved in satellite activities associated with the cement plant. This would suggest that the local prominence of this sector in terms of employment is still high.

Another important economic sector is commerce, representing 17 % of total employment with 234 employees in 2001. The tourism sector, mainly represented by “hotels and restaurants” accounted for only 6 % of the total employment, however, local stakeholders confirmed that this sector has increased over the last ten years. They stated that the construction is almost all related to tourism as it primarily involves the construction of hotels and houses for holidays. The small area of Isola delle Femmine is almost completely built and most of the buildings are holiday homes (generally second houses for people living in Palermo).

Public Administration, education and welfare services represented 14 % of the total employment, however, as reported above, it seems that this percentage has increased significantly over the last ten years for the movement of workers involved in these sectors from Palermo to Isola. Recent data provided by the Chambers of Commerce, and extrapolated by the statistical office of the Province of Palermo, on the number of active firms by economic sector are reported in Figure 7. Although the number of firms cannot be considered a reliable indicator of the prevalence of an economic sector, an increasing trend in the number of firms involved in hotels and restaurants as well as in financial and other services has been registered. These trends confirm the increasing importance of tourism.
Table 1. Employment by activity in Isola delle Femmine in 2001

<table>
<thead>
<tr>
<th>Economic sector</th>
<th>No. employees in 2001</th>
<th>% of total employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishery and related sectors</td>
<td>121</td>
<td>9%</td>
</tr>
<tr>
<td>Manufacture sector</td>
<td>542</td>
<td>39%</td>
</tr>
<tr>
<td>Building sector</td>
<td>102</td>
<td>7%</td>
</tr>
<tr>
<td>Commerce</td>
<td>234</td>
<td>17%</td>
</tr>
<tr>
<td>Hotel and restaurant</td>
<td>83</td>
<td>6%</td>
</tr>
<tr>
<td>Transport</td>
<td>28</td>
<td>2%</td>
</tr>
<tr>
<td>Financial services</td>
<td>18</td>
<td>1%</td>
</tr>
<tr>
<td>Other private services</td>
<td>18</td>
<td>1%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>61</td>
<td>4%</td>
</tr>
<tr>
<td>Education</td>
<td>115</td>
<td>8%</td>
</tr>
<tr>
<td>Welfare services</td>
<td>29</td>
<td>2%</td>
</tr>
<tr>
<td>Other public services</td>
<td>27</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1378</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Italian National Statistical Institute (ISTAT)

Figure 7. Number of firms operating in Isola delle Femmine by economic activity over 2005-2011
Source: Chamber of Commerce data
2.4 Fisheries
Fishing in Isola delle Femmiine, as in the majority of Italian coastal areas, is predominantly artisanal. This is evidenced by the extreme polyvalence of fishing activities and the multi-species composition of landings, reflecting the high biological diversity of the fish populations. Indeed, almost all vessels use a multitude of fishing systems and gears, switching from one to another seasonally, adapting fishing strategies to the seasonal features of the target species.

The fishing activities are mainly targeted at large pelagic species such as greater amberjack and common dolphinfish through purse seine; swordfish, and albacore using longliners. However, demersal species are also targeted using static gears (trammel net, gill net).

In 2011, 114 vessels were registered in the maritime district office of Isola delle Femmiine. Based on the DCF fleet segments (LOA and predominant fishing gear), these are classified as reported in Table 2.

Table 2. Isola delle Femmiine fleet segments and fleet categories

<table>
<thead>
<tr>
<th>DCF fleet segment</th>
<th>Number</th>
<th>Fleet category</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTS VL1218</td>
<td>1</td>
<td>excluded</td>
</tr>
<tr>
<td>DTS VL1824</td>
<td>1</td>
<td>excluded</td>
</tr>
<tr>
<td>PGP VL0006</td>
<td>34</td>
<td>Polyvalent VL0006</td>
</tr>
<tr>
<td>PGP VL0612</td>
<td>65</td>
<td>Polyvalent VL0618</td>
</tr>
<tr>
<td>PGP VL1218</td>
<td>1</td>
<td>Polyvalent VL0618</td>
</tr>
<tr>
<td>PMP VL1218</td>
<td>1</td>
<td>Polyvalent VL0618</td>
</tr>
<tr>
<td>PS VL1218</td>
<td>10</td>
<td>Purse seiners VL1224</td>
</tr>
<tr>
<td>PS VL1824</td>
<td>1</td>
<td>Purse seiners VL1224</td>
</tr>
</tbody>
</table>

Table 2 reports the number of vessels, the average overall length and the fleet category grouping selected for reporting in this study. The two vessels classified as demersal trawlers (DTS) have been excluded from the analysis because of their limited effect on the local fisheries community and for confidentiality reasons. Regarding purse seiners (PS), as only a single vessel belongs to the length class between 18 and 24 m, these have all been combined into the same fleet category. The same approach has been followed for polyvalent vessels larger than 12 m which have been combined with polyvalent vessels between 6 and 12 m. Each fleet segment has been analysed with respect to the landings composition. As significant differences arose between polyvalent vessels smaller than 6 m in length and those bigger, two different fleet categories were used for classifying those vessels. Therefore, the final list of fleet segments analysed in this report are: Polyvalent VL0006, Polyvalent VL0618 and Purse seine VL1224.

Table 3 shows the number of new constructions in Isola delle Femmiine in the period 2006-2011. Data are based on the construction year of the vessels belonging to the Italian fleet on 31/12/2011 as provided by the Italian managing authorities and included in the IREPA database. During this period,
three new vessels entered the local fleet. All of these were polyvalent vessels between 6 and 12 m (PGP VL0612), none of which received public funds for the new construction.

**Table 3. New vessels entering the fleet of Isola delle Femmine**

<table>
<thead>
<tr>
<th>Isola delle Femmine</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>New construction</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total fleet</td>
<td>145</td>
<td>139</td>
<td>128</td>
<td>122</td>
<td>120</td>
<td>114</td>
</tr>
<tr>
<td>% of new vessels</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.8%</td>
<td>0.0%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

Source: IREPA database

Vessels classified as polyvalent represent the majority of the fleet accounting for around one hundred units, 67 over 6 m and 34 under 6 m. These vessels use both active and passive gears, but none of them are dominant. As a consequence, the landings composition is characterized by the presence of both demersal and pelagic species. The bigger vessels in this category also fish large pelagic species like swordfish and albacore. The remaining 11 vessels are classified as purse seiners which is the predominant fishing gear used although this fishing gear is used only in some periods of the year. The number of vessels reported above and in other parts of this report are related to the vessels registered in the maritime district of Isola delle Femmine. However, some of these vessels do not operate in the port of Isola, but in the neighbouring port of Sferracavallo. The total number of vessels in the port of Isola has been estimated at around 100 units by local stakeholders and fishermen. The COGEPA “Castellamare del Golfo e Palermo Ovest” estimated that there are 92 vessels in total based in the port of Isola delle Femmine; 7 purse seiners, 23 polyvalent under 6 m and 62 over 6 m.

In 2011, vessels registered in Isola delle Femmine maritime district landed around 1,200 tonnes, equivalent to almost EUR 4.5 million in value, registering a reduction of almost 20 % in volume and over 40 % in value when compared with production in 2006. The sharp reduction in landings coincided with a decline in the prices of certain important species, resulting in an even greater reduction in revenues. Furthermore, the increase in fuel price which has been taking place since 2008 has presented an additional negative factor for the economic performance of the feet.

Most of the vessels of Isola are active in the GSA 10 and within 12 nautical miles, however, some vessels using drifting longlines fish also outside the 12nm limit in other GSAs in some periods of the year. Generally, with the exception of vessels using drifting longlines for specific periods, trips length is 1 or 2 days for all fleet segments.

**Table 4. Fleet segments in Isola delle Femmine**

<table>
<thead>
<tr>
<th>Segment</th>
<th>Number of vessels</th>
<th>Number of main gears used</th>
<th>Number of crew (average)</th>
<th>Main species fished</th>
<th>Main fishing locations (ICES areas)</th>
<th>Average trip length (days)</th>
</tr>
</thead>
</table>

10
As reported above, the area is characterised by a great variety of stocks. Statistical data on landings and prices are collected for more than 60 species. Based on the disaggregation of IREPA data, the most important five species in terms of landings value are European anchovy, swordfish, squid, greater amberjack and European hake, which account for almost 60 % of total revenues. Although European anchovy is the most important target species for purse seiners at Northern coast of Sicily level, local purse seiners use a particular type of fishing gear directed to catch common dolphinfish, greater amberjack and pilot fish rather than European anchovy. Therefore, European anchovy cannot be included in the list of main species for this fishing community. Unfortunately, biological data for the local stocks are very limited.

Recent assessments of the Mediterranean stock of swordfish (*Xiphias gladius*) carried out by ICCAT, mainly on Spanish, Greek and Italian data, indicate that the current rate and level of exploitation are not sustainable in the short and long term. Furthermore, these assessments show a high presence of reproductively immature juveniles (about 50-70 % of the total catch) and very few large individuals.

Surveys of European hake (*Merluccius merluccius*) provided through the programmes GRUND (Italian National Group for Demersal Resource Evaluation) and MEDITS (International bottom trawl survey in the Mediterranean) indicate that abundance and biomass are highly variable with no clear trend emerging from the data. As reported in STECF-12-03: “EWG 11-20 proposes F ≤ 0.2 as limit management reference point (basis F0.1 as a proxy of FMSY) consistent with high long term yields. Given the results of the present analysis, the stock appeared to be subject to overfishing in 2006-2010, as the estimates of fishing mortality was 0.63 in 2010. Regardless of the growth pattern a considerable reduction is necessary to approach the FMSY reference point (Factor; ~65-70 % of the current F-value,
depending on the year). However, considering the high productivity in terms of incoming year classes, this stock has the potential to recover fast if $F$ is reduced towards $F_{MSY}$.

The reduction in fishing mortality proposed by the EWG 11-20 is related to the entire fleet operating in the GSA 10 fishing areas. These means that these reductions are not necessarily expected by the fleet of Isola delle Femmine or the fleets registered in the province of Palermo, which represent only a part of the total fleet operating in GSA 10. More details on the stock assessments for these stocks can be found in the “Report of the Scientific, Technical and Economic Committee for Fisheries on Assessment of Mediterranean Sea stocks (STECF-12-03)”.

Isola delle Femmine is the most important fishing port of the area west of Palermo. It is located in front of the small isle (which has the same name as the locality) and consists of an outer breakwater and an inner breakwater pier. The harbour provides shelter from wind and wave action except for those from the north-eastern quadrant that sometimes cause damage to the vessels because of the incompleteness of the port structure. The interior of the port consists of several concrete piers for the mooring of fishing boats and, limited to the summer period, also 2 piers for recreational boating, as well as numerous moorings to the buoy. The local fishing fleet consists of a hundred boats, mostly small and involved in artisanal fishing with static gears, but there are also few bigger boats fishing with longlines, seines and small-scale driftnets (ferrettara). There is also a fish selling point where local fishermen can sell their products daily, and a petrol station on the dock is currently under construction.

2.4.1 Fleet segment 1: Polyvalent VL0006
The fleet segment Polyvalent VL0006 consists of vessels with an overall length below 6 m, with 1 GT and 9 kW on average. Given the small size of these vessels they are typically crewed by a single person. As he is generally the vessel owner, performing the role of both skipper and the crew, his employee-type is here defined as ‘self-employed’. These vessels use both active and passive fishing gears, like trammel nets, gillnets, hooks. The main target species are squids, common octopus, greater amberjack, European hake and common cuttlefish.

A declining trend in the volume and value of landings has been recorded over the last six years and the number of vessels is also declining. The reduction in revenues and the increase in operating costs (fuel costs in particular) have caused a decline in the profitability of these vessels.

Fleet segment as a whole
As reported above, vessels in this fleet segment are managed by a single fisher, who generally owns a single vessel and brings together the roles of manager, skipper and crew. However, there are also cases of fishers owning more than one vessel. Of 5 questionnaires submitted to vessels owners in this fleet segment, no crew member other than the owner has been registered. Given the constraints associated with the vessel size, the average number of employees has not changed over time and the total number of employees has declined following the trend in the number of vessels.

Regarding the role of women, the stakeholder focus group stated that women do not have any direct role in fishing activities. However, in some cases, given the long absence of fishermen from the mainland, their wives carry out an administrative role on behalf of the husbands. Furthermore, the
absence of fishermen from the mainland means that spouses or partners may play a central role in family decisions and child care. The decision-making processes related to the fishing activities is totally managed by the vessel owner, who is generally the only crew member. Other family members, like spouses or partners, are not involved in these decisions, which are generally based on the seasonality of fishing activities.

A total of 34 vessels belonging to this fleet segment were registered in maritime district of Isola delle Femmine (2011 data). The average number of employees per vessel calculated was 1.3 people, accounting for around 43 employees. However, estimates based on COGEPA data suggest there are only 23 vessels below 6 m that are actually based in the local port. Furthermore, as reported in Table 5, of 5 questionnaires submitted to vessels owners, there were no cases of two employees being present on the same vessel. This would suggest a number of employees in this fleet segment much lower than that reported above (probably around 30 people). All employees are male and of local origin and most fall in the age class between 40 and 65 years (see Table 5 and Figure 8).

Table 5. Demographics by employee type. Polyvalent VL0006 (n=5)

<table>
<thead>
<tr>
<th>Employee type</th>
<th>Gender</th>
<th>Age</th>
<th>Origin</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of employees</td>
<td>Male</td>
<td>Female</td>
<td>0-18</td>
</tr>
<tr>
<td>Managerial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Administrator</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Self-employed</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Crew</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

n: number of questionnaires.
Source: Consultants calculations based on the questionnaires.
The questionnaires submitted to fishers show that their families consist of around 3 people on average. This is due to the presence of both single and married people. The latter generally have more than one child. Partners are usually housewives and are not involved in the fisheries sector, while sons and daughters are generally students, however, there was one record of a daughter being involved in the fishing sector as a skipper.

Table 6 shows the number of employees registered through questionnaires divided into family and non-family members. As employees are mostly lone owner-operators, all of them are reported as family members and as they are self-employed they all have a management role in this business.

Table 6. Level of family involvement in business. Polyvalent VL0006 (n=5)

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Number in management roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family employees</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Non-family employees</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

n: number of questionnaires.
Source: Consultants calculations based on the questionnaires.

Estimates based on data provided by IREPA show a total GVA for the fleet segment equal to EUR 300,000 in 2011. This is equivalent to an annual GVA per vessel of almost EUR 9,000. Between 2006 and 2011, GVA per vessel has declined by around 45%. This is mainly due a significant
reduction in revenues during the same period. The most critical year was 2010, with a GVA per vessel of EUR 5,000. As data on GVA refers to the registered fleet, this can be overestimated, however, data per vessel seems to be representative of the real situation.

Table 7. Trend in gross value added for Polyvalent VL0006

<table>
<thead>
<tr>
<th>Variable (EUR)</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>GVA</td>
<td>807394</td>
<td>634948</td>
<td>281192</td>
<td>469241</td>
<td>176933</td>
<td>304312</td>
</tr>
<tr>
<td>GVA/vessel</td>
<td>16477</td>
<td>14110</td>
<td>7030</td>
<td>13034</td>
<td>4915</td>
<td>8950</td>
</tr>
</tbody>
</table>

Source: estimates based on IREPA data

Landings of this fleet segment are mainly composed of demersal species, which represent almost 85% of the total catch. Squid and common octopus represent more than 30% of total landings. The remaining landings are mainly composed of pelagic species, of which greater amberjack is the most important species. Between 2006 and 2011, total landings volume has declined by 50%, including both demersal and pelagic species.

Figure 9 Trends in landings volume for Polyvalent VL0006
Source: Elaborations on IREPA data

Demersal species make up 85% of the total revenues. Squid and common octopus represent over 35% of total revenues for this fleet segment. The remaining 15% is mainly from pelagic species, of which greater amberjack is the most important species (around 10% of total revenues). Between 2006 and 2011, the reduction in landings volume has caused an estimated 50% reduction in revenues. This reduction is mainly due to demersal species, which have also seen a significant drop in price. In contrast, the reduction in landings of pelagic species has been partially counterbalanced by an increase in their market price.
Figure 11 shows the trend in prices for the main species (or groups of species) landed by vessels classified as polyvalent lower than 6 m. Marine fishes nei (this group includes all fishes not classified elsewhere) and squid represent the main target species in terms of revenues accounting for more than 45% of the total. Both species have registered a reduction of 18% during the period under analysis. The price of common octopus, which represents 13% of total landings value, has remained stable. The prices of the other two main species, greater amberjack and European hake, have increased by 16% and 23% respectively.

The number of vessels declined between 2006 and 2011, as did gross tonnage and engine power. The number of registered vessels decreased by 15 units, moving from 49 to 34 boats (Figure 12).

The greatest reduction was registered from 2006 to 2009 by the exit of 19 vessels and the entry of 6 vessels. Another two vessels left the fleet segment between 2010 and 2011. Regarding the first period, the Fleet Register shows that 11 of the 19 vessels that left the fleet segment moved to other ports, such as Porticello, Praia a Mare and Mondello. The remaining 8 vessels were decommissioned and 4 of these were scrapped with public aid. The 6 vessels that entered into the fleet segment during that period came from other ports, like Mondello, Porticello and Termini Imerese. As for the 2 vessels that left from 2010 to 2011, one of them was scrapped with public aid and another moved to a different port.
Figure 11 Trends in landings prices of main species for Polyvalent VL0006
Source: Estimates based on IREPA data

Figure 12 Trends in number of vessels for Polyvalent VL0006
Source: Estimates based on IREPA data
Remuneration type is based on a share-contract system where the difference between revenues and operating costs is divided into two parts, one of which is directed to remunerating the crew and the other for the ship owner. This is the most common type of contract in the Mediterranean fishing sector.

Table 8. Remuneration type by vessel. Polyvalent VL0006 (n=5)

<table>
<thead>
<tr>
<th>Remuneration type</th>
<th>No. people</th>
</tr>
</thead>
<tbody>
<tr>
<td>piece</td>
<td>0</td>
</tr>
<tr>
<td>share</td>
<td>5</td>
</tr>
<tr>
<td>wage</td>
<td>0</td>
</tr>
</tbody>
</table>

n= number of questionnaires.
Source: Consultants calculations based on the questionnaires.

As reported above, the trend in the economic performance of the fleet segment is negative. The reduction in revenues has caused a significant decline in the gross value added. The stakeholders interviewed identified European and international regulations as the main factors driving this situation, reporting that these regulations have reduced the potential for larger vessels to fish tuna and swordfish.
(the most important target species of larger vessels in the past) forcing them to compete for the same species as targeted by smaller vessels. This has increased the fishing effort on these species and reduced their biomass. It is also believed that restrictions on the large pelagic fisheries are further affecting the abundance of small pelagics as a consequence of increased tuna abundance and the associated predation effects.

**Employees within segment**

For all employees, pension and family allowances are the only benefits provided by the business. All fishers employed in this fleet segment declare an annual income below EUR 10,000.

<table>
<thead>
<tr>
<th>Employee type</th>
<th>&lt;10,000</th>
<th>10,000-19,000</th>
<th>20,000-29,000</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Administrator</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Self-employed</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Crew</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*n* = number of questionnaires.

Source: Consultants calculations based on the questionnaires.

Requirements for entering the fleet segment are informal and do not include specific qualifications as they are generally self-employed. Fishers hold a seaman certificate (libretto di navigazione), but registration for this does not require any specific attribute or skill. Fishers may obtain other qualifications based on their experience or attending specific training courses, but fishing experience and good health are more important for recruitment and fishers are generally male.

All fishermen interviewed had completed secondary education level (Figure 15) and none of them had had any previous jobs outside the sector. Although some fishers expressed dissatisfaction with their jobs, they had not actively looked for different employment and were not interested in alternative employment in the future.
The transfer of fishing skills within the family was high in the past; of the fishers interviewed, all of their fathers were also fishers. However, new generations are not interested in the fishing sector and their fathers would like a different job for them. The intergenerational transfer of skills was traditionally carried out through the direct involvement of children in fishing activities from a young age, but this is no longer feasible both because there are too many formal requirements and because fishing is less attractive to the new generation.

The perception of fisher wealth is low. This is a general perception amongst for the whole fishing catching sub-sector and is not differentiated by fleet segment. Fisher wealth has declined in recent years, thought to be due to the introduction of particular EU regulations which did not take into account local specificities and have negatively affected the sector.

Fishers do not feel they are represented by European, national or regional institutions, or by organizations like labour unions. They complain of a complete lack of representation of their interests and concerns and their economic situation at regional, national or EU levels. In contrast, at the local level, the municipality of Isola delle Femmine has taken up certain initiatives in the past to help local fishers. An example of this was the establishment of a fish selling point within the local port. Nevertheless, the main organizations present are the fishing cooperatives, although these only provide administrative support. The only positive change in this situation has been the establishment of the COGEPa of “Castellammare del Golfo e Palermo Ovest” in 2010 which aims to define, propose and monitor local management plans for the sustainability of the sector through a system regulating access to local fishing zones. However, the COGEPa has limited powers as local management measures can
only be more restrictive than those established at higher geographical levels. Therefore, the problems associated with EU regulations can only be partially mitigated by the management measures that the COGEPA can implement.

In terms of the declining economic performance of the fleet segment, fisher behaviour has not been as static as other fishing communities in the same area. In addition to attempts to modify the composition of landings by switching target species and fishing gears permitted within their fishing licenses, they have taken up initiatives at both the community and individual level. As reported above, the installation of a selling point within the area of the port has allowed local fishers to sell their products directly to the end consumer, thereby increasing their profits. Furthermore, some individual initiatives which include diversification of their activities into tourism have been undertaken. These have been possible because of the ongoing development of local tourism and the presence of the MPA of Capo Gallo-Isola delle Femmine.

2.4.2 Fleet segment 2: Polyvalent VL0618
The fleet segment Polyvalent VL0618 consists of vessels with an overall length greater than 6 m, with 2 GT and 23 kW on average. Employees generally consists of one or two fishers, the skipper and a crew member. However, similarly to the Polyvalent VL0006, the majority of vessels are managed by a single person so the definition of ‘self-employed’ is again used instead of skipper. Therefore, two employment types are defined for this fleet segment: self-employed and crew. These vessels use both active and passive fishing gears, like bottom longlines, trammel nets, gillnets, hooks. The main target species are swordfish, common dolphinfish, squids, European hake and albacore.

A declining trend in volume and value of landings has been recorded over the last six years. The number of vessels classified as polyvalent over 6 m has similarly decreased. The combined reduction in revenues and increase in operating costs (fuel costs in particular) have resulted in a decline in the profitability of these vessels.

Fleet segment as a whole
As reported above, vessels in this fleet segment are generally managed by a single fisherman. The skipper (self-employed) is generally also the vessel owner, who generally owns a single vessel, however, cases of fishers owning more than one vessel have been registered. The number of employees on a single vessel does not change over time. Of 11 vessel owners interviewed in this fleet segment, only one reported that the number of people employed varies seasonally based on the different fishing methods adopted. However, this respondent was an exception, personally owning 4 vessels of which some were inactive at various times and so required fewer employees at these times. There was only a single case in which a crew member other than the owner was registered in the questionnaires. He was the nephew of the vessel owner. The average number of employees has not significantly changed over time, however, the total number of employees has declined in response to the reduced number of vessels.

The stakeholder focus group stated that women do not have a direct role in fishing activities but in some cases, given the long absence of fishermen from the mainland, fishers’ wives carry out an
administrative role on behalf of the husbands. Furthermore, the absence of fishermen from the mainland leaves the spouses or partners to play a key role in family decisions and child care.

The decision-making processes related to the fishing activities are completely managed by the vessel owner, who is generally also the only crew member. Other family members, like spouses or partners, are not involved in these decisions, which are guided by the seasonality of fishing activities.

A total of 67 vessels belonging to this fleet segment were registered in the maritime district of Isola delle Femmine (2011 data). The average number of employees per vessel was calculated as 1.8 people, accounting for around 120 employees. However, based on the COGEPA data, 62 polyvalent vessels longer than 6 m are effectively based in the local port. Furthermore, as reported in Table 10, of 11 questionnaires submitted to vessels owners, the presence of two employees on the same vessel has been recorded in only one case. This would suggest a number of employees in this fleet segment much lower than that reported above (probably around 70 people). With one exception, all interviewed employees were male. They were all of local origin and almost all of them were in the age class between 40 and 65 years (see Table 10 and Figure 16). The only crew member other than the vessel owner was younger (age class 18-40).

Table 10. Demographics by employee type. Polyvalent VL0618 (n=11)

<table>
<thead>
<tr>
<th>Employee type</th>
<th>Gender</th>
<th>Age</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of employees</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Managerial</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Self-employed</td>
<td>11</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Skipper</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Crew</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

n: number of questionnaires.

Source: Consultants calculations based on the questionnaires.
The questionnaires submitted to fishermen show that their families consist of approximately 4 people on average for skippers (self-employed) and 2 people for other crew members. This is mainly due to the younger age of the other crew members and the consequent smaller number of family members. Generally, skippers (self-employed) have a wife and more than one child. Family members other than the householder are not usually involved in the fishing sector. Spouses are generally housewives, while sons and daughters might be students, workers, clerks or unemployed.

Table 11 shows the number of employees registered through questionnaires divided in family and non-family members. As employees are generally also the householder, all of these are reported as family members. As self-employed, all of them have a management role in this business. The only crew member other than the owner is from the vessel owner’s family.

<table>
<thead>
<tr>
<th>Number</th>
<th>Number in management roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family employees</td>
<td>12</td>
</tr>
<tr>
<td>Non-family employees</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
</tr>
</tbody>
</table>

Source: Consultants calculations based on the questionnaires.

Estimates based on data provided by IREPA show a total GVA for the fleet segment equal to EUR 690,000 in 2011, equivalent to a GVA per vessel of around EUR 10,000, about one quarter of the value registered in 2006. This is due to a significant reduction in revenues during the same period and the
increase in fuel price since 2008. Although such a dramatic reduction in profitability may appear unrealistic, local fishers confirmed the status of the economic crisis and the decreasing trend in profitability.

<table>
<thead>
<tr>
<th>Table 12. Trend in gross value added for Polyvalent VL0618</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong> (EUR)</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>GVA</td>
</tr>
<tr>
<td>GVA/vessel</td>
</tr>
</tbody>
</table>

Source: Estimates based on IREPA data

Landings of this fleet segment are equally distributed between demersal and pelagic species. The main stocks are common dolphinfish, swordfish and albacore, which represent around 40 % of total landings. The most important demersal species are squids and European hake, which represent more than 10 % of total landings. Between 2006 and 2011 the total volume of landings, including both pelagic and demersal species, decreased by 60 %. Of the most important stocks, swordfish has undergone the most substantial decline (almost 80 %).

![Figure 17 Trends in landings volume for Polyvalent VL0618](image)

Source: Estimates based on IREPA data

In terms of landings value, pelagic species represent almost 60 %. The main stock is swordfish, which represents 18 % of total revenues, followed by common dolphinfish accounting for 10 % of landings value. The most important demersal species are squid and European hake, which each represent 10 % of total revenues. Between 2006 and 2011, the reduction in volume of landings has caused a reduction in total revenues which is estimated at almost 60 %. This reduction is due to both demersal and pelagic species, however, the reduction in landings for pelagic species has been partially counterbalanced by an increase in market price, while prices for demersal species have declined during the period analysed.
Figure 18 Trends in landings value for Polyvalent VL0618
Source: Estimates based on IREPA data

Figure 19 shows the trends in prices for the main species (or groups of species) landed by polyvalent vessels larger than 6 m. The price of swordfish has increased by less than 10 %, while other pelagic species, like common dolphinfish, have registered more substantial increases. In contrast, demersal species, like squid and the group of Marine fishes nei (this group includes all fishes not classified elsewhere), have fallen in price over the period analysed.

Figure 19 Trends in landings prices of main species for Polyvalent VL0618
Source: Estimates based on IREPA data

The number of vessels, as well as engine power and gross tonnage, have declined between 2006 and 2011. The total number of registered vessels in this fleet segment has decreased by 19 units from 86 in 2006 to 67 in 2011. Local stakeholders said that, given the economic difficulties and the increase in
regulations, fishermen preferred to scrap or stop the activity of larger vessels and continue to fish using small vessels (under 10 m).

The steep decline in the number of vessels for this fleet segment is due to the exit of 24 units and the entry of just 5 units during the period analysed. Most of the vessels that left the fleet segment moved to other ports. The new ports were generally in Sicily, such as Porticello, Marsala, Termini Imerese, Sciacca and Mondello. Nine vessels were decommissioned and 3 of these were scrapped with public aid. The Fleet Register shows that there were 3 new constructions consisting in vessels under 10 metres.

As reported above, the fleet segment “Polyvalent VL0618” consists of DCF fleet segments PGP VL0612, PGP VL1218 and PMP VL1218. However, almost all vessels are smaller than 12 m. Since 2008, only 2 vessels have been larger than 12 m. The decline was mainly due to the DCF fleet segment PGP VL0612, which moved from 79 vessels in 2006 to 65 vessels in 2011. Polyvalent vessels over 12 m declined from 7 in 2006 to 2 in 2008 and remained stable thereafter.

Table 13. Trend in number for DCF fleet segments included in polyvalent VL0618

<table>
<thead>
<tr>
<th>Fishing technique</th>
<th>LOA</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGP</td>
<td>VL0612</td>
<td>79</td>
<td>76</td>
<td>73</td>
<td>71</td>
<td>69</td>
<td>65</td>
</tr>
<tr>
<td>PGP</td>
<td>VL1218</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PMP</td>
<td>VL1218</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>polyvalent</td>
<td>VL0618</td>
<td>86</td>
<td>79</td>
<td>75</td>
<td>73</td>
<td>71</td>
<td>67</td>
</tr>
</tbody>
</table>

Source: IREPA database

Figure 20 Trends in number of vessels for Polyvalent VL0618
Source: Estimates based on IREPA data
Remuneration is based on a share-contract system as described above.

Table 14. Remuneration type by vessel. Polyvalent VL0618 (n=11)

<table>
<thead>
<tr>
<th>Remuneration type</th>
<th>No. people</th>
</tr>
</thead>
<tbody>
<tr>
<td>piece</td>
<td>0</td>
</tr>
<tr>
<td>share</td>
<td>12</td>
</tr>
<tr>
<td>wage</td>
<td>0</td>
</tr>
</tbody>
</table>

n= number of questionnaires.
Source: Consultants calculations based on the questionnaires.

As reported above, the economic performance of the fleet segment is declining. The reduction in revenues and the increase in fuel costs have caused a significant decline in the gross value added. The stakeholders interviewed identified the European and international regulations as the main factors driving this situation as these regulations have restricted fishing activities on tuna and swordfish by the larger vessels. Indeed, the sharp reduction in landings is mainly of species like swordfish and albacore.
**Employees within segment**

For all employee-types, pension and family allowances are the only benefits provided by the business. All fishermen employed in this fleet segment report an annual salary below EUR 10,000.

Table 15. Salary band by employee type (EUR). Polyvalent VL0618 (n=11)

<table>
<thead>
<tr>
<th>Employee type</th>
<th>&lt;10,000</th>
<th>10,000-19,000</th>
<th>20,000-29,000</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Self-employed</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Skipper</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Crew</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

n= number of questionnaires.
Source: Consultants calculations based on the questionnaires.

Requirements for entering the fleet segment are informal and do not include specific qualifications as they are generally self-employed. Fishers hold a seaman certificate (libretto di navigazione), but registration for this does not require any specific attribute or skill. Fishers may obtain other qualifications based on their experience or attending specific training courses, but fishing experience and good health are more important for recruitment and fishers are generally male.

Most of the fishermen interviewed have completed secondary education (Figure 23). Of 12 employees in the sample, only three had only reach primary level education. Most of them got their first job in the sector. Although some fishers expressed dissatisfaction with their jobs, they had not actively looked for other employment and less than half were interested in alternative employment in the future. For these fishermen, any job other than fishing would be acceptable.
The transfer of fishing skills within the family was high in the past; of the fishers interviewed, all of their fathers were also fishers. However, new generations are not interested in the fishing sector and their fathers would like a different job for them. The intergenerational transfer of skills was traditionally carried out through the direct involvement of children in fishing activities from a young age, but this is no longer feasible both because there are too many formal requirements and because fishing is less attractive to the new generation.

The perception of fisher wealth is low. This is a general perception amongst for the whole fishing catching sub-sector and is not differentiated by fleet segment. Fisher wealth has declined in recent years, thought to be due to the introduction of particular EU regulations which did not take into account local specificities and have negatively affected the sector.

Fishers do not feel they are represented by European, national or regional institutions, or by organizations like labour unions. They complain of a complete lack of representation of their interests and concerns and their economic situation at regional, national or EU levels. In contrast, at the local level, the municipality of Isola delle Femmine has taken up certain initiatives in the past to help local fishers. An example of this was the establishment of a fish selling point within the local port. Nevertheless, the main organizations present are the fishing cooperatives, although these only provide administrative support. The only positive change in this situation has been the establishment of the COGEP A of “Castellammare del Golfo e Palermo Ovest” in 2010 which aims to define, propose and monitor local management plans for the sustainability of the sector through a system regulating access to local fishing zones. However, the COGEP A has limited powers as local management measures can...
only be more restrictive than those established at higher geographical levels. Therefore, the problems associated with EU regulations can only be partially mitigated by the management measures that the COGEPAA can implement.

In terms of the declining economic performance of the fleet segment, fisher behaviour has not been as static as other fishing communities in the same area. In addition to attempts to modify the composition of landings by switching target species and fishing gears permitted within their fishing licenses, they have taken up initiatives at both the community and individual level. As reported above, the installation of a selling point within the area of the port has allowed local fishers to sell their products directly to the end consumer, thereby increasing their profits. Furthermore, some individual initiatives which include diversification of their activities into tourism have been undertaken. These have been possible because of the ongoing development of local tourism and the presence of the MPA of Capo Gallo-Isola delle Femmine.

2.4.3 Fleet segment 3: Purse seine VL1224
The fleet segment Purse seine VL1224 consists of vessels with overall length between 12 and 24 m, with 23 GT and 153 kW on average. Employees generally consist of 2-3 people including the skipper, who is usually also the vessel owner. The majority of these vessels are different to the usual purse seiners operating in the Northern coast of Sicily. They use a particular fishing technique called “cannizzo”, whereby palm leaves (Phoenix canariensis) are placed on the surface, attached with a big nylon thread to a concrete structure on the bottom. This type of fishing, which is not yet regulated, has a significant environmental impact due to the nylon that is lost at sea. This fishing activity does not need 6-7 people like the traditional purse seine fishing, but can be carried out also by fewer than 3 people (even a single fisherman in some cases). Also the composition of landings is quite different as this fishing method targets common dolphinfish, greater amberjack and pilot fish, while European anchovy is not among the main target stocks.

Trends in the main indicators for this fleet segment are not clear. However, it seems that the economic performance has been slightly better than the other fleet segments. The perception of their own wealth is good which is in contrast with the perception of fishermen employed in other fleet segments.

Fleet segment as a whole
As reported above, vessels in this fleet segment are generally managed by two or three fishermen. The skipper is generally also the vessel owner, who generally owns a single vessel. Of 4 vessels owners interviewed in this fleet segment, only one of them reported that they owned more than one vessel (2 vessels) and two stated that the number of employees varies over the year as a consequence of the seasonality of the fishing methods adopted. Indeed, the type of fishery with the “cannizzi” is generally carried out from August to November. Some vessels are only involved in this type of fishery and are not active at certain times of the year (this is the reason for the low response rates: vessels were not active during the period of the study), while other vessels also carry out other fishing methods and are active year-round.
All interviewed crew members other than the vessel owners were family members, usually sons or nephews of the vessel owner. The stakeholder focus group stated that women do not have any direct role in fishing activities. However, in some cases, given the long absence of fishers from the mainland, their wives carry out an administrative role on behalf of the husbands. In some cases, to simplify the administrative process, the ownership of the vessel is assigned to the wife. Furthermore, the absence of fishermen from the mainland leaves spouses or partners to play a central role in family decisions and child care. The decision-making processes related to the fishing activities is totally managed by the vessel owner, who generally is also the skipper. Other family members, like spouses or partners, are not involved in these decisions, which are guided by the seasonality of fishing activities.

There are 11 purse seiners registered in the maritime district of Isola (2011 data). However, information at local level estimates 7 units are based in the port of Isola whereas the other vessels, even if registered in Isola, are based in other ports. The average number of employees per vessel is calculated as 2-3 people, accounting for around 15-20 employees. All employees are male and of local origin. Skippers are generally older than the other crew members. The main age class for skippers is 40-65, while all the other crew members are in the class 18-40 (see Table 16 and Figure 24).

<table>
<thead>
<tr>
<th>Employee type</th>
<th>Number of employees</th>
<th>Gender</th>
<th>Age</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>male</td>
<td>0-18</td>
<td>18-40</td>
</tr>
<tr>
<td>Managerial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Administrator</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Skipper</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Crew</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>7</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

n: number of questionnaires.
Source: Consultants calculations based on the questionnaires.
The questionnaires submitted to fisher show that their families consist of 5 people on average for skippers. This is typically a fisherman, his wife and three children. Other crew members are often younger (around 30 years old) and live alone or with their parents. The women in the family are usually not involved in the fisheries sector. Mothers and wives are generally housewives, while daughters are students or employed in other sectors. In contrast, most of the sons are fishermen and work with their fathers as crew members. They are regularly employed as crew in permanent positions and paid through share-contract systems.

Table 17 shows the number of employees registered through questionnaires divided into family and non-family members. As reported, all crew members are related to the vessel owner.

<table>
<thead>
<tr>
<th>Table 17. Level of family involvement in business. Purse seine VL1224 (n=4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number</strong></td>
</tr>
<tr>
<td>Family employees</td>
</tr>
<tr>
<td>Non-family employees</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

n: number of questionnaires.
Source: Consultants calculations based on the questionnaires.

Data on GVA, landings, revenues and prices were estimated for this fleet segment through a disaggregation of data provided by IREPA for the Northern coast of Sicily and are not reliable as a
consequence of the particular fishing technique adopted by the majority of these vessels. However, trends in these variables should be similar, but slightly better than those reported for polyvalent vessels over 6 m. This perception is based on interviews with local fishers and the similarities in the fishing gears used (for purse seiners using fishing methods other than “cannizzi”) and the composition of landings. Even though local fishermen operating purse seine vessels reported similarly declining profitability, the use of cannizzi instead of standard polyvalent gears and the decision (for some of them) to stop this activity for a number of months seem to indicate better economic performance than other fleet segments. Furthermore, the same fishers indicate a level of wealth higher than in other fleet segments. The number of vessels shows an increase in 2007 and a stable trend thereafter. The gross tonnage and the engine power has followed a similar trend (Figure 25, Figure 26 and Figure 27).

The increase in 2007 and 2008 was due to the entry of vessels coming from other ports. Previous ports reported by the Fleet Register are Porticello, Licata and Portopolato di Capo Passero. Only one vessel exited the fleet segment in the period analysed. This vessel was scrapped with public aid in 2008.

![Figure 25 Trends in number of vessels for Purse seine VL1224](image1.png)
**Figure 25 Trends in number of vessels for Purse seine VL1224**
Source: Estimates based on IREPA data

![Figure 26 Trends in engine power for Purse seine VL1224](image2.png)
**Figure 26 Trends in engine power for Purse seine VL1224**
Source: Estimates based on IREPA data
Remuneration is based on a share-contract system as described above, the most common in the Mediterranean. Although there is a legal Italian minimum wage, this is only used to calculate social security contributions.

Table 18. Remuneration type by vessel. Purse seine VL1224 (n=4)

<table>
<thead>
<tr>
<th>Remuneration type</th>
<th>no. people</th>
</tr>
</thead>
<tbody>
<tr>
<td>piece</td>
<td>0</td>
</tr>
<tr>
<td>share</td>
<td>7</td>
</tr>
<tr>
<td>wage</td>
<td>0</td>
</tr>
</tbody>
</table>

n= number of questionnaires.  
Source: Consultants calculations based on the questionnaires.

As reported above, even if not completely clear, the economic performance of the fleet segment does not appear to be as poor as the other fleet segments. The European and international regulations on large pelagic stocks and the indirect effects on demersal stocks have marginally affected this fleet segment.

**Employees within segment**

For all employee-types, pensions and family allowances are the only benefits provided by the business. All fishermen employed in this fleet segment reported to have an annual salary less than EUR 10,000 annually.

Table 19. Salary band by employee type (EUR). Purse seine VL1224 (n=4)

<table>
<thead>
<tr>
<th>Employee type</th>
<th>&lt;10,000</th>
<th>10,000-19,000</th>
<th>20,000-29,000</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Administrator</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Skipper</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Crew</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

n= number of questionnaires.  
Source: Consultants calculations based on the questionnaires.
Entering the fleet segment does not require any formal qualification but other reported requirements were that the person should ideally be male, in good health and member of a family involved in this fishery. Fishers hold the seaman certificate (libretto di navigazione), but this registration does not need any specific attribute or skill. Fishermen may obtain other qualifications based on their experience or attending specific training courses but there are no specific requirements for working in these fleets and the certificate is simply an administrative document needed for employment on a vessel.

Most of the fishermen interviewed have completed secondary education (Figure 28). Of the 7 respondents, two only completed primary education. All of them got their first job in the sector, are moderately satisfied with their career and none of them have looked for a different job in the past. However, crew members who were not skippers would consider changing jobs in the future, showing interest in other jobs related to the sea (such as other types of ships) as an alternative to fishing.

There is no labour mobility between fleet segments in the sense that there are no fishers that leave one fleet segment to work in another.

The transfer of fishing skills within the family was high in the past; of the fishers interviewed, all of their fathers were also fishers. However, new generations are not interested in the fishing sector and their fathers would like a different job for them. The intergenerational transfer of skills was traditionally carried out through the direct involvement of children in fishing activities from a young age, but this is
no longer feasible both because there are too many formal requirements and because fishing is less attractive to the new generation.

Fishers do not feel they are represented by European, national or regional institutions, or by organizations like labour unions. They complain of a complete lack of representation of their interests and concerns and their economic situation at regional, national or EU levels. In contrast, at the local level, the municipality of Isola delle Femmine has taken up certain initiatives in the past to help local fishers. An example of this was the establishment of a fish selling point within the local port. Nevertheless, the main organizations present are the fishing cooperatives, although these only provide administrative support. The only positive change in this situation has been the establishment of the COGEPa of “Castellammare del Golfo e Palermo Ovest” in 2010 which aims to define, propose and monitor local management plans for the sustainability of the sector through a system regulating access to local fishing zones. However, the COGEPa has limited powers as local management measures can only be more restrictive than those established at higher geographical levels. Therefore, the problems associated with EU regulations can only be partially mitigated by the management measures that the COGEPa can implement.

Unlike other fleet segments, perception of fisher wealth is good confirming the better economic condition of this fleet segment. As the economic performance of the fleet segment is not bad, it is not expected that these fishers will be undertaking any new initiatives to change their situation in the near future.

2.5 Summary of settings
The economic performance of the fleet located in the port of Isola delle Femmine is in decline. With the exception of purse seiners, both polyvalent fleet segments show a declining trend in landings and revenues. Furthermore, the increase in fuel price since 2008, despite fluctuations, has increased operative costs.

Data estimated for this fleets using the IREPA database are not always representative of the real local situation. In particular, local purse seiners use a different fishing technique to the other vessels classified in the same fleet segment at Northern coast of Sicily level so disaggregation of this data cannot be applied to the local purse seine fleet. However, the negative trend in landings and revenues, for both demersal and large pelagic species, is confirmed by the local stakeholders. They believe these trends are the consequence of European regulations which do not take into account the specificities of the local fishing communities. In particular, these regulations have restricted the fishing of fish tuna and swordfish by larger vessels, forcing them to compete for demersal species alongside smaller vessels. This has increased the fishing effort on demersal species and is thought to have had an impact on their biomass.

The negative performance of the fisheries has significantly affected the fleet dimensions. With the exception of purse seiners, which increased in 2007 and remained constant in the subsequent years, polyvalent vessels have reduced by around a quarter. Local stakeholders stated that around 40 vessels
have applied for scrapping in recent years. They said that given the economic difficulties and the increasing regulation of the fisheries, fishermen preferred to stop the activity of larger vessels or scrap them completely and continue to fish using small vessels (under 10 m). Based on the Fleet Register, since 2000, 35 vessels based in the port of Isola delle Femmine have been scrapped with public aid. Seven of them were lower than 6m and can be associated with the fleet segment of polyvalent smaller than 6m. Another 8 vessels declared purse seines as the main fishing gear used and can be associated with that fleet segment, while the remaining 20 vessels can be associated with the polyvalent fleet segment larger than 6m. Generally, even if profitability is reducing, fishers have not left the sector. They use smaller vessels with lower operating costs and work to earn the minimum sufficient for the needs of their families. An initiative to integrate their income with other activities has been carried out in the last years by opening a fish selling point within the port area, where fishers can sell their products directly to the final consumers. Other business initiatives have been undertaken by individuals such as single fishers trying to exploit the relationships between fishing and tourism.

The business structure in the local fishing sector is generally individual based (self-employed). Polyvalent vessels, which represent the vast majority, are generally managed by a single fisher, who owns one vessel and performs the role of manager, skipper and crew. When there are more than one fisher on a single vessel, he is a family member of the vessel owner (such as a brother as younger generations are generally not involved in fishing activities of these vessels). In contrast, the business structure of purse seiners is generally family-based and crew members include sons. Nevertheless, younger generations are still not very attracted by this fleet segment.

Local fishermen are generally male and of local origin. Almost all skippers and self-employed are in the age class 40-65, while other crew members (mainly for purse seiners) are younger and are in the age class 18-40. Regarding the role of women, the stakeholder focus group stated that women do not have any direct role in fishing activities. However, in some cases, given the long absence of fishermen from the mainland, their wives carry out an administrative role on behalf of the husbands. The absence of fishermen from the mainland results in spouses or partners playing a central role in family decisions and child care.

The level of education is generally low, although this is higher than in other fishing communities. Almost all people involved in fishing activities have completed secondary education (they have studied until the age of 16). The average annual income is below EUR 10,000 for almost all people interviewed. Generally, the salary of the household is the only income for the family (wives are usually housewives). The family income is higher only if more than a family member is involved in the fishing sector (this happens just for purse seiners).

<table>
<thead>
<tr>
<th></th>
<th>Polyvalent VL0006</th>
<th>Polyvalent VL0618</th>
<th>Purse seine VL1224</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target species status</strong></td>
<td>Decreasing</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Fleet evolution</strong></td>
<td>Decreasing</td>
<td>Decreasing</td>
<td>Stable</td>
</tr>
<tr>
<td><strong>Business type</strong></td>
<td>Self-employed</td>
<td>Self-employed</td>
<td>Family</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------</td>
<td>---------------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Demographics</strong></td>
<td>Age class 40-65</td>
<td>Age class 40-65</td>
<td>Age class 40-65 for skippers. Age class 19-40 for crew.</td>
</tr>
<tr>
<td><strong>Average annual income (EUR)</strong></td>
<td>&lt;10 000</td>
<td>&lt;10 000</td>
<td>&lt;10 000</td>
</tr>
<tr>
<td><strong>Main education level</strong></td>
<td>Secondary school</td>
<td>Secondary school</td>
<td>Mainly secondary school</td>
</tr>
<tr>
<td><strong>Highlights</strong></td>
<td>Negative economic performance</td>
<td>Negative economic performance</td>
<td>Positive economic performance</td>
</tr>
<tr>
<td></td>
<td>Level of adaptability higher than other fishing communities</td>
<td>Level of adaptability higher than other fishing communities</td>
<td>Level of adaptability higher than other fishing communities</td>
</tr>
<tr>
<td></td>
<td>Education level higher than other fishing communities</td>
<td>Education level higher than other fishing communities</td>
<td>Education level higher than other fishing communities</td>
</tr>
<tr>
<td><strong>Key points</strong></td>
<td>Negative view of EU Regulations</td>
<td>Negative view of EU Regulations</td>
<td>Negative view of EU Regulations</td>
</tr>
<tr>
<td></td>
<td>Signals of diversification</td>
<td>Signals of diversification</td>
<td></td>
</tr>
</tbody>
</table>

3. **Linkages**

3.1 **Inter-sectoral linkages**

In 2002, the Ministry of Environment established the MPA of Capo Gallo-Isola delle Femmine, falling in the territory of the municipalities of Palermo and Isola delle Femmine. The MPA is divided into zones A, B and C in reference to the different levels of protection. The two areas classified as A (maximum protection) are located in the area north-west north-east of the small isle north of Isola delle Femmine and in the area west of Capo Gallo (see Figure 29). There are three areas the form zone B of medium protection, two of which surround zone A, while the third is between Punta Catena and Punta Matese. Finally, zone C of low protection comprises the remaining sea within the perimeter of the MPA. The dimensions of these areas is 2,173 ha divided as follows:

- A zone: 77 ha;
- B zone: 242 ha;
- C zone: 1,854 ha.
The objectives of the MPA of Capo Gallo-Isola delle Femmine are as follows:

- environmental protection of the marine area;
- protection and enhancement of the biological and geomorphological resources of the area;
- dissemination of the ecological and biological knowledge of the MPA marine and coastal environments;
- carrying out educational programs for improved of general knowledge in the field of ecology and marine biology;
- the implementation of studies and scientific research programs in the fields of ecology, marine biology and environmental protection, in order to ensure comprehensive knowledge of the area;
- the promotion of a socio-economic development compatible with the naturalistic landscaping of the area, favouring traditional local activities already present.

Initially, the management of the MPA was temporarily assigned to the local Coast Guard (Capitaneria di Porto) and only in 2012 the management passed to a consortium consisting of the Province of Palermo, the Municipality of Isola delle Femmine and the Regional Department of the Forestry Corps. In the opinion of local stakeholders interviewed, planned economic exploitation of the area has never started. Specific actions in this direction could help the fishing sector to diversify their activities and sources of income.

The MPA of Capo Gallo is an important tourist attraction. In the port of Isola it is possible to visit the MPA in a vessel with glass bottom to view the marine environment. But Isola delle Femmine also has its own tourist attractions. Many people from Palermo spend their holidays in Isola delle Femmine for its beaches and the sea. Some fishers have profited from the development of Isola for tourists by initiating
new activities. As an example, one of the two piers for recreational boating available in the summer period in the port of Isola is managed by a fisherman who carries out this activity during the summer and acts as fisher for the rest of the year.

Although a substantial portion of the potential fishing area is closed to fishers due to the marine protected area (MPA), this is not seen as a problem by local fishermen and might be perceived as an opportunity, especially for those fishers involved also in organising trips to the MPA of Capo Gallo-Isola delle Femmine for tourists.

One of the most serious problems encountered by the vessels of Isola delle Femmine and other coastal areas in the North of Sicily is the recreational fishing. This definition includes both amateur anglers and pseudo-sport fishermen, who illegally carry out a real professional fishing activity. Although the global phenomenon is not yet quantified, fishers have estimated that the pleasure craft involved in the phenomenon comprise several hundred with various type of tonnage and engine, and equipped with specific equipment sometimes very sophisticated. The amateur anglers generally operate a seasonal and occasional activity, concentrated mainly during summer holidays and public holidays, while the pseudo-sport fishers operate throughout the year in an intensive way and with no compliance of regulations. They also sell the fish, presenting unfair competition for professional fishermen who cannot compete with the prices offered by the illegal fishermen. This happens in an almost total lack of control, leading professional fishermen to leave the legal activity and engage in the more profitable but illegal activities.

3.2 Intra-sectoral linkages

2.2.1 Between fleet segments

The only conflict between fleet segments reported by the local stakeholders and fishermen was the use of “cannizzi” by the purse seiners. This is a traditional fishing method used in Sicily, which is practised in deep water targeting pelagic species such as common dolphinfish, greater amberjack and pilot fish. This is an important economic activity, but creates navigation problems and conflicts with vessels using hooks as longlines become twisted to the nylon cords holding the cannizzi as well as to the cords left on the bottom once the fishing season for cannizzi has ended.

2.2.2 Between subsectors

The fisheries sector in Isola delle Femmine is dominated by catching and commerce. In terms of fish commerce, there is a local selling point self-managed by fishermen within the port area. The selling point consists of a small building which was built by using EU funds. The construction of this building was completed in 2012, but it is empty and not yet operative because furnishes are still missing. However, fishers have started to use the area in front of it to sell their products, which are exposed on steel benches. The use of the building as a selling point should guarantee better hygienic conditions and the potential to refrigerate the unsold products. Furthermore, fishers expect to employ their wives and daughters in this commercial activity once the selling point is activated in order to increase the
family income. Other sub-sectors, like shipbuilding, fish processing and aquaculture, are not present in the area of Isola delle Femmine.

3.3 Summary of linkages
The linkages of the catching sectors with other economic sectors can be separated into positive and negative. The former are related to the presence of the MPA of Capo Gallo-Isola delle Femmine and an increasing tourism sector. In some cases, tourism and fisheries interact positively, however, there is potential for further development of this linkage, especially in terms of economic exploitation of the MPA. The negative linkages are centred around the key issue of illegal fishing taking place under the guise of recreational fishing.

The only conflict between fleet segments reported by the local fishermen is the use of “cannizzi” by the purse seiners due to the problems mentioned above. Regarding the other fishery sub-sectors, only fish commerce within a local selling point is present in the area with no other fishery sub-sectors in the area.

4. Role of fishing

4.1 Fisheries as an economic activity

4.1.1 Diversification and Adaptation

As reported above, the economic structure of Isola delle Femmine is characterised by the manufacturing and the fisheries sectors. Another important sector in terms of the number of people employed is the Public Administration and public services, such as education and welfare services. Furthermore, in the last ten years, tourism has become increasingly important. The development of the tourist industry provides a key opportunity for the diversification of the activities carried out by fishers and some fishers have already taken advantage of this opportunity. Local fishers could continue to benefit from the strong linkage between tourism and fishing in the future thanks to a better economic exploitation of the MPA of Capo Gallo-Isola delle Femmine, which management has passed to a public consortium in 2012. Another sign of diversification can be seen in the self-managed fisher selling point which is activate despite delays in completion of the building where this activity is supposed to be carried out.

Although attempts to diversify activities at the organisation or individual level have been undertaken, these have not been sufficient to counterbalance the negative trend in profitability of the fishing sector. As a consequence, some fishers have preferred to scrap or stop the activities of larger vessels and continue to fish using small vessels instead. Using smaller vessels reduces operating costs and allows fishers to earn enough to meet the needs of their families.

Nevertheless, fishers have not left the sector altogether. Although many are not wholly satisfied with their career, local fishermen are generally not interested in leaving the fishing sector. In contrast,
younger generations are not interested in the fishing sector, which becomes increasingly less attractive, resulting in an increase in the average age of people employed.

Within the catching sector, diversification can be associated with decisions regarding target species, fishing gears used and the exploited fishing areas. From this point of view, the presence of a high number of fishing methods in the area has allowed fishers to diversify the landings composition to adapt to the decreasing biomass of demersal species and, in some cases, adapt to the increasing in fuel price by changing fishing areas.

Among the list of social indicators proposed to local fishermen for evaluation in terms of their importance in influencing the local community well-being, “family, close relationships” was ranked as most important, scoring 5.00 on average. This result was consistent among different fleet segments. Other important indicators with an average score close to 5.00 were “health”, “level of income” and “level of education”.

4.2 Future development of the community
The fishing sector in Isola delle Femmine is expected to continue the current trend in the future. Fishers observe that illegal fishing is likely to increase as a consequence of the inefficient control system and the poor economic condition of the legal sector. An increase in fishing effort and a consequent further deterioration of the stocks is expected as a result of this illegal fishing and recreational fishing. The legal sector will probably experience a further reduction in the number of vessels and employment and the size of vessels will reduce as a consequence of the tendency to sell larger vessels and fish with the smaller ones. Younger generations will be not involved in the fishing activities and the average age of local fishermen will increase.

Yet the area also has many opportunities that are still not fully exploited. The presence of the MPA of Capo Gallo and a growing tourist sector present opportunities for fishers to diversify their activities into fishing tourism and other marine-related tourist activities. However, this requires better organization of the local fishing community and so the introduction of a self-management system, which takes into account the local characteristics of the area, would be very useful to meet the real needs of local fishers and find solutions for diversification of activities.

A first step in this direction has been already carried out through the establishment of the COGEPA of “Castellammare del Golfo e Palermo Ovest”. The COGEPA is a consortium which aims to manage the artisanal fisheries through the implementation of local management plans. However, local stakeholders believe that the COGEPA should have more powers to be able to propose real solutions and contribute to solving the problems of the local fishing communities.

Table 20 shows the results of a SWOT analysis performed with the local stakeholders.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Threats</th>
<th>Opportunities</th>
</tr>
</thead>
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<tr>
<td>High level of professional</td>
<td>Reduction in landings</td>
<td>Gradual increase of illegal</td>
<td>Introduction of a self-</td>
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5. Summary and conclusions

The economic structure of Isola delle Femmine is based on the manufacturing and fisheries sectors. Another important sector in terms of employment is the Public Administration and public services and in more recently tourism has become increasingly important.

Fishing in Isola delle Femmine, as in the majority of Italian coastal areas, is predominantly artisanal. This is evidenced by the extreme polyvalence of fishing activities and the multi-species landings composition, which reflects the high biological diversity of fish populations. Indeed, almost all of the hundred vessels based in the local port use a multitude of fishing systems and gears and switch from one to another seasonally. Fishing activities target large pelagic species such as greater amberjacks and common dolphinfish using purse seines; and swordfish, and albacore using longliners while demersal species are targeted using static gears (trammel net, gill net).

The local fleet can be split into 3 fleet segments: Polyvalent VL0006, Polyvalent VL0618 and Purse seine VL1224. The other two vessels classified as demersal trawlers were excluded from the analysis based on their limited effectd on the local fisheries community and for confidentiality reasons. Vessels classified as polyvalent compreise the majority of the fleet accounting for 85 units, 62 over 6 m and 23 under 6 m. Polyvalent VL0618 is the most important fleet segment both in terms of landings and revenues. Local purse seiners are different to the usual purse seiners operating in the Northern coast of Sicily as they use a particular fishing technique, “cannizzo”, in which palm leaves are placed on the surface, attached to a long nylon thread connected to a concrete structure on the bottom. This type of fishing does not need 6-7 people as with traditional purse seine fishing, but can be carried out by fewer...
than 3 people. The composition of landings also differs as this fishing method targets common
dolphinfish, greater amberjack and pilot fish. The most important species in terms of landings value for
the entire fleet are swordfish, squid, greater amberjack and European hake.

The business structure in the local fishing sector is generally individual based (self-employed). Polyvalent vessels, which represent the strong majority, are managed by a single fisher, who owns a single vessel and brings together the roles of manager, skipper and crew. When there are more than one fisher on the same vessel, he is generally a family member of the vessel owner. This is usually a brother; younger generations are not often involved in fishing activities of these vessels. In contrast the business structure of purse seiners is generally family-based with crew members including sons. However, this fleet segment is still not viewed as particularly attractive by younger generations.

The decision-making processes related to the fishing activities are solely managed by the vessel owner-operator. Fishers are generally male and of local origin. Almost all skippers and self-employed are in the age class 40-65, while other crew members (mainly for purse seiners) are younger and are in the age class 18-40. Women do not have any direct role in fishing activities but in some cases, given the long absence of fishermen from the mainland, their wives carry out an administrative role on behalf of the husbands. Furthermore, the absence of fishermen from the mainland leaves their spouses with a key in family decisions and child care.

Income is low for both skippers and crew, with all fishers reportedly earning less than EUR 10,000 annually. The income of the fishers is typically the only income for the family (wives are usually housewives) but the family income might be higher if more than one family member is involved in fisheries (though this only occurs for purse seiners). The level of education for those working in purse seine fisheries is generally low, but higher than in other fishing communities as almost all people involved have completed secondary education.

The economic performance of the fleet located in the port of Isola delle Femmine is declining. With the exception of purse seiners, both polyvalent fleet segments show a negative trend in landings and revenues. Furthermore, the increase in fuel price since 2008, despite fluctuations, has increased operating costs. Local fishermen think that these trends are the consequence of European regulations, which do not take into account the specificities of the local fishing communities. In particular, these regulations have restricted tuna and swordfish fishing, forcing larger vessels to compete with smaller vessels for demersal species. This has increased the fishing effort on these species and reduced their biomass.

The poor performance of the fisheries has significantly affected the fleet dimensions. With the exception of purse seiners, which increased in 2007 and then remained constant, polyvalent vessels have reduced by around 25%. Local stakeholders stated that around 40 vessels have applied for scrapping in recent years. They said that, given the economic difficulties and the increase in regulations, fishermen preferred to scrap or stop the activity of larger vessels and continue to fish using small vessels under 10 m. This allows them to reduce operating costs and continue to work to earn the minimum sufficient for the needs of their families. Based on the Fleet Register, since 2000, 35 vessels
based in the port of Isola delle Femmine have been scrapped with public aid. Seven could be classified as polyvalent smaller than 6m, eight vessels as purse seiners the remaining 20 vessels as polyvalent larger than 6m. An initiative to integrate their income with other activities has been carried out in the last years by opening a fish selling point within the port area, where fishers can sell their products directly to the final consumers. Other business initiatives have been undertaken at the individual level by single fishers trying to exploit the relationship between fishing and tourism. Local fishers might continue to benefit from the strong links between tourism and fisheries in the future due to better economic exploitation of the MPA of Capo Gallo-Isola delle Femmine, which management has passed to a public consortium in 2012.

Although attempts to diversify the activity at the organisation or individual level have been undertaken, these have not been sufficient to counterbalance the negative trend in profitability of the fishing sector.

Nevertheless, fishers have not left the sector altogether. Although many are not wholly satisfied with their career, local fishermen are generally not interested in leaving the fishing sector. In contrast, younger generations are not interested in the fishing sector, which becomes increasingly less attractive, resulting in an increase in the average age of people employed.

The main link with other economic sectors is represented by the presence of the MPA of Capo Gallo-Isola delle Femmine and a growing tourist sector, which together represent a range of options of diversification for local fishers. However, the economic exploitation of the MPA could be further developed. The main problem for local fishermen seems to be the presence of a substantial number of illegal fishermen hidden under the guise of recreational fishing, who they are actually in competition with both in terms of the exploitation of the marine resources and sale of the product.

The only conflict between fleet segments is caused by the use of “cannizzi” by the purse seine vessels as this technique creates navigation problems and conflicts with vessels using hooks. Fish commerce is the only other fisheries sub-sector present in the area.