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Collection and analysis
of biological and socio-economic
data at very local level
(WP4)
(Molise Region)

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Report	Collection and analysis of biological and socio-economic data at very local level (WP4) (Molise Region)
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Introduction

This document presents the results of the surveys conducted in 2023 within the WP4 "Collection and analysis of biological and socio-economic data" and addressed to professional fishermen of the Molise Region.

In particular, Chapter 1 reports the sources and methods of analysis, in Chapter 2, on the basis of the data provided by the Molise Region, an overall picture of the Regional fishing fleet and its main characteristics is represented; in Chapter 3 the results of the investigation activities are reported.

It should be specified that all the information collected and used for the preparation of this document is suitably coded in order to make it anonymous. In addition, the information has been processed and treated in aggregate form. Finally, it should be noted that participation in the interviews was voluntary.

The Molise Region has promoted this activity involving the regional category associations and representatives, which we must thank for the precious support provided.

The results of the analyzes conducted made it possible to define a complete picture of the fishing fleet of the Molise Region and to collect critical issues and expectations of the sector also with the aim of defining shared policies to be implemented to safeguard and promote the sustainability of the fish.

CHAPTER 1 – OBJECTIVES, SOURCES AND METHODS

Within the ARGOS Project Work Package 4 (WP4) foresees activities aimed at strengthening the knowledge-based decision-making process through a harmonization in the evaluation of professional fishing and aquaculture data in the Adriatic partnership area. In particular, as part of **Activity 4.2**, data collection is envisaged, at a local level, aimed at having a precise picture of fishing activities along the coast of the **Molise Region** in order to arrive at a common approach in the management of fish resources, taking into account the consistency of fish stocks, as well as the ecological state of the sea.

In order to have a complete picture of the regional fishing reality, this document analyzed both the information provided by the Molise Region and coming from its own databases (so-called, secondary data) **and** the information collected through the conduct of *ad hoc surveys* (so-called, **primary data**) aimed at boats dedicated to professional fishing, equipped with a Ministerial license and belonging to the navy of the Region.

In particular, the secondary data were used to analyze the Molise fishing fleet in terms of: characteristics of the boats (dimensions, power), the fishing gear used and the type of fishing practiced.

Through direct surveys, information was also collected relating to the type of species caught, the revenues and costs of the vessels, employment, as well as evidence regarding the presence of invasive or alien species and the fishermen's perception of future prospects.

The surveys were conducted through the administration of a questionnaire structured into five sections specifically designed to collect both quantitative information (e.g. GRT, GT, Lft, KW, Days of activity) and qualitative information regarding the fishermen's perception (presence of invasive species or alien, external elements that influence the business, future expectations, opportunities and weaknesses of the sector).

For completeness of information, the structure of the questionnaire used to conduct the surveys is shown below.

Structure of the questionnaire used for the collection of primary data

1. Data by vessel

EU number, registration number, vessel name, year of construction; GRT (gross tonnage), GT (tonnage), Lft (length overall), LFP (length between perpendiculars), KW (engine power), bureau; Authorized fishing systems (main gear and secondary gear).

2. Data by vessel (year 2022)

Total days of activity; Days of primary use of the instrument; Daily hours of use of the main tools; Average annual crew; Catches (species caught; quantities caught in the year); Prevailing main gear catch (prevailing species - commercial destination - quantity of the predominant species caught - price of the predominant species - fishing area of the predominant species - average distance from the coast of the predominant species).

3. Annual data relating to economic aspects

Gross salable production, annual direct subsidies, other annual income (fishing tourism - other specify): Annual crew costs; Annual fuel costs; Annual maintenance costs.

4. Job information

Number of employees and gender (number of women - number of men); Age of the commander; Average age of crew on board; Level of education of fishing operators; Origin of the fishing operator.

5. Qualitative information declared by fishermen

presence of invasive or alien species; Are there external elements affecting your business (e.g. ongoing conflict, competition, etc.)? How do you judge his expectations? What does your judgment depend on? What are the opportunities in the fishing sector to be seized? What are the critical issues of the fishing sector?

The collected data, made anonymous, were organized in a **database**. The information was then processed by aggregating it according to the parameters deemed most relevant to the project objectives:

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- Total number of vessels and overall average data of the entire fleet (lft , KW etc.);
- Distribution of vessels by gear category (purse seines, seines, trawls, dredges, harvest nets, gillnets and entangling gillnets; traps, lines and hooks);
- Vessel characteristics (lft , KW etc.) by gear category;
- Details of the tools used;
- Socio-economic data (revenues, costs, employment);
- Qualitative information.

CHAPTER 2 – GENERAL OVERVIEW OF THE REGIONAL FISHING FLEET

This chapter reports the elaborations of the **secondary information** provided by the Molise Region.

This information concerns: the composition of the fleet and the characteristics of the vessels that make it up; the types of fishing (Demersal and Pelagic) that are carried out, the types of gear (Fixed (S) - Towed (T) - Mobile (M)) used, the category of gear (e.g. trawls, purse seines, dredges, etc.) and the specific fishing gear (e.g. set longlines, bottom otter trawls, beach seines, etc.) supplied with each vessel. A brief description of the average characteristics of the boats (GT, LFT, kW, etc.) by category and by type of gear is also reported.

2.1 Fleet: "technical" characteristics and relative average, minimum and maximum values.

As shown in table 1, 46.81% of the boats making up the fleet have the possibility of using a secondary (subsidiary) tool in addition to the main tool for fishing operations.

Table 1

FLEET consistency	Number	% incidence on the total
Number of Vessels - Total	94	100.00%
Number of vessels equipped with main gear only	50	53.19%
Number of vessels equipped with both main gear and secondary gear (Subsidiary)	44	46.81%

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

The "technical" characteristics of the boats (cf. Tab.2) show how the fleet is characterized by a certain heterogeneity probably due to, and adapted to, the different types of fishing carried out along the coast of the Molise region and off the Adriatic Sea. Considering all the boats, the values of the gross tonnage (*GT - Gross Tonnage*) vary, in fact, from a minimum of 1 to a maximum of 124 with an average value equal to 18.84. The same wide divergence between the minimum, average and maximum values is also found for the Overall Length (LFT UE - 4.14; 11.68; 26.75), the Length between perpendiculars (LBP " Length Between Perpendiculars" 3.85; 10.41; 22.47) and the kilowatts of power (6.60; 129.40; 441.20). This is basically due to the fact that vessels intended for small-scale fishing (hereinafter PP), which are usually smaller than "classic" fishing vessels, make up 45.74% of the entire fleet.

Table 2 – characteristics of the fleet

Fleet characteristics	Average values	Minimum values	Maximum values
GRT - Gross Tons (Tons)	12.76	0.50	97.38
GT - Gross Tonnage of a ship (Gross Tonnage)	18.84	1.00	124.00
EU LFT - Length Overall (Meters)	11.68	4.14	26.75
National LFT - Overall length (metres)	12.46	3.64	26.75
LBP - Length between perpendiculars in meters " <i>Length Between Perpendiculars</i> " (Meters)	10.41	3.85	10.47pm
kW (Kilowatts)	129.40	6.60	441.20

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Observing, in fact, table 3, which shows the same characteristics of the fleet (listed in table 2) but in this case referring exclusively to the boats, overall, dedicated to the PP, it is noted that all the minimum values shown in table 2 are attributable exclusively to vessels belonging to the PP (the column " Δ Total Minimum Values vs PP " always shows values equal to zero). The difference between the overall average values (Table 2) and the same inherent however to the PP (Table 3) is always to the advantage of the aggregate data for the entire fleet; while the higher values recorded for the same differentials are found in the column " Δ Total Maximum Values vs PP" where the difference between the maximum values of the entire fleet and those of the PP emerges clearly, especially with regard to Kilowatts (+375.10) and to the Gross Tonnage (GT - Gross Tonnage) for which a differential of +120.00 is noted.

Table 3 – characteristics of the fleet

Fleet Features - Small Fishing (PP)	Average values	Minimum values	Maximum values	Δ Overall average values vs PP	Δ Overall minimum values vs PP	Δ Overall maximum values vs PP
GRT - Gross Tons (Tons)	2.05	0.50	6.86	10.72	0.00	90.52
GT - Gross Tonnage of a ship (Gross Tonnage)	1.19	1.00	4.00	17.65	0.00	120.00
EU LFT - Length Overall (Meters)	6.27	4.14	8.78	5.41	0.00	17.97
National LFT - Overall length (metres)	6.34	3.64	9.14	6.11	0.00	17.61

Fleet Features - Small Fishing (PP)	Average values	Minimum values	Maximum values	Δ Overall average values vs PP	Δ Overall minimum values vs PP	Δ Overall maximum values vs PP
LBP - Length between perpendiculars in meters " Length Between Perpendiculars" (Meters)	5.68	3.85	7.87	4.73	0.00	14.60
kW (Kilowatts)	20.47	6.60	66.10	108.93	0.00	375.10

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

2.2 Distribution of boats by gear category

The following exposition presents a brief description of the fleet divided between vessels with main gear (vessels with only main gear and vessels with main gear + subsidiary - secondary gear) - listed in § 2.2.1 - and vessels *that have both gear main and secondary gear - reported in § 2.2.2*¹.

2.2.1 - Main implement

Table 4 shows the distribution of the entire fleet in terms of the type of fishing and the type of gear used, and in relation to this, the category of gear and the particular type of the same.

Table 4 - MAIN EQUIPMENT

MAIN TOOL					
TYPE OF FISHING: Pelagic (P) or Demersal (D)	Distribution of vessels by type of gear [Fixed (S) - Trailed (T) - Mobile (M)]	Tool category	Tool	Total (Number of Vessels)	% incidence on the total number of boats
Demersal (D)	Fixed (S)	Lines and hooks	Fixed longlines	12	12.77%
		Entangling gillnets and gillnets	Set gillnets (anchored)	31	32.98%

¹ For completeness of information, it is specified that from the processing of the information provided, the number of boats belonging exclusively to Small Fishing that have only main gear are equal to 65.12% of the total PP boats and 29.79% of the entire fleet; the remaining 34.88% of them also have subsidiary or secondary gear and the latter amount to 15.96% of the entire fleet.

Table 4 - MAIN EQUIPMENT

MAIN TOOL					
TYPE OF FISHING: Pelagic (P) or Demersal (D)	Distribution of vessels by type of gear [Fixed (S) - Trailed (T) - Mobile (M)]	Tool category	Tool	Total (Number of Vessels)	% incidence on the total number of boats
	Fixed (S) - Total			43	45.74%
	Trailed (T)	Dredges	Dredges pulled by boats	10	10.64%
		Trawl nets	Bottom otter trawls	39	41.49%
	Trailed (T) - Total			49	52.13%
Demersal (D) - Total				ninety two	97.87%
Pelagic (P)	Mobile (M)	Purse seines	Purse seines	2	2.13%
	Mobile (M) - Total			2	2.13%
Pelagic (P) - Total				2	2.13%
Total (Number of Vessels)				94	100.00%

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

The tables below basically show the "sub-categories" found in table 4.

The restitution of the calculations shows that the type of fishing is almost exclusively Demersal (97.87%) - tables 4 and 5 - carried out mainly with towed gear (52.13%) and with fixed gear (45.74%). The Pelagic fishing system involves a few vessels (2.13%) equipped with types of mobile gear attributable to the category of purse seines and in particular to purse seines.

Table 5 - MAIN EQUIPMENT

MAIN GEAR - TYPE OF FISHING: Pelagic (P) or Demersal (D)	Total Vessels	% incidence on the total
Demersal (D)	ninety two	97.87%
Pelagic (P)	2	2.13%
Total	94	100.00%

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Trawl fishing is the main fishing method used in the Molise Region (Tables 4 and 6 and Graph 1), characterizing 52.13% of the boats.

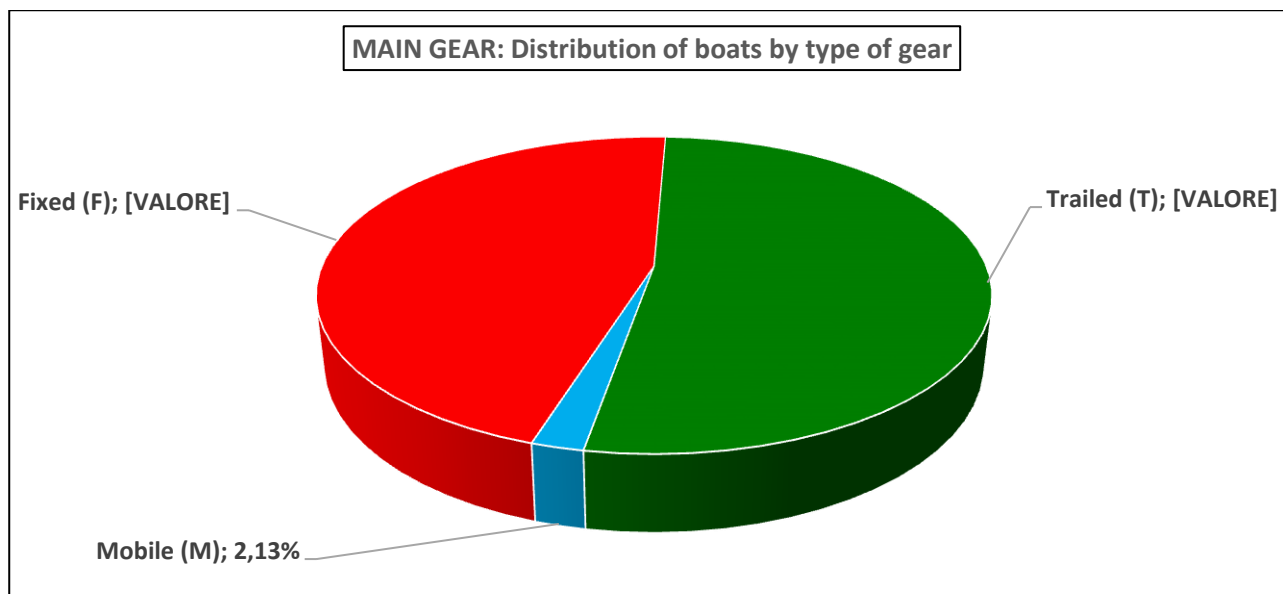
Table 6 - MAIN EQUIPMENT

MAIN GEAR: Distribution of boats by type of gear [Fixed (S) - Trailed (T) - mobile (M)]	Total Vessels	% incidence on the total
Mobile - M	2	2.13%
Fixed - St	43	45.74%
Trailed - T	49	52.13%
Total	94	100.00%

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

45.74% use fixed systems while 2.13% of the boats use a mobile type that can only be traced back to pelagic fishing.

Graph 1 - MAIN GEAR



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

About the types of gear (tables 4 and 7 and graph 2), the most used are trawl nets (41.49% of the total vessels) followed by gillnets and entangling gillnets (32.98% of the boats) and hook and line systems (12.77%).

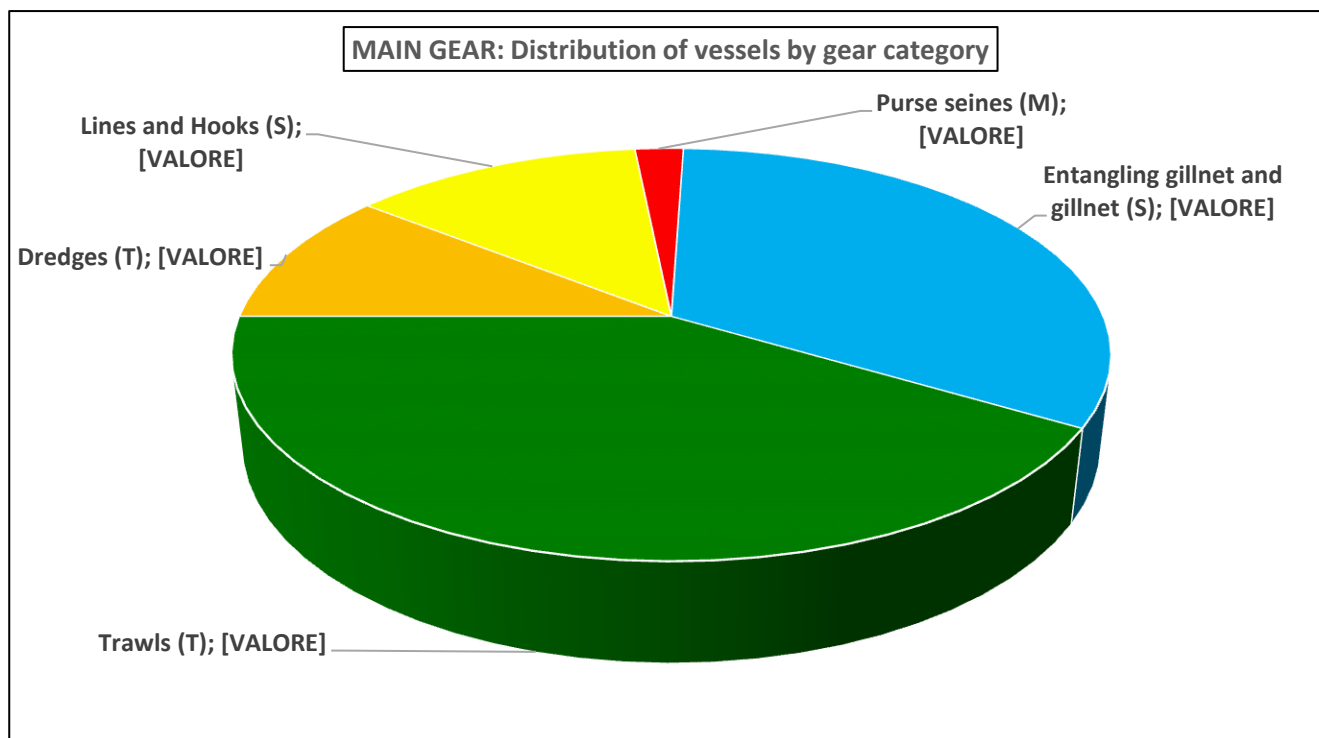
Table 7 - MAIN EQUIPMENT

MAIN GEAR - Gear category	Total Vessels	% incidence on the total
Dredges (T)	10	10.64%
Lines and Hooks (S)	12	12.77%
Purse seines (M)	2	2.13%
Entangling gillnet and gillnet (S)	31	32.98%
Trawls (T)	39	41.49%
Total	94	100.00%

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Vessels towed by dredgers account for 10.64% of the total fleet while the least predominant type of gear is made up of purse seine nets which characterize 2.13% of the total vessels.

Graph 2 - MAIN GEAR



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

2.2.2 - Secondary implement

In the following description only the vessels of the fleet are considered which are characterized not only by the main gear but also by the subsidiary or secondary one; as previously reported, these make up 46.81% of the entire fleet (see table 8)².

Table 8 - SECONDARY EQUIPMENT

SECONDARY EQUIPMENT						
TYPE OF FISHING: Pelagic (P) or Demersal (D)	Distribution of vessels by type of gear [Fixed (S) - Trailed (T) - Mobile (M)]	Tool category	Tool	Total (Number of Vessels with secondary gear)	% incidence on the total number of boats that have secondary gear	% incidence on the total number of boats
Demersal (D)	Fixed (S)	Lines and hooks	Fixed longlines	6	13.64%	6.38%
		Entangling gillnets and gillnets	Set gillnets (anchored)	20	45.45%	21.28%
	Fixed (S) - Total			26	59.09%	27.66%
	Trailed (T)	Trawl nets	Bottom otter trawls	8	18.18%	8.51%
	Trailed (T) - Total			8	18.18%	8.51%
Demersal (D) - Total				34	77.27%	36.17%
Demersal (D)/Pelagic (P)	Fixed (S)	Lines and hooks	Hand and pole lines (hand rigged)	2	4.55%	2.13%
	Fixed (S) - Total			2	4.55%	2.13%

²Table 8 differs from table 4 in that table 8 contains an additional column concerning the “% incidence (of boats that have secondary gear) on the total number of boats that have secondary gear” (Vith column of table 8) because otherwise it would be possible/correct to compare the data, and therefore the information, of vessels that have both main and secondary gear (these dealt with in § 2.2) with the overall total data of the fleet, i.e. also including vessels that only have main and not secondary gear (those dealt with in § 2.1).

Table 8 - SECONDARY EQUIPMENT

SECONDARY EQUIPMENT						
TYPE OF FISHING: Pelagic (P) or Demersal (D)	Distribution of vessels by type of gear [Fixed (S) - Traveled (T) - Mobile (M)]	Tool category	Tool	Total (Number of Vessels with secondary gear)	% incidence on the total number of boats that have secondary gear	% incidence on the total number of boats
	Traveled (T)	Trawl nets	Pelagic pair trawls	1	2.27%	1.06%
		Seines	Beach seines	1	2.27%	1.06%
	Traveled (T) - Total			2	4.55%	2.13%
Demersal (D)/Pelagic (P) - Total				4	9.09%	4.26%
Pelagic (P)	Mobile (M)	Purse seines	Purse seines	6	13.64%	6.38%
	Mobile (M) - Total			6	13.64%	6.38%
Pelagic (P) - Total				6	13.64%	6.38%
Total (Number of Vessels with secondary gear)				44	100.00%	46.81%

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Also, in this case (Secondary Implement) the following tables basically show the "sub-categories" found in table 8.

As far as vessels also equipped with secondary gear are concerned, the calculations return values for which it is possible to state that also in this case the main type of fishing is Demersal but with a considerably lower incidence than that recorded for the overall fleet (77.27% vs 97.87%); these vessels account for 36.17% of the total fleet. Demersal fishing is carried out primarily with types of fixed gear (59.09% of vessels) and secondarily with towed gear (18.18% of vessels).

13.64% fish exclusively of the pelagic type; in this case the associated vessels represent 6.38% of the entire fleet. This type of fishing is carried out exclusively with types of mobile gear.

9.09% engage in both Demersal and Pelagic fishing and these "boats" make up 4.26% of the total number of fishing vessels in the Molise Region. This type of fishing is implemented equally both with types of fixed gear (4.55% of boats) and with types of towed gear (4.55% of boats).

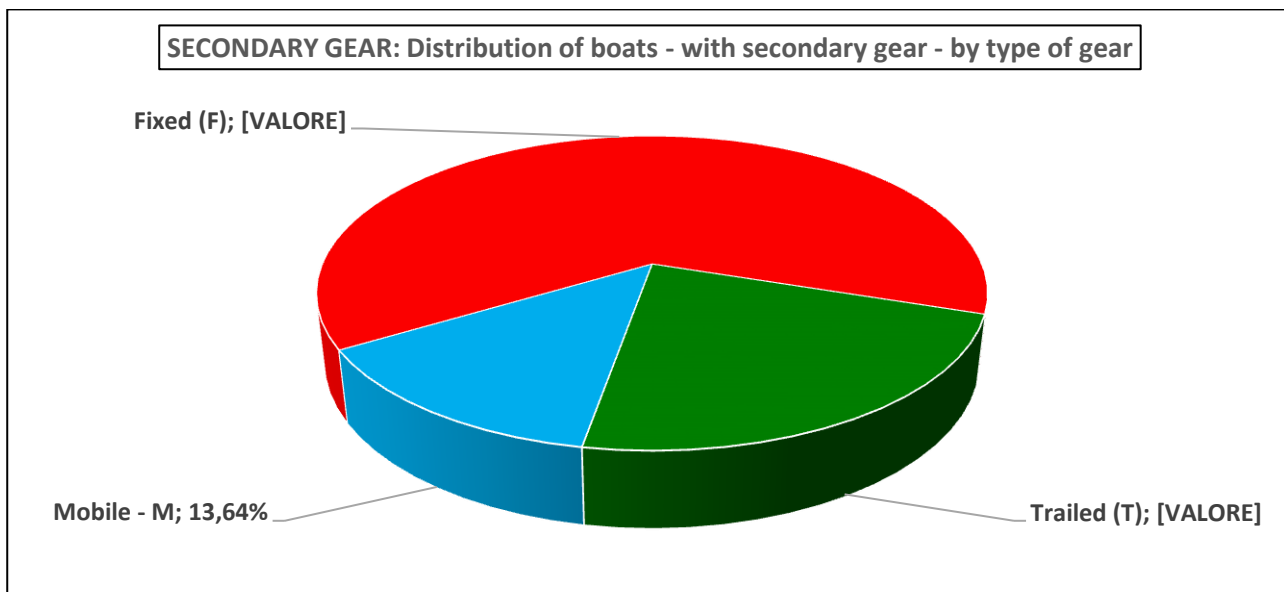
Table 9 - SECONDARY EQUIPMENT

SECONDARY GEAR: Distribution of boats by type of gear [Fixed (S) - Trailed (T) - mobile (M)]	Total Vessels	% incidence on the total	% incidence on the overall total of vessels
Mobile - M	6	13.64%	6.38%
Fixed - St	28	63.64%	29.79%
Trailed - T	10	22.73%	10.64%
Total	44	100.00%	46.81%

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Overall, therefore, as emerges from table 9 and graph 3, 63.64% of the fleet, which is also equipped with subsidiary gear, adopts a type of fixed gear; 22.73% adopt a type of towed gear while for 13.64% the gear used is mobile.

Graph 3 - SECONDARY EQUIPMENT



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

The most used gear (tables 8 and 10 and graph 4) consists of entangling gillnets and gillnets which characterize 45.45% of the fleet with secondary gear corresponding to 21.28% of the total fleet. Followed by boats that fish with towed nets (20.45% of boats with secondary gear equal to 9.57% of the total boats) and those that adopt lines and hooks (18.18% of boats with subsidiary gear equivalent to 8.51% of the entire fleet).

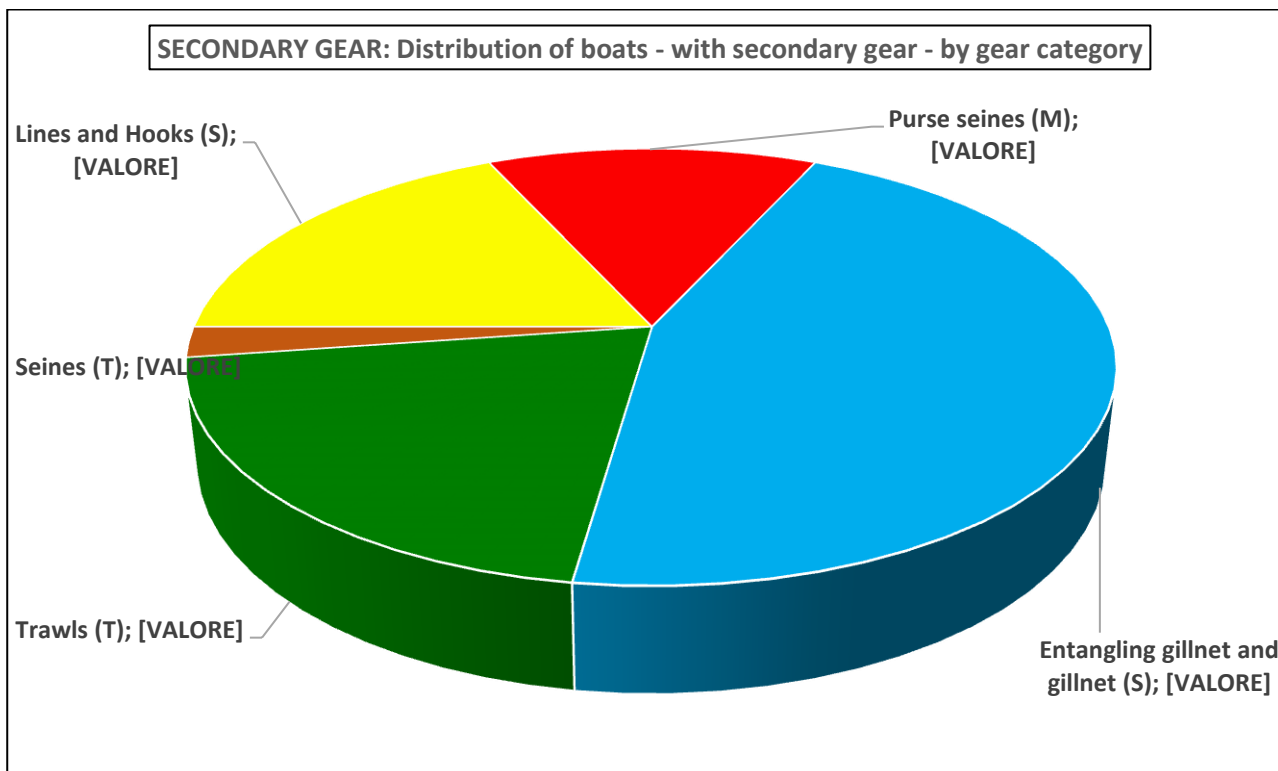
Table 10 - SECONDARY EQUIPMENT

ANCILLARY GEAR - Gear category	Total Vessels	% incidence on the total	% incidence on the overall total of vessels
Lines and Hooks (S)	8	18.18%	8.51%
Purse seines (M)	6	13.64%	6.38%
Entangling gillnet and gillnet (S)	20	45.45%	21.28%
Trawls (T)	9	20.45%	9.57%
Seines (T)	1	2.27%	1.06%
Total	44	100.00%	46.81%

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

The vessels that use purse seines are equal to 13.64% of the total number of boats with secondary gear equivalent to 6.38% of the total boats. The least used equipment are seines, attributable to 2.27% of those equipped with secondary equipment and equal to 1.06% of the entire fleet.

Graph 4 - SECONDARY EQUIPMENT



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

2.3 Average characteristics of boats (TLS, GT, KW etc.) by CATEGORY and TYPE of gear

This paragraph briefly describes the correlations between the average values of some **technical characteristics** of the vessels (*GRT; GT; EU LFT; National LFT; LBP; kW*) of the fleet and the **categories** (*Dredgers; Lines and hooks; Purse seines; Entangling gillnets and gillnets; Trawls; Seine nets*) and **types** (*Seine purse seines; Dredges pulled from boats; Hand and cane lines (handled); Fixed longlines; Otter trawls; Set gillnets (anchored); Pelagic pair trawls; Beach seines*) of gear used. For a better understanding and comparison of the same information, in the following tables (in the tables that follow) the vessels that adopt only one gear and therefore use exclusively the main gear are also shown separately.

Furthermore, in all the following tables, characterized by boats "NOT MAIN EQUIPMENT" and which therefore do not make up the total fleet, an extra, supplementary column is shown, to allow having for these too a percentage incidence referring exclusively to the their total (therefore equal to 100%) and, in this case ("NOT MAIN GEAR") as for the entire fleet and therefore for all the tables, a column showing the percentages (in this case lower than 100%) on the combined fleet total; then we "operate", also following, as already done for all the previous "non-main gear" tables.

Table 11 shows the legend for the interpretation of the headings of the columns shown in the following tables.

Table 11

Legend for the header of the columns shown in the following tables	
NI	Number of Vessels
% of the total	% incidence on the total number of vessels
NI - AP	Number of Vessels with MAIN gear ONLY
% of total AP	% incidence on the total of boats that have ONLY MAIN gear
NI - AS	Number of Vessels with secondary gear
% of the total AS	% incidence on the total number of boats that have secondary gear
GRT	GRT - Gross Tons (Tons)
gt	GT - Gross Tonnage of a ship (Gross Tonnage)
LFT EU	EU LFT - Length Overall (Meters)
LFT No.	National LFT - Overall length (metres)
LBP extension	LBP - Length between perpendiculars in meters " Length Between Perpendiculars "

	(Meters)
kW	kW (Kilowatts)
Tool category	
(S)	Fixed tool
(T)	Towed implement
(M)	Mobile tool

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

2.3.1. Average characteristics of the boats (TLS, GT, KW, etc.) by CATEGORY of gear

For vessels with main gear, i.e. for the total fleet, as emerges from table 12 and graphs 5 and 6, which return the processing of information attributable to the characteristics of the vessels and the category of gear used by them, it emerges that the vessels characterized by larger dimensions (GT - Gross Tonnage of a "Gross Tonnage " vessel) and by the highest power (kW - Kilowatt) are those that adopt, among the different categories of gear, fishing with trawled nets.

Table 12 - MAIN EQUIPMENT

Average characteristics of boats by gear category								
Tool category	NI	% of the total	GRT	gt	LFT EU	LFT No.	LBP extension	kW
Dredges (T)	10	10.64 %	10.55	10.50	12.67	1.57pm	11.29	107.66
Lines and Hooks (S)	12	12.77 %	2.33	1.58	6.41	6.05	5.23	15.64
Purse seines (M)	2	2.13%	6.65	5.50	9.23	9.45	8.45	94.05
Entangling gillnet and gillnet (S)	31	32.98 %	2.03	1.16	6.32	6.36	5.57	7.06
Trawls (T)	39	41.49 %	25.38	41.03	17.42	18.82	15.20	182.76
Total	94	100.00 %	12.76	18.84	11.68	12.32	10.19	93.61
Differentials (Δ) between the average value and the overall average value for each variable (technical characteristic) and for			Δ GRT	Δ GT	Δ LFT EU	Δ LFT No.	Δ LBP	Δ Kw

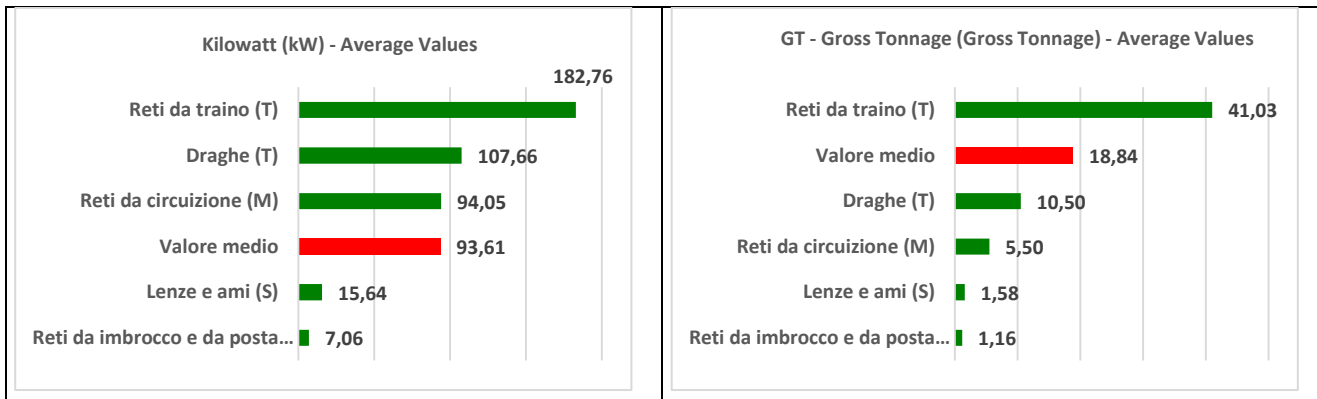
Table 12 - MAIN EQUIPMENT

Average characteristics of boats by gear category								
Tool category	NI	% of the total	GRT	gt	LFT EU	LFT No.	LBP extension	kW
each gear								
Dredges (T)			-2.21	-8.34	0.99	1.25	1.09	14.05
Lines and Hooks (S)			-10.43	-17.26	-5.27	-6.27	-4.96	-77.97
Purse seines (M)			-6.11	-13.34	-2.45	-2.87	-1.75	0.44
Entangling gillnet and gillnet (S)			-10.73	-17.68	-5.35	-5.96	-4.62	-86.54
Trawls (T)			12.62	10.19p m	5.75	6.49	5.01	89.16
Total			0.00	0.00	0.00	0.00	0.00	0.00

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

In fact, for these boats the differential calculated between the individual technical variables, divided by category of gear, and the overall average of the same, is always positive and always refers to the highest values of the category; specifically, as regards the "Gross Tonnage", the difference between the average value, characteristic of boats fishing with towed nets, compared to the average value recorded for the overall boats is equal to 22.19. While for the power (kW) the calculated differential reaches a value of 89.16.

Graphs 5 and 6 - MAIN IMPLEMENT



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Positive values in the differentials calculated are also found for the dredges especially with regard to the power which reveals a difference from the average equal to 14.05.

As in the previous case, also for boats with "main gear only" (table 13, graphs 7 and 8), which correspond to 53.19% of the fleet, those of larger size (GT) and more powerful (kW) fish with nets towed. The greatest differentials, in this case, are found regarding the power (kW), with a $\Delta = 98.65$ and to the dimension (GT), $\Delta = 20.61$.

Tab.13 - BOATS WITH ONLY MAIN GEAR

Average boat characteristics - with ONLY MAIN gear - by gear category									
Tool category	NI AP	% of total AP	% of the total	GRT	gt	LFT EU	LFT No.	LBP extension	kW
Dredges (T)	2	4.00%	2.13%	9.32	9.50	11.73	12.00	10.49	110.00
Entangling gillnet and gillnet (S)	28	56.00%	29.79%	1.98	1.14	6.17	6.19	5.42	7.09
Trawls (T)	20	40.00%	21.28%	11.13 pm	36.05	17.33	18.71	15.16	178.36
Total	50	100.00%	53.19%	10.73	15.44	10.86	11.43	9.52	79.71
Differentials (Δ) between the average value and the overall average value for each variable (technical				Δ GRT	Δ GT	Δ LFT EU	Δ LFT No.	Δ LBP	Δ Kw

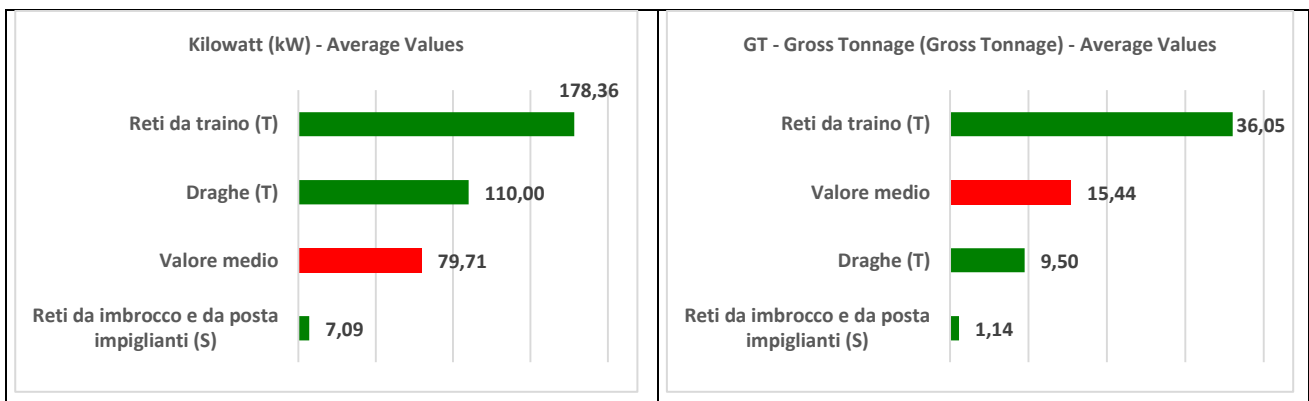
Tab.13 - BOATS WITH ONLY MAIN GEAR

Average boat characteristics - with ONLY MAIN gear - by gear category									
Tool category	NI AP	% of total AP	% of the total	GRT	gt	LFT EU	LFT No.	LBP extension	kW
characteristic) and for each gear									
Dredges (T)				-1.42	-5.94	0.87	0.57	0.97	30.29
Entangling gillnet and gillnet (S)				-8.75	-14.30	-4.69	-5.24	-4.10	-72.63
Trawls (T)				12.39	20.61	6.47	7.28	5.65	98.65
Total				0.00	0.00	0.00	0.00	0.00	0.00

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

With regard to the category of gear, most of the boats (which do not have the aid of any subsidiary tool) are characterized by the category of gear attributable to gillnets and entangling gillnets (56.00% - corresponding to 29.79 % of the entire fleet); followed by those characterized by trawls equal to 40% of vessels with only the main gear and 21.28% of the total fleet.

Graphs 7 and 8 - BOATS WITH ONLY MAIN GEAR



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Even the dredges are mounted on vessels characterized by a power (kW) higher than the average (110.00 vs 79.71).

Turning to boats that also have secondary gear (equal to 46.81% of the total fleet), the power (average of 223.62 kW) and the largest dimensions (average GT equal to 52.33) are naturally to be noted. These pertain, in absolute terms, to boats characterized by subsidiary gear attributable to purse seines.

The highest differentials (table 14, graphs 9 and 10) regarding size and above all power are respectively equal to 29.63 (of GT) and 114.22 kW.

Tab.14 - SECONDARY EQUIPMENT

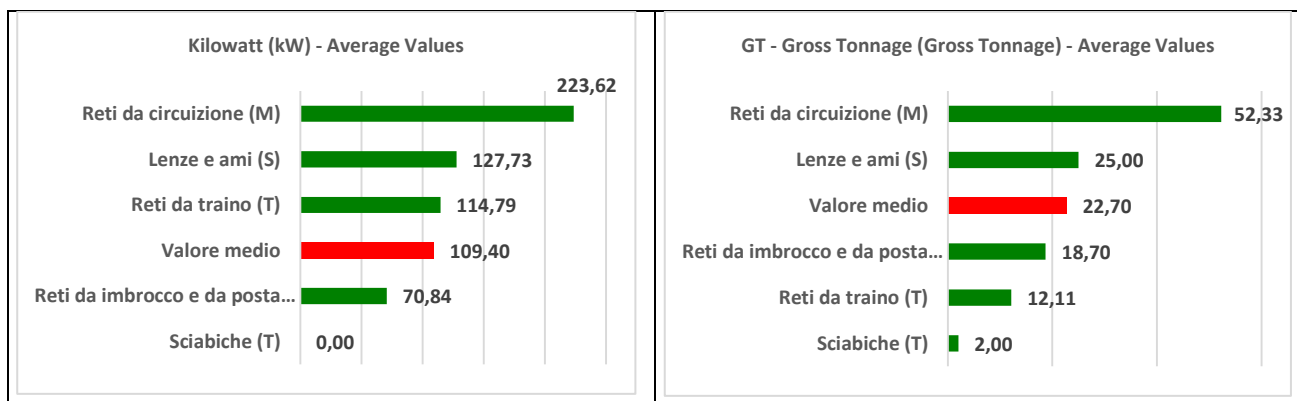
SECONDARY GEAR - Average boat characteristics - with secondary gear - by gear category									
Tool category	NI AS	% of the total AS	% of the total	GRT	gt	LFT EU	LFT No.	LBP extension	kW
Lines and Hooks (S)	8	18.18 %	8.51%	15.76	25.00	12.69	1.60p m	11.41	127.73
Purse seines (M)	6	13.64 %	6.38%	41.66	52.33	19.18	20.13	16.06	223.62
Entangling gillnet and gillnet (S)	20	45.45 %	21.28 %	9.38	18.70	10.58	11.07	9.14	70.84
Trawls (T)	9	20.45 %	9.57%	10.72	12.11	1.17p m	14.21	11.68	114.79
Seines (T)	1	2.27%	1.06%	3.16	2.00	8.00	8.03	6.62	0.00
Total	44	100.00%	46.81%	15.07	22.70	12.61	1.34p m	10.96	109.40
Differentials (Δ) between the average value and the overall average value for each variable (technical characteristic) and for each gear				Δ GRT	Δ GT	Δ LFT EU	Δ LFT No.	Δ LBP	Δ Kw
Lines and Hooks (S)				0.69	2.30	0.08	0.26	0.45	18.33
Purse seines (M)				26.58	29.63	6.57	6.79	5.10	114.22
Entangling gillnet and gillnet (S)				-5.70	-4.00	-2.03	-2.27	-1.82	-38.55
Trawls (T)				-4.35	-10.59	0.56	0.87	0.72	5.39
Seines (T)				-11.91	-20.70	-4.61	-5.31	-4.34	-109.40

Total	0.00	0.00	0.00	0.00	0.00	0.00
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Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Regarding power, lower than average values, naturally excluding seines, were recorded for fishing with gillnets and gillnets which characterize 45.45% of boats, with secondary gear, and 21.28% of whole fleet.

Graphs 9 and 10 - SECONDARY EQUIPMENT



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Even the boats with secondary gear category relating to lines and hooks (equal to over 18% of boats with secondary gear and 8.51% of the entire fleet), have a size (GT) higher than the category average (25.00 vs 22.70).

2.3.2. Average characteristics of the boats (TLS, GT, KW etc.) by TYPE of gear

Moving on to briefly analyze the type of gear, ie passing from the category of gear to the specific gear, we naturally have the confirmations of what is reported in the previous paragraph.

The main gear (see table 15, graphs 11 and 12), i.e. the one most used by the entire fleet, is characterized by bottom otter trawls this therefore ratifies that towed nets distinguish boats with greater tonnage (GT) and higher powers (kW).

Table 15 - MAIN GEAR

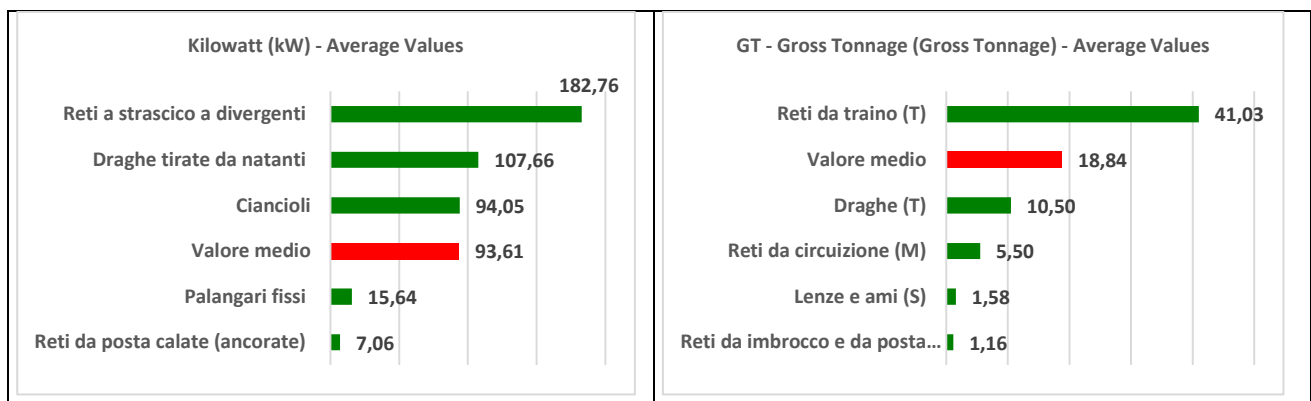
MAIN GEAR - Average characteristics of boats by type of gear								
Tool	NI - AP	% of total AP	GRT	gt	LFT EU	LFT No.	LBP extension	kW
Dredges pulled by boats	10	10.64%	10.55	10.50	12.67	1.57pm	11.29	107.66

Fixed longlines	12	12.77%	2.33	1.58	6.41	6.05	5.23	15.64
Purse seines	2	2.13%	6.65	5.50	9.23	9.45	8.45	94.05
Set gillnets (anchored)	31	32.98%	2.03	1.16	6.32	6.36	5.57	7.06
Bottom otter trawls	39	41.49%	25.38	41.03	17.42	18.82	15.20	182.76
Total	94	100.00 %	12.76	18.84	11.68	12.32	10.19	93.61
Differentials (Δ) between the average value and the overall average value for each variable (technical characteristic) and for each gear			ΔGRT	ΔGT	Δ LFT EU	Δ LFT No.	ΔLBP	Δ Kw
Dredges pulled by boats			-2.21	-8.34	0.99	1.25	1.09	14.05
Fixed longlines			-10.43	-17.26	-5.27	-6.27	-4.96	-77.97
Purse seines			-6.11	-13.34	-2.45	-2.87	-1.75	0.44
Set gillnets (anchored)			-10.73	-17.68	-5.35	-5.96	-4.62	-86.54
Bottom otter trawls			12.62	10.19 ^p m	5.75	6.49	5.01	89.16
Total			0.00	0.00	0.00	0.00	0.00	0.00

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

In this case there is a unique correspondence between the gear category and the type of gear, i.e. the gear itself; in fact the values reported in the previous table are identical to those contained in table 12; therefore the same considerations made previously apply by simply replacing, in the same table 12, the gear category with the "type" of gear.

Graphs 11 and 12 - MAIN GEAR



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

Finally, it emerges from graph 11 that the vessels characterized by gear attributable to fixed longlines and lowered (anchored) gillnets characterize vessels with powers (kW) lower than the average (15.64 and 7.06 vs 93, 61).

Even for 53.19% of the vessels of the entire fleet (see tab. 16, graphs 13 and 14) characterized by being equipped with only main equipment, there is an unequivocal correspondence (see tab. 13, graphs 7 and 8) between the gear category and the gear type.

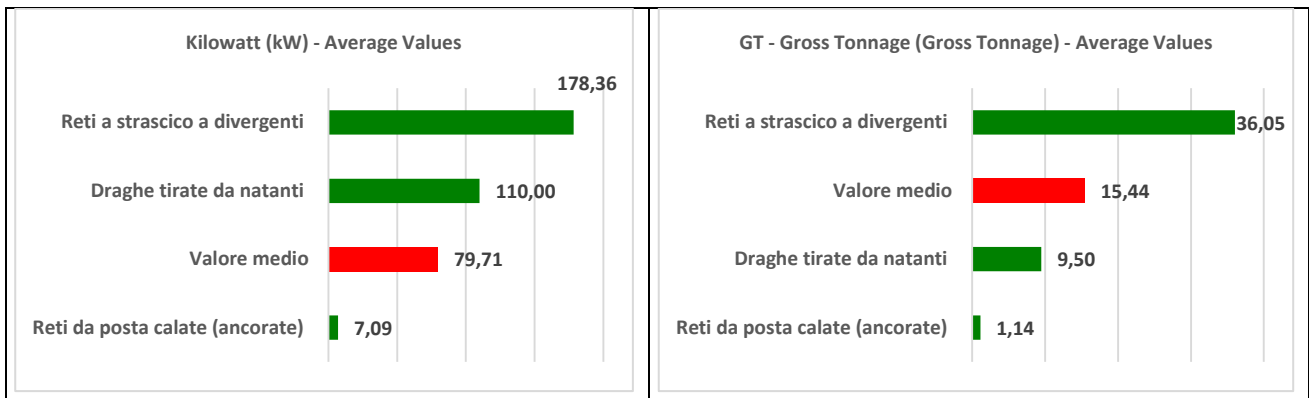
Tab. 16 - BOATS WITH ONLY MAIN GEAR

BOATS WITH ONLY MAIN GEAR - Average characteristics of the boats - with ONLY MAIN GEAR - by type of gear									
Tool	NI AP	% of total AP	% of the total	GRT	gt	LFT EU	LFT No.	LBP extension	kW
Dredges pulled by boats	2	4.00%	2.13%	9.32	9.50	11.73	12.00	10.49	110.00
Set gillnets (anchored)	28	56.00%	29.79%	1.98	1.14	6.17	6.19	5.42	7.09
Bottom otter trawls	20	40.00%	21.28%	11.13 pm	36.05	17.33	18.71	15.16	178.36
Total	50	100.00%	53.19%	10.73	15.44	10.86	11.43	9.52	79.71
Differentials (Δ) between the average value and the overall average value for each variable (technical characteristic) and for each gear				Δ GRT	Δ GT	Δ LFT EU	Δ LFT No.	Δ LBP	Δ Kw
Dredges pulled by boats				-1.42	-5.94	0.87	0.57	0.97	30.29
Set gillnets (anchored)				-8.75	-14.30	-4.69	-5.24	-4.10	-72.63
Bottom otter trawls				12.39	20.61	6.47	7.28	5.65	98.65
Total				0.00	0.00	0.00	0.00	0.00	0.00

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

The most used gear consists of lowered (anchored) gillnets which characterize 29.79% of the entire fleet.

Graphs 13 and 14 - BOATS WITH ONLY MAIN GEAR



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

While those for which the greatest differentials are found with regard to the technical characteristics inherent in the size (GT) and power (kW) of the boats are the gears attributable to otter trawls with, respectively, values equal to 36.05 vs 15.44 for the "Gross Tonnage" and 178.36 vs 79.71 for the Kilowatts.

46.81% of the boats are equipped with secondary gear, in this case there is no unequivocal correspondence between the gear category and the type of gear even if analyzing the data in an aggregate way, also in this case the overall values reported in table 17 and in graphs 15 and 16 are perfectly attributable to what is reported in table 14 and in graphs 9 and 10 .

Tab. 17 - SECONDARY EQUIPMENT

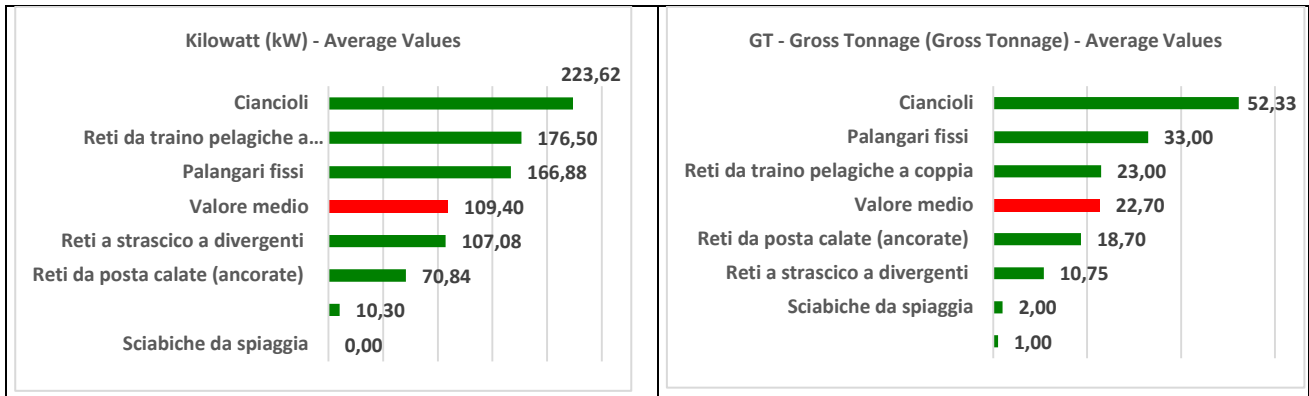
SECONDARY GEAR - Average characteristics of the boats - with secondary gear - by type of gear									
Tool	NI AS	% of the total AS	% of the total	GRT	gt	LFT EU	LFT No.	LBP extension	kW
Purse seines	6	13.64 %	6.38 %	41.66	52.33	19.18	20.13	16.06	223.62
Hand and pole lines (hand rigged)	2	4.55 %	2.13 %	2.22	1.00	7.65	8.02	7.21	10.30
Fixed longlines	6	13.64 %	6.38 %	20.27	33.00	14.37	15.46	12.81	166.88
Bottom otter trawls	8	18.18	8.51	10.86	10.75	12.90	13.96	11.49	107.0

		%	%						8
Set gillnets (anchored)	20	45.45 %	21.28 %	9.38	18.70	10.58	11.07	9.14	70.84
Pelagic pair trawls	1	2.27 %	1.06 %	9.61	11.00 pm	15.33	16.20	1.22p m	176.50
Beach seines	1	2.27 %	1.06 %	3.16	2.00	8.00	8.03	6.62	0.00
Total	44	100.00 %	46.81 %	15.07	22.70	12.61	1.34p m	10.96	109.40
Differentials (Δ) between the average value and the overall average value for each variable (technical characteristic) and for each gear				ΔGRT	ΔGT	Δ LFT EU	Δ LFT No.	ΔLBP	Δ Kw
Purse seines				26.58	29.63	6.57	6.79	5.10	114.22
Hand and pole lines (hand rigged)				-12.85	-21.70	-4.96	-5.32	-3.75	-99.10
Fixed longlines				5.20	10.30	1.76	2.12	1.85	57.48
Bottom otter trawls				-4.21	-11.95	0.29	0.62	0.53	-2.32
Set gillnets (anchored)				-5.70	-4.00	-2.03	-2.27	-1.82	-38.55
Pelagic pair trawls				-5.46	0.30	2.72	2.86	2.26	67.10
Beach seines				-11.91	-20.70	-4.61	-5.31	-4.34	-109.40
Total				0.00	0.00	0.00	0.00	0.00	0.00

Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

For vessels also equipped with secondary gear, the greatest differentials, as regards size (GT) and power (kW), were found for purse seines (GT equal to 52.33 with Δ vs average value equal to 29, 63 and kW equal to 223.62 with Δ vs average value equal to 114.22) which characterize 6.38% of the boats of the entire fleet and 13.64% of the boats with subsidiary gear.

Graphs 15 and 16 - SECONDARY EQUIPMENT



Source: Agriconsulting Sviluppo Institutional Srl elaborations on the "Naviglio di Termoli" database - Molise Region

The vessels characterized by gear attributable to set gillnets (anchored), otter trawls and hand and cane lines (handled) have average values of size (GT) and power (kW) lower than the general average ; while boats with gear such as fixed longlines and pelagic trawl nets in pairs, in addition of course to the aforementioned purse seines, have higher GT values and decidedly higher Kw values than the average values recorded.

Chapter 3 – results of surveys conducted in 2023

This chapter reports the results of the direct surveys (so-called **primary data**) carried out in 2023 and aimed at vessels engaged in professional fishing, equipped with a ministerial license and pertaining to the navy of the Molise Region.

65 subjects took part in the surveys, representing approximately 77% of active vessels in 2023.

3.1 Fishing systems, days of activity, fishing location, species and quantity of fish caught, invasive species

The restitution of the elaborations shows that the type of fishing practiced by the interviewed boats is exclusively demersal (100%) implemented mainly with towed gear (73.85%) and with fixed gear (26.15%). The pelagic fishing system does not affect any vessels.

With regard to the types of gear, the most used are trawl nets (60% of total vessels) followed by gillnets and entangling gillnets (26% of vessels) and dredges (13.8%).

In 2022, on average, boats had 109.7 days of activity ³. In relation to the days of use of the main gear, an average of 105.8 days are recorded, for an average of 10.5 hours per day per vessel.

Overall, in 2022, 669,355 kg/year were caught (with an average per vessel of 14,241.6 kg/year). Of **all the species caught** , for 22.92% (11 vessels), the main species caught with the main gear were chaplain, pink shrimp, prawn, hake; 20.84% (10 boats) are cuttlefish and soup; 18.75% (9 boats) are clams. The prevalent species caught by the remaining vessels have lower percentages. As regards the quantities caught of the **prevalent species** , a total of 385,580 kg was recorded, with an average of 8,382.17 kg.

Fishing for the prevalent species, obviously influenced by the type of fishing practiced by the boats that answered the question, mainly took place within 6 am and some boats carried out their fishing action exceeding 20 miles from the coast.

The **main commercial destination** for most of the interviewees (29 out of 47) is wholesale; for 13 vessels, on the other hand, retail sale on the quay is envisaged; direct sale to the consumer is foreseen only for 4 vessels and only for 1 vessel to the wholesaler of the relaying centre.

Regarding the presence of **alien species and/or invasive** , out of a total of 45 replies, 17 do not report their presence, while another 17 report the presence of turtles and dolphins; for 11 other vessels, the primary alien species is the blue crab. Less reported for barracuda and puffer fish (1 vessel each).

³Out of a total of 65 respondents

3.2 Socio-economic results (number of employees, revenues and costs)

The boats interviewed employ a total of 154 people (on average 2.37 people per boat); they are mainly (97.4%) men.

The average age of the captains of the vessels (51.1 years) is about 10 years lower than the average age of the rest of the crew (61.3 years). The captains of the boats have an average age between 37 and 68 years, while that of the personnel on board ranges from a minimum of 30 years to a maximum of 68 years.

Fishing operators are mainly Italian nationals (72.7% of the total) and to a lesser extent come from non-EU countries (26.6%). Only 0.6% comes from other EU countries.

Only 30% of operators have obtained a secondary school diploma and the incidence of those who stopped their education earlier, obtaining a middle school diploma, is higher (54%).

Tab. 18 - Educational qualifications of sector operators

Degree	no. operators	% incidence on total operators
Middle School diploma	83	54%
High school diploma	47	30%
No title	18	12%
Primary school diploma	6	4%
Degree	0	0%
Total	154	100%

Source: Agriconsulting Sviluppo Institutional Srl elaborations on direct surveys 2023

During the interviews, 57 subjects provided all the information useful for analyzing the profitability of their boats taking 2022 as the reference year. The total value of revenues (including any contributions) declared by the interviewed subjects amounts to more than 5 million euros (on average 88,728 euros/boat). The value of the revenues does not much exceed the total value of the costs which amount to almost 4.9 million euros (on average 85,849 euros/boat) to the detriment of the gross profitability (difference between total revenues and total costs) which is just 2,878 euros /boat.

Tab. 19 - Revenues and costs of vessels

Balance sheet items (data referring to 57 boats)	Overall value (EUR)
Gross salable production (€)	4,915,486
Fishing stop (art.33) (€)	16,500
Other contributions (e.g. Covid19) (€)	124,610

Other income (€)	900
(R) TOTAL REVENUES (€)	5,057,496
Annual expenses for on-board personnel (€)	2,122,741
Annual fuel charges in Euros (€)	2,318,695
Annual maintenance costs in Euros (€)	451,987
(K) TOTAL COSTS	4,893,423
Gross income (revenue-expense)	164,072.24

Source: Agriconsulting Sviluppo Institutional Srl elaborations on direct surveys 2023

3.3 Critical issues and prospects declared by the interviewees

Respondents were asked to indicate whether “*Are there external elements affecting your business?*”

Analyzing the incidence of external elements affecting fishing activity, the major problems encountered are associated with the increase in oil costs (28%) and competition (20%). The latter category includes illegal fishing practiced by yachtsmen, relations with foreign countries, frozen products and products obtained from aquaculture.

Next, attention is paid to the ongoing conflict in Ukraine (incidence of 16%), to which the aforementioned increases in the cost of oil (28%) and raw materials in general (4%) are closely related.

The shortage of product represents a further problem that emerged from the analysis of the questionnaire, as well as the exasperation of controls (incidence of 7%).

Less importance was attributed to pollution (incidence of 6%) and the decrease in sales (incidence of 4%). Only one response highlighted the issue relating to aquatic animals (dolphins and turtles).

The interviewees were then asked to express a judgment on their own expectations “*How do you judge your future expectations?*”

In particular, the interviewees were asked to give an opinion on their own future expectations. The evaluation was performed through the attribution of a score ranging from 1 to 5, in increasing order of positivity (1 negative; 5 very positive).

From the analysis of the answers, an average score of 2.4 was found, which denotes a lack of enthusiasm on the part of the sample of people to whom the questionnaire was administered. In particular, the interviewees justified their answers by attributing the main faults, once again, to the increase in fuel and raw material costs, the decrease in sales and the lack of qualified personnel.

Furthermore, the community limitations in force are considered too restrictive: “*a real policy of management of the resource would allow a higher income*”. According to the interviewees, it is mainly small boats that are penalized by the regulations. Additional complaints were attributed to the management of the clam resource.

However, hopeful considerations also emerged from the analysis of the questionnaire, linked to the possibility of creating diversification of activities (eg fishing tourism) and of increasing direct sales to ensure higher incomes. Several interviewees argue that fishing is an activity that will never end, and that young people represent hope for the future.

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