



SUMMARY OF THE REPORT

ONBOARD EMPLOYMENT

SOCIO-ECONOMIC IMPACT

OF A SUSTAINABLE

FISHERIES MODEL.



INDEX

<i>Introduction</i>	3
<i>Methodology</i>	5
<i>Sustainable fisheries model</i>	7
<i>Supporting low scale sustainable fisheries</i>	
<i>Phasing out of destructive fishing technique</i>	
<i>Extending the network of marine reserves</i>	
<i>Moving towards converting deep sea fishing to sustainability</i>	
<i>Limiting aquaculture operations</i>	
<i>Developing measures to inform and raise awareness in consumers</i>	
<i>Complying with biological optimums</i>	
<i>Controlling pollution in coastal areas</i>	
<i>Main Results:</i>	13
<i>Global impact on the economy and jobs</i>	
<i>Impact of the model by sectors of activity</i>	
<i>Reversing the job loss trend of the current fisheries model</i>	
<i>Characteristics of employment in fishing communities and the rest of the economy.</i>	
<i>Type of jobs created in the economy as a whole</i>	
<i>Conclusions</i>	
<i>Greenpeace Demands</i>	22
<i>Glossary</i>	24

INTRODUCTION

European fisheries are facing an unsustainable situation in which previously rich, diverse fish populations have been decimated to a fraction of their original size, giving rise to an ecological, social and ultimately, economic crisis.

In addition to the effects of overfishing, the large ships in European fleets are having an impact on marine ecosystems. After depleting resources in national waters, European Union fishing operations have transferred to the waters of other continents and currently, countries with a fleet like Spain have to import more than 60% of the fish they consume, whereas with good management a large proportion of that fish could come from domestic waters. However, the fishing policies applied to date have been unable to prevent fleet overcapacity and have brought negative consequences for the economy, society and the environment.

The new Common Fisheries Policy (CFP) regulation approved in May 2013 and effective from January 1st 2014, offers the chance to eliminate overfishing and provide an economically viable and environmentally sustainable option for fishermen and the oceans. Between 2014 and 2024 member states have to apply the regulation to recover fishing stocks, reduce fleet capacity and fishing effort, prioritise the elimination of destructive fishing practices and promote access to resources for those engaged in sustainable fishing.

Given the opportunity for change offered by the application of the CFP in Spain, Greenpeace wants to contribute real solutions which it has compiled in this analysis of the economic, social and environmental advantages of a 100% sustainable fisheries model with low impact fishermen and the health of the oceans at its epicentre.

The first part of this study¹ was published in 2013 and analysed the current economic and social situation in the fishing industry. The main conclusion was the urgent need for measures to achieve a sustainable fisheries model, the subject of this new study.



The report ***Onboard employment: Socio-economic impact of a sustainable fisheries model*** proposes a series of measures to be implemented between 2014 and 2024 and analyses the effects they would have on the economy and employment. This set of actions would make Spanish fisheries 100% sustainable and would also increase economic production by 4 billion euros and create over 60,100 jobs; as well as delivering better conserved, resource-rich seas and coasts.

The 100% sustainable fisheries model is based on the correct application of all the criteria approved in the new CFP regulations between 2014 and 2024 with one or two additional measures. Application of the model Greenpeace is proposing would retain the population in rural coastal areas; benefit collectives with difficulties to access employment, such as young people and women; and open up new business opportunities like fishing tourism.

This summary presents the actions proposed in the study and the main results of the technical analysis of their economic and social impact in the period between 2014 and 2024.



METHODOLOGY

The proposed fisheries model indicates a set of eight key lines of action to support the transition towards a sustainable fisheries model. The study analyzes the impact on the economy and employment for every line of action for the entire period in question (2014-2024). The global effect of the model is the sum of the partial impacts of the various actions.

The effect of the sustainable fisheries model on the economy and employment has been measured with **Input-Output** analysis. This type of analysis enables measurement of the impacts on the economy as a whole associated to a change in the demand for goods and services in a sector. Input-Output analysis is frequently used as a tool to measure the economic impact of some sectors on others, but the lack of previous references of its application to the fishing industry in Spain is an indication of the innovative nature of this present study. The database for the analysis was constructed with the most current data published by the Spanish National Statistics Institute (Spanish Input-Output tables for 2008) dividing the fishing industry into two subsectors (low impact fishing and non low impact fishing)².

In addition to the data on the economic impact on production and number of jobs obtained in the analysis, the model has been extended to include two major blocks: the environment, to quantify increases or reductions in CO₂ emissions, and employment, to examine the type of jobs created or destroyed with the proposed actions.





SUSTAINABLE FISHERIES MODEL

The proposed sustainable fisheries model is designed to support low impact and sustainable fishing and the recovery of fishery resources. Below is a description of the proposed eight lines of action for moving gradually from the current model towards an environmentally, economically and socially sustainable fisheries model. For the impact analysis, each action has an associated investment and cost between 2014 and 2024 which will affect the economy and employment in the fishing industry and the other economic sectors that will benefit from the model³.

1 Supporting low impact sustainable fisheries

Low impact fisheries are characterised by their environmental and social sustainability and they represent 77% of the fleet^{4,5}. Low impact fishing practices, also known as small-scale fishing, exclude any form of trawling. They respect the marine environment because they are selective and have little impact on the marine environment, species and/or the habitat where they are used.

The socio-economical analysis of the sector also shows that low impact fisheries contribute to social sustainability⁶, by promoting the socio-economic structure of coastal communities because they mainly take the form of small, often family-run companies or self-employed workers, where the shipowner is also the master of the vessel. They also promote employment among young people, women and the over 50s.

The proposed actions in the sustainable fisheries model are intended to reinforce the economic and environmental profitability of the fisheries by recovering fish resources in coastal areas and reducing variable costs like fuel. They also promote diversified sources of income in fishing communities through greater development of sustainable fishing tourism with training and leisure activities linked to this type of tourism.

Action:

- Exclusive access to resources for sustainable fishing within the 12 nautical miles of the territorial sea⁷.
- Creation of a special label for fish caught by low impact fishing.
- Advice on energy efficient measures for the fleet, regulations and subsequent implementation.
- Promotion of fishing tourism through structured support plans⁸.

2 Phasing out destructive fishing techniques

A sustainable fishing model cannot include destructive non-selective fishing techniques such as certain types of purse seining and trawling, (11% of the fleet is currently dedicated to trawling)⁹. Trawling has a major environmental impact because it is non-selective, capturing all the species in its path whether they are being targeted or not, thereby generating huge amounts of discards in the form of fish and other species that are thrown dead or dying back into sea. The weight of the net and of the doors, that keep it open, have a major impact as they move over the sea bed destroying entire ecosystems that cease to be productive for the next generations of fishermen.

On a positive note, in fishing grounds where trawling has been eliminated^{10, 11} it has been found that the marine ecosystem recovers and overexploited species reappear after just a few years^{12, 13}. This line of action proposes the reduction and subsequent phase out of the trawling fleet until it disappears in 2023. A percentage of the fleet (30%) could be converted to other more selective types of fishing. Conversion is feasible but has not been included in this analysis due to a lack of basic information on the cost of the transformation.

This line of action also includes the elimination of certain purse seining techniques aimed at overexploited species or which do not conform to current legislation; as well as any techniques that do not operate selectively or that use fish aggregation devices¹⁴ (FAD).

Action:

- **Phasing out and reconversion of trawling in the next nine years until 2023.**
- **Gradual phasing out of the most destructive and illegal purse seining techniques by 2023.**

3 **Extending the network of marine reserves**

Marine reserves are the sea and coastal equivalent of national parks on land. Aggressive extractive activities like fishing are prohibited in these areas. Inside the reserves, populations of fish and other species are more abundant and larger. Individuals live longer grow larger and their reproductive potential increases. Different economic sectors like tourism and leisure benefit directly by offering a more attractive natural environment as a holiday destination or for sports like scuba diving. The environmental benefit is thus accompanied by an economic benefit. However, the surface area of marine reserves globally is less than 1%.

Ecosystems within the protected area and the species that live in them find shelter in these areas to live and reproduce. The result is known as «biomass export», surplus fish leave the protected areas and go where fishing is allowed, generating a benefit for fishing communities. The actions in Greenpeace's fisheries model focus on creating 49¹⁵ new marine reserves to cover at least 10% of Spain's marine surface¹⁶; and on developing sustainable tourism activities linked to the sector.

Action:

- **Proposal to increase the existing network with 49 new marine reserves to cover at least 10% of Spain's marine surface area.**
- **Support to develop and promote a variety of training, research, and tourism activities compatible with the levels of protection for the reserves.**

4 **Moving towards converting deep sea fishing to sustainability**

The exhaustion of European fishing grounds has led large fishing boats to travel further and further away seeking fishery resources at greater depths, with a significant impact on stocks and the marine ecosystems in third countries, which in some cases are one of the main sources of food (especially protein) and revenue for the local communities. This model of exporting Europe's excess fishing capacity has been the dominant model up to now and represents 2.3%¹⁷ of the Spanish fleet, which does not include boats belonging to Spanish companies that operate under a different flag.

These boats fish in international fishing grounds due to the scarcity of resources caused by overfishing in EU waters. Therefore, in addition to reducing capacity and the number of boats, the fishing industry must move towards sustainability and abandon destructive fishing techniques like deep sea trawling. It should also promote the development and participation of local economies in the coastal countries where it operates, like in Senegal where priority has been given to low impact and local fishing due to the high fishing pressure from other non-national fleets¹⁸. The actions taken into account for this study, as well as limiting the number of vessels, focus on sustainability certification, on supporting the establishment of marine reserves in international waters and measures for transparency in the sector such as product traceability and improved actions to prevent the entry of products of illegal, unreported and unregulated fishing (IUU fishing).

Action:

- **Transition to sustainable fishing through sustainability certification systems and commitment to Corporate Social Responsibility (CSR).**
- **Limit the number of large scale and very large scale vessels, according to the Maximum Sustainable Yield (MSY) of target populations.**
- **Prohibit fish imports that lack information on the origin or certification of legality and/or CSR of the company/vessel.**
- **Improve monitoring and control measures to detect illegal fishing.**

- **Support the establishment of marine reserves in international waters (after preliminary study, analysis and dissemination).**

5 Limiting aquaculture operations

Contrary to what some may think, aquaculture is not the solution to the overexploitation of the oceans or to hunger in the world. Farmed species are fed or fattened mainly with wild fish, and so this sector does not help reduce fishing pressure. It also has other environmental impacts like the pollution it generates in the surrounding water due to the use of antibiotics and other compounds or the risk of invasion by non-native species due to the escapes of farmed fish.

The occupation of coastal areas and the destruction of ecosystems to build these facilities is another major environmental impact, also linked in some areas to social impacts as marine and coastal resources are destroyed and coastal communities lose their livelihood.

This measure is intended to limit new marine aquaculture operations leaving the total number of operations at the present level, that is 3,659 rafts and 47 cages for aquaculture¹⁹.

Action

- **Limit new exploitations of marine aquaculture, both fish farming and bivalve cultivation.**

6 Developing consumer information and awareness measures

The promotion of sustainable fisheries must be accompanied by appropriate information initiative on the social and environmental benefits of this type of fishing so consumers can access this information and have the option of choosing products from sustainable fisheries. This work should not only come from the private initiatives of firms in the industry but also from public authorities who can carry out awareness raising campaigns and introduce labelling with the necessary product information to give consumers the opportunity to choose.

Similarly, marketing channels must be adapted and facilitated so that sustainably caught fish can be marketed in a way that promotes its environmental and social sustainability. The actions proposed focus on improving the levels of information for consumers on the sustainability of fishing resources and on the specific products they acquire in the market.

Action:

- **Information and awareness raising campaign on the importance of sustainable fishing resources.**
- **Promote “responsible» consumption of fish and seafood. (Advertising, educational campaigns, actions at fairs, etc).**
- **Implementation of a sustainable fish label. (Design, regulations on use of the label by retailers and dissemination campaigns).**

7

Complying with biological optimums

The science associated with fishing resources is very complex and has an ongoing need for real data to assess the state of fishing resources in order to improve the way they are managed. Public authorities and fishermen must therefore improve and promote access to this data and compilation of already existing data from scientific institutions and other sectors involved, like non-governmental organisations.

Compliance with scientific recommendations should be obligatory both in the allocation of access to fishing resources as in the subsequent control of catches in ports through reinforced control measures and greater understanding of the ultimate causes for annual variations in certain species.

The proposed actions for compliance with biological optimums established at particular times (Maximum Sustainable Yields) require more human and technical resources for control measures and scientific studies.

Action:

- **Appropriate assessment of Maximum Sustainable Yields in coastal fisheries.**
- **Studies of the causes of annual variations in some coastal species.**
- **Improved control of compliance with quotas at ports.**

8

Controlling pollution in coastal areas

Controlling pollution in the seas and oceans is vital for the health of coastal ecosystems. Pollution does not only occur directly at sea, most of it comes from the land as the result of human activities, like industry, agriculture or incorrect treatment of waste. The lack of adequate control over compounds that reach the marine environment can cause eutrophication or chemical pollution that affects marine resources in general and especially filter feeding species targeted by shellfish collectors.

In this case, the proposal is to comply with the regulations on the correct treatment of waste water especially in sites designated as «sensitive areas». The actions focus on waste water sanitation and treatment.

Other methods, aimed at controlling coastal pollution caused by other types of waste like industrial waste, would have a positive impact on fisheries management, but have not been taken into account in this analysis because of the need to limit the scope of the study and consider only actions with a specific cost.

Action:

- **Compliance with the regulations on the correct treatment of waste water (Directive 91/271/EC and Directive 2000/60/EC, Water Framework), especially in sensitive areas²⁰.**





MAINS RESULTS

GLOBAL IMPACT ON THE ECONOMY AND JOBS

Application of a sustainable fisheries model will generate very positive economic, social and environmental results.

The socio-economic analysis results show that, as well as the environmental benefits, the proposed set of actions for a sustainable fisheries model will have a very positive global impact on the economy and employment between 2014 and 2024. This impact materialises in **increased production**²¹ of almost **4 billion euros and a net creation of over 60,100 jobs**.

Support for low impact sustainable fisheries and extending the protected surface area with marine reserves are two lines of action with a major economic impact, increasing production by 1.364 and 1.260 billion euros respectively and creating 24,137 and 11,666 jobs respectively. Of all the proposed actions, pollution control will have the greatest impact on production and employment.

Table1. Key figures on the economic and environmental impact of the move towards a sustainable fisheries model. 2014-2024.

Source: Own elaboration

	ESTIMATED BUDGET (2014-2024 period)		IMPACT (2014-2024 period)		
	Millions €	%	Production (Millions €)	New employments	CO ₂ emissions (t)
1 Supporting low scale fisheries	483	18	1 364	24.137	66.061
2 Phasing out destructive fishing techniques	0	0	-1.179	-9.038	-738.032
3 Extending the network of marine reserves	770	28	1.260	11.666	75.800
4 Moving towards converting deep sea fishing to sustainability	49	2	78	544	3.419
5 Limiting aquaculture	0	0	0	0	0
6 Developing consumer information and awareness consumers	13	0	21	143	892
7 Complying with biological optimums	34	1	53	384	2.367
8 Controlling pollution in coastal areas	1.375	50	2.368	32.325	171.037
TOTAL	2.725	100	3.965	60.162	-418.456

The total investment required for the various actions is relatively low, **2.725 billion euros**. Taking into account the fact that some items, like the budget for controlling pollution in coastal areas, are already contemplated in other already approved public plans the net budget effort of the model would be **1.350 billion euros**²². From this budget, the main investment would be allocated to extending the network of marine reserves and to supporting sustainable fisheries.

This scenario presents a reduction in greenhouse gases²³ equivalent to **418,456 tons of CO₂**. This considerable reduction in emissions is due mainly to the reduction in non-sustainable fisheries with the gradual elimination of destructive fishing techniques.



8 Lines of Action 2014-2024 TO GET A SUSTAINABLE FISHERY SECTOR AND A OCEANS WITH FUTURE.



In the next ten years the fisheries management policies of our country should implement the new Common Fisheries Policy (CFP). Greenpeace

presents a model that incorporates the CFP measures and analyzes the economic, social and environmental benefits of this model.

The fishing industry can be sustainable, we just need the political will to implement these measures. Want to know which?

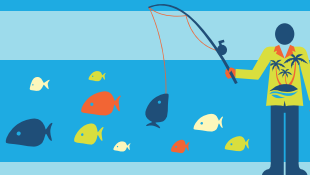
1 SUPPORT LOW SCALE FISHERIES!



Less than € 500 million investment to:



Recover fish stocks
Give value to sustainable fish
Develop fishing tourism



... and create more than 24,000 jobs.



2 LESS DESTRUCTIVE FISHING TECHNIQUES SUCH AS TRAWLING



Part of the destructive boats could be converted to other gears and the jobs would go to other sectors.



3 MORE MARINE RESERVES



To recover fish stocks, generate nearly 12,000 jobs and obtain € 1.260 billion in profits.

4 SUSTAINABLE DEEP SEA FISHING



More than 500 new jobs. Catch certification and greater corporate transparency.



5

LIMITS TO AQUACULTURE

Limiting aquaculture, which depends on wild fish and damages the oceans.



6

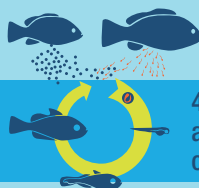
MORE INFORMATION TO CONSUMERS



More than 100 jobs. More awareness and information on sustainable fish.

7

RESPECTING BIOLOGICAL CYCLES



400 new jobs. Greater control and investigation of the life cycles of fish.

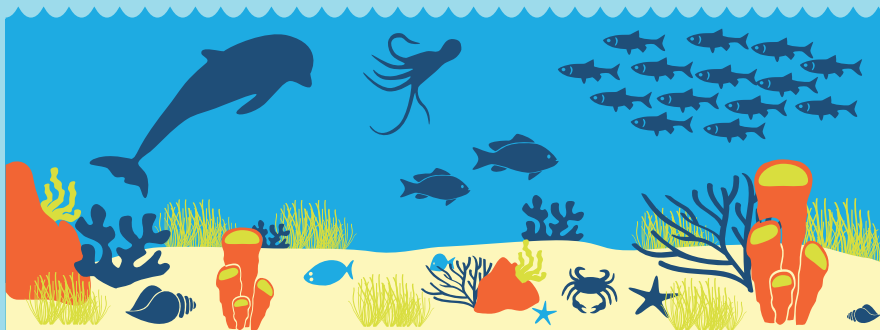
8

THE SEA IS NOT A DUMPING SITE

€ 1.375 billion profit and 32,000 new jobs. Control of discharges into the sea and better water quality.



Applying this group of measures would cost € 2.725 billion, would generate more than 60,000 new jobs and an economic benefit of € 4 billion. It would save about half a million tonnes of CO₂.



The choice is simple. We can support a fisheries model which will ensure the future of the oceans and of the coming generations whose livelihood depends on them or ruin our coastal communities. Help Greenpeace pressure European politicians to support sustainable fishing. There are no more excuses.

IMPACT BY SECTORS OF ACTIVITY

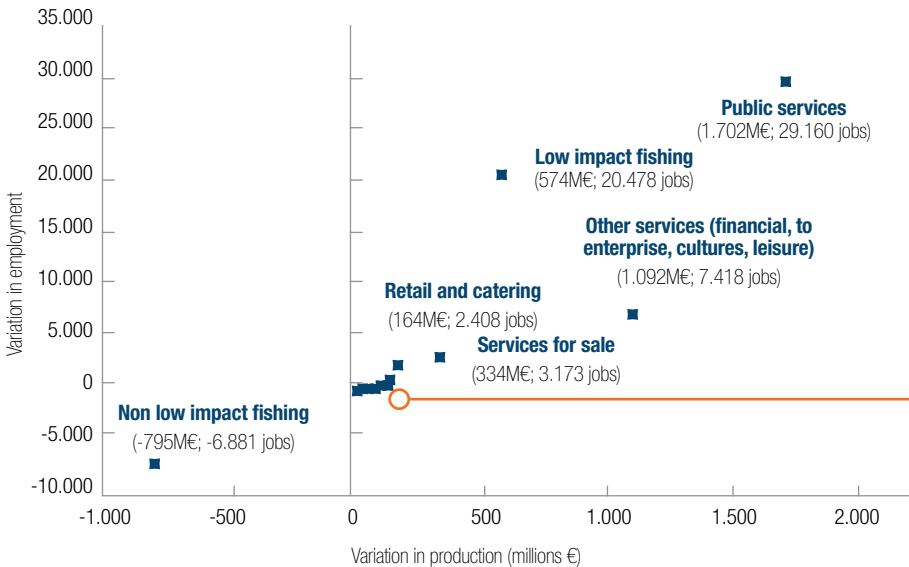
The proposed sustainable fisheries model would not only have a positive impact on the fishing industry by increasing production and creating employment, it would also have a very positive impact on the economy as a whole.

As Graph 1 shows, low impact sustainable fisheries would gain the most benefit, with an increase in production of 574 million euros and 20,478 new direct jobs. The loss of jobs generated in non-low impact fisheries due to the phase out of the most destructive techniques like trawling and purse seining with FAD (fish aggregation devices) would be broadly compensated for by the employment created in low impact fisheries.

The investments and expenditure needed to move towards a sustainable fisheries model and the new activities of training, leisure and tourism would also have a very positive impact on other sectors of the economy which would see an increase in production of around 4.187 billion euros and the creation of over 46,500 jobs.

Graph 1. Impact of a sustainable fisheries model in Spain on production and jobs. 2014-2024.

Source: Own elaboration



	Production M €	Jobs
Agriculture, livestock and forestry	12	203
Extractive	15	23
Manufacture of coke, refined petroleum products, nuclear fuels and gas	11	7
Production and distribution of electricity	64	104
Collection, purification and distribution of water	6	41
Food	24	102
Textile, leather and wood produced	42	243
Chemical industry	82	214
Building Materials	15	86
Basic metals and fabricated metal products	58	263
Used	126	433
Motor vehicles, trailers and other	80	198
Other articles	95	582
Building	134	1020
Transport and communications	129	884

The sector gaining the most benefit from this impact would be the **public sector**, closely associated with pollution control in coastal areas and the extended network of marine reserves. Other sectors to benefit would be **“other services”**, including consultancy activities, technical assistance and research; **services** for sale (education, health, sanitation, natural space management and other private sphere activities) and tourism-related services (retail and catering).

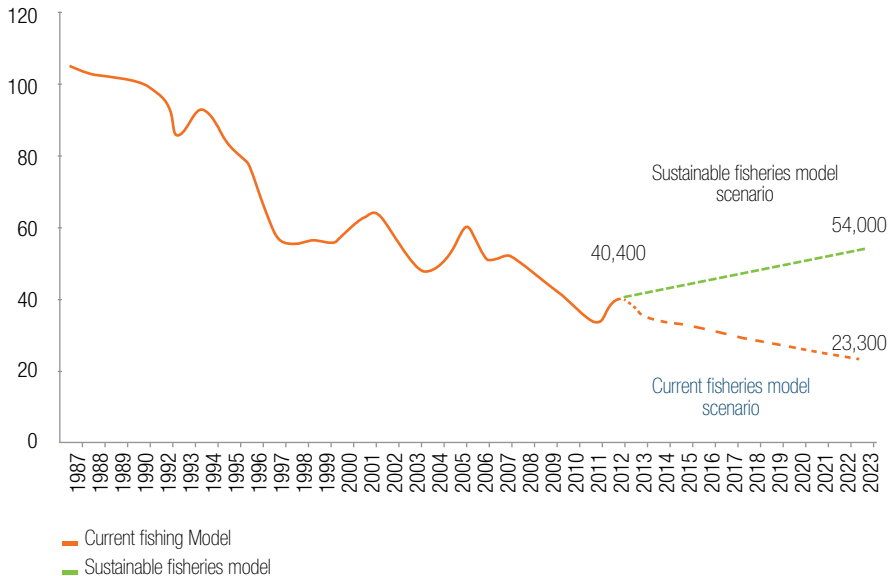
REVERSING THE JOB LOSS TREND OF THE CURRENT FISHERIES MODEL

The sustainable fisheries model would change the job loss trend of recent decades in this sector and would contribute to the stability of fishing communities.



Graph 2. Impact of a sustainable fisheries model on job creation in the fishing industry.

Source: EPA and own elaboration



The sustainable fisheries model would enable direct employment growth in the fishing industry of 28.4% between 2014 and 2024. As Graph 2 shows, this growth would be more than sufficient to change the job loss trend in the current unsustainable fisheries model. In a scenario where the current model continued by 2024, 17,100 more jobs would be lost in relation to 2012; whereas the change towards a sustainable fisheries model would enable a net creation of 13,597 more jobs in the sector²⁴ in relation to 2012.

CHARACTERISTICS OF EMPLOYMENT IN FISHING COMMUNITIES

The new jobs created in the fishing sector would improve the situation of low impact sustainable fisheries and would contribute very positively to sustainability in rural areas and to the conservation of coastal ecosystems.

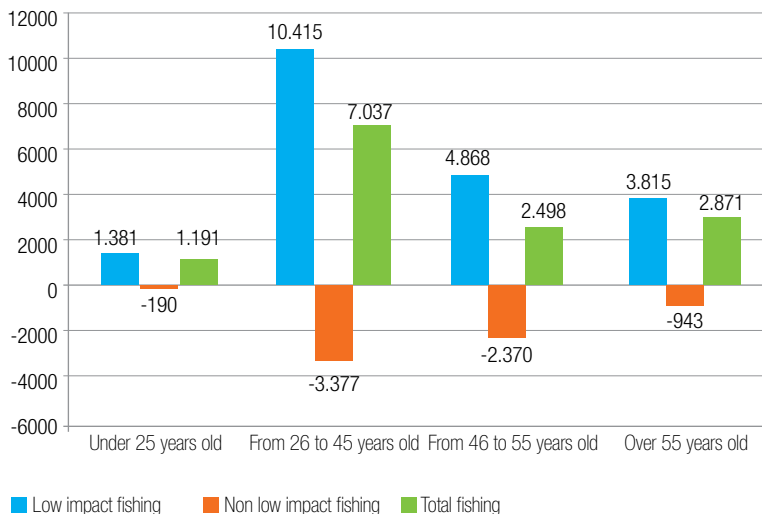
As Graphs 3 and 4 show, direct job creation in the fishing industry, especially in low impact fisheries, would enable a significant number of women to enter employment (around 4,800), young people (around 1,200) and middle-aged people (around 7,000) thereby increasing the variety of employment in the sector and establishing a permanent population in the territory. The proposed fishing model would generate around **11,615 new jobs** in the fishing industry for people resident in **rural areas**.

In addition, some of the measures contemplated, like the plan to promote fishing tourism or training and leisure activities linked to the marine reserves, would help to diversify local economies, especially in rural fishing areas, and would create jobs in activities other than fishing (around 19,400) and for medium to high educational profiles.

Job creation in the fishing industry and in leisure and sustainable tourism will provide more employment opportunities for young people and women and will contribute to the social sustainability of coastal areas linked to fishing activity.

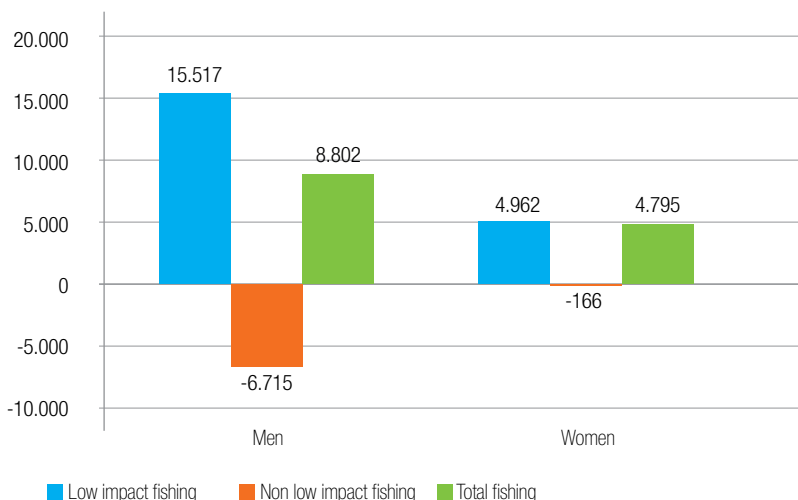
Graph 3. Impact of a sustainable fisheries model. Jobs generated and lost by age groups. Number of people.

Source: Own elaboration



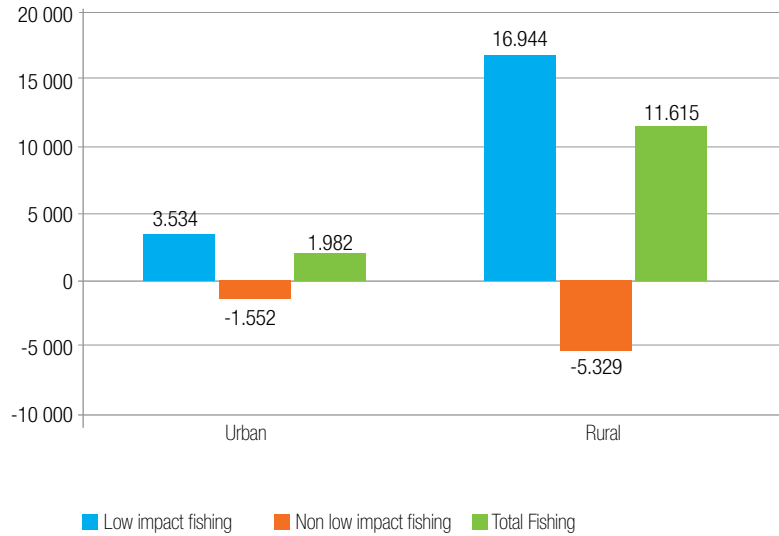
Graph 4. Impact of a sustainable fisheries model. Creation and destruction of jobs in fishing by sex. Number of people.

Source: Own elaboration



Graph 5. Impact of a sustainable fisheries model. Creation and destruction of jobs by resident area. Number of people.

Source: Own elaboration



TYPE OF JOBS CREATED IN THE ECONOMY AS A WHOLE

The proposed actions will also affect many other sectors of the economy that demand heterogeneous jobs.

The characteristics of employment created in other sectors vary in relation to the employment created in fisheries. For example, it is very balanced by sex as 47.3% of the new jobs (28,438) will be occupied by women. 40.4% of those jobs would employ people with primary or obligatory secondary education and another 32.9% would be for people with university studies. The focus would be mainly on the intermediate age range between the ages of 26 and 45. As regards to the workers' area of residence, 51.5% (almost 31,000 people) would live in rural areas and 48.5% of the new workers would live in urban areas.



Table 2. Employment impact of a sustainable fisheries model. 2014-2024.

Source: Own elaboration

	Number of workers	%
Total	60.162	100
By gender		
Men	31.724	52,7
Women	28.438	47,3
By level of studies		
Level 1: Compulsory education	24.305	40,4
Level 2: Vocational education	8.670	14,4
Level 3: Secondary school	7.415	12,3
Level 4: University studies	19.772	32,9
By age		
Under 25 years old	4.714	7,84
From 26 to 45 years old	33.356	55,44
From 46 to 55 years old	14.130	23,49
Over 55 years old	7.962	13,23
By resident area		
Urban	29.191	48,52
Rural	30.971	51,48

CONCLUSIONS

- **A sustainable fisheries model that implements the proposed actions would have very positive results for the economy, society and the environment, increasing production by almost 4 billion euros and creating more than 60,100 net jobs.**

- The cost of moving towards a sustainable model is relatively small, 2.725 billion euros for the entire decade from 2014 to 2024. .

- Moving towards a sustainable fisheries model would reverse the historical trend of ongoing job losses in the fishing sector with the current model and deliver 28.4% growth in employment in the sector between 2014 and 2024.

- In the fishing industry, low impact sustainable fisheries, with production increasing by 574 million euros and 20,478 new jobs, would benefit the most from the transition to a sustainable fisheries model.

- The impact on other sectors of the economy would also be very positive, with an increase in sectoral production of around 4.187 billion euros and 46,500 new jobs.



- The transition towards a sustainable fisheries model would reduce the vulnerability of low impact sustainable fisheries and the fishing communities that make their living from them, by bringing more jobs to the sector, more jobs in other activities linked to leisure and tourism services and more employment opportunities for young people, women and medium and highly-skilled individuals.



GREENPEACE RECOMMENDATIONS

Because of the environmental, economic and social benefits of this model, Greenpeace recommends that the appropriate legislative action for the 8 lines of action described above are implemented between 2014 and 2024.

The set of proposed actions must be executed by the central and regional authorities because they involve competences in internal and external waters. Some of these actions must also be executed by the fishing companies themselves.

Therefore in the next ten years, fisheries management policies must include the following aspects to achieve a 100% sustainable fisheries model that enables stocks to recover thereby ensuring a future for the people that depend on them.

- **Evaluating and recovering fish stocks;** to analyse the status of fish stocks in relation to fishing pressure in order to establish measures and/or quotas for their recovery and to achieve a biomass above the Maximum Sustainable Biomass Yield for 2020 as reflected in the new Common Fisheries Policy (CFP) regulation.
- **Evaluating the fishing fleet.** To examine the fishing fleet capacity annually, in relation to the status of fishing resources and to compare that data with the established catch limits. Furthermore, this data needs to be brought in line with the objectives of recovering and keeping fish populations above sustainable levels, in accordance with the new CFP regulation.
- **Reducing excess fishing capacity.** Phasing out the most harmful fishing fleet (which is also the cause of overcapacity) from national and international waters in accordance with the new CFP regulation. Establishing detailed strategies to reduce fishing capacity with criteria and deadlines which prioritise scrapping the most destructive ships for marine ecosystems and populations.

- **Reconversion towards sustainability.** Reverting the most harmful techniques to sustainable techniques provided the above two points are fulfilled.

- **Establishing fair fishing quotas in accordance with scientific recommendations,** by establishing public criteria that promote access to fishing resources to those who fish sustainably and create more jobs.

- **Increasing transparency** in data collection and the assessment of stocks and overcapacity in national, international and third countries' waters. Publishing and making accessible information on subsidies and quotas creating a database of ships flying the Spanish flag or that belong to a Spanish company.

- **Promoting subsidies for sustainable fishing and science.** Subsidies should be directed at promoting studies and assessments of the marine environment and fish stocks to improve the selectivity of fishing techniques, to make the boats more energy efficient and to promote quality labels.

- **Fair fisheries agreements.** European Union fisheries agreements and international commitments must be the result of a transparent decision-making process. They must be ecologically, economically and socially fair and must include all the actors involved in order to promote sustainable fishing.

- **Fight illegal fishing.** By improving control of the origin of fish, control of fishing agreements with third parties and bilateral agreements, landings at ports etc... generating a public database of sanctions on vessels and/or companies in order to improve traceability.

- **Penalising unsustainable fishing;** by removing subsidies from shipowners, companies or self-governing regions that encourage unsustainable or illegal fishing.

- **Improving marine reserves;** by increasing investment to create and manage marine reserves. To increase investment in science to study and control these areas and to promote and maintain increased surveillance of existing and newly created marine reserves.

- **Improving consumer information;** by applying European regulations on labelling and improving information at point of sale to promote consumer choice.

With these measures, Spain could be an example to follow in the way it moves towards fair, low impact sustainable fishing practices with preferential access for fishermen who use sustainable techniques and guarantee the future of fisheries.



GLOSSARY

Aquaculture:

Aquaculture is the cultivation and farming of aquatic plants and animals. Total aquaculture production has increased massively, with negative effects on people and the environment due to the use of chemicals, escapes of individuals, and occupation of coastal areas.

Biological optimums:

Maximum potential levels of stock biomass reproduction.

Deep-sea fishing:

In deep-sea fishing, vessels stay on the high seas for weeks or several months. It takes place in the area outside 60 miles from the coast up to parallels 60° N and 35° S and meridians 52° E and 20° W. It is done with large vessels that sometimes not only catch the fish but also refrigerate or freeze it.

Deep sea trawling:

Arte de pesca que consiste en rodear con una red un banco de peces. Luego la red se cierra por debajo y queda convertida en una “bolsa” que atrapa a los peces y permite su captura. Para algunas prácticas pesqueras, como la pesca de atún tropical, a este arte se le añaden Dispositivos de Agregación de Peces (FAD).

Discards:

Fish or other marine animals that are captured but not the target of the fishing, thrown dead or dying back into the sea. The percentage of discards depends on how selective the fishing method is.

Distant-water fishing:

Fishing without limitation of seas or distances from the coast outside the area included under deep-sea fishing. In the case of distant-water fishing, the vessels travel to far-off fishing grounds supported by supply vessels that enable them to spend long periods without going to port. The fish can be processed and frozen in the same ships.

Fish aggregation devices (fad):

FADs are used, for example, in tuna fishing with seine nets and they are a non-selective fishing method. They are objects which can sometimes be just floating logs or buoys with localisation systems. Tuna and other marine animals naturally gather around these floating objects and can therefore be captured more easily..

Fisheries:

Fisheries can be defined as the set of fishermen who catch a specific stock of a species (for example, the North Sea Cod fisheries) or more precisely, in relation to the species, the stock, the fishing method used and even the specific fleet of a country (for example, Norwegian North Sea trammel-net cod fisheries).

Fishing effort:

It represents the number of specific types of fishing techniques used in fishing grounds in a given unit of time, for example the number of trawl hours, the number of hooks thrown or the number of times a net is gathered in per day.

Illegal fishing:

Illegal, unreported and unregulated fishing does not comply with the regulations established for a fishery. Some practices include operating without a licence, not reporting the catch or doing so inaccurately, not respecting conservation and management regulations for the area where the fishing takes place. Illegal fishing exacerbates the impact of overfishing on our oceans.

Inshore fishing:

Inshore fishing takes place around the coast within 60 miles from the shore. The boats go out daily and return at night. The fish offloaded at the port is fresh or caught that day.

Low impact fishing:

Low impact fishing refers to fishing that is socially and environmentally sustainable. It generates employment and wealth in coastal communities and also respects and cares for the marine and coastal environment. It uses passive fishing techniques and so has minimum impact on the marine environment and is also highly selective, resulting in minimum discards (between 5 and 8%).

Marine reserve:

Marine reserves are similar to national parks on land; they are closed to fishing and other industrial extractive activities. They are essential for the recovery and long term maintenance of marine ecosystems and benefit nearby fishing communities.

Maximum sustainable biomass yield:

As with MSY, the maximum sustainable biomass yield is a reference parameter for fisheries management. It refers to the biomass (weight) of a fish population that provides the optimum level of captures.

Maximum sustainable yield:

The maximum sustainable yield (MSY) is the optimum catch that can be extracted from a fish population year after year without endangering its future regeneration capacity.

Overcapacity:

Overcapacity is defined when the fishing capacity of the set of boats in a fishery is larger than needed to obtain the permitted captures of fish or to achieve management objectives.

Purse seine nets:

A fishing technique that consists in surrounding a shoal of fish with a net. The net then closes underneath and becomes a «bag» that traps the fish so they can be captured. Some fishing practices like tropical tuna fishing also add Fish Aggregation Devices (FAD).

Small-scale fishing:

The small-scale fishing fleet is part of the inshore fishing fleet. It returns to port everyday, uses gillnets, lines and hooks and traps (baskets). The vessels used for small-scale fishing are small (less than 15 metres long), with low engine power and registered tonnage. They are family-owned and the owner is usually on board.



REFERENCES

- 1 Greenpeace, May 2013 *Onboard employment: Analysis of employment in the Spanish fishing industry and its socio-economic impact*
- 2 This breakdown is based on the only input-output tables on fishing published in Spain, the Táboas Input Output Pesca-Conserva Galega 1999 (García Negro, 2003), which offer a comprehensive overview of the exchanges of goods and services between different sectors.
- 3 For further details on the economic effect of each line of action, see the full report. Greenpeace, March 2014. *Onboard employment: Socio-economic impact of a sustainable fisheries model*.
- 4 Consejo Económico y Social, 2013. *La reforma de la Política Pesquera Común*.
- 5 This data does not include shellfish collecting on foot or by boat.
- 6 Greenpeace, May 2013. *Onboard employment: Analysis of employment in the Spanish fishing industry and its socio-economic impact*.
- 7 Demand shared by a significant number of European Federations and Associations of low impact artisanal fishermen. With this measure it is estimated that captures will increase 100% in the 10 year period in question.
- 8 Potential strategic areas: business and entrepreneurial development, cultural tourism, human resources development, environmental tourism, promotion and diffusion. Some of these areas coincide with the ones identified in the presentation of the results of the SAGITAL project (http://www.magrama.gob.es/es/pesca/temas/red-espanola-de-mujeres-en-el-sector-pesquero/Ponencias_Jornada_Clausura_Sagital_tcm7-7311.pdf) and with expert opinion.
- 9 Consejo Económico y Social, 2013. *La reforma de la Política Pesquera Común*.
- 10 <http://www.americaeconomia.com/negocios-industrias/ecuador-prohibe-la-pesca-de-arrastrero>
- 11 <http://www.pretoma.org/es/espanol-costarica-prohibe-pesca-de-arrastrero/>
- 12 Pipitone C. (2000). Gulf of Castellammare trawl ban Sicily. In: Gell F.R. and Roberts C.M. The fishery effects of marine reserves and fishery closures. WWF-US, 12350 24th Street, NW, Washington, DC 20037, USA.
- 13 Brown B.K., Soule E. and Kaufman L. (2010). Effects of excluding bottom-disturbing mobile fishing gear on abundance and biomass of groundfishes in the Stellwagen Bank National Marine Sanctuary, USA. *Current Zoology* 56 (1): 134-143.
- 14 Bromhead D, Foster J, Attard R, Findlay J, Kalish J (2003). A review of the impacts of fish aggregating devices (FADs) on tuna fisheries. Final Report to the Fisheries Resources Research Fund. Bureau of Rural Sciences, Canberra, ACT, Australia. 122pp.
- 15 The LIFE+INDEMARES project studied 10 marine areas for inclusion in Red Natura 2000. Among other results, the project identified a total of 76 representative areas for conservation in the Spanish coastal and marine area. This set of areas represents the places that concentrate most of the marine biodiversity in Spain's seas. The proposal to create 49 new marine reserves is merely by way of orientation and the suggestion is based on the results of the above project and the current number of Marine Protected Areas (MPA) in Spain.
- 16 Level required by the United Nations Convention on Biological Diversity for 2020.
- 17 Ministerio de Agricultura, Alimentación y Medioambiente, November (2013). Fishery Statistics http://www.magrama.gob.es/es/estadistica/temas/estadisticas-pesqueras/Estadisticas_Pesqueras_2013-11_tcm7-309328.PDF
- 18 <http://www.greenpeace.org/africa/en/News/news/Senegal-cancels-fishing-licenses-for-29-foreign-trawlers-our-congratulations-to-the-Fisheries-Minister/>
- 19 http://www.fundacionoesa.es/images/stories/publicaciones/libros/acuicultura_esp2013.pdf
- 20 The necessary investments were approximated on the basis of the estimations in the section "Actuaciones para cubrir los objetivos ambientales de la Directiva Marco del Agua (DMA)" in Spain's National Water Quality Plan: Plan Nacional de Calidad de las Aguas: Saneamiento y Depuración. 2007-2015. The amount totals 2.291,6 billion euros and it is estimated that 60% of this amount is pending execution (1.374,96 billion euros).
- 21 Production, in macroeconomic terms, is the value of goods and services that a sector or an economy (in this case the Spanish economy) produces in one year.
- 22 This figure represents 71% of European Fisheries Fund money that Spain has received in the last six years (2007-2013). The annual effort of moving towards a sustainable fishing model (around 135 million euros per year) is practically the same as the amount allocated to the latest axis 1 operational programme "Measures for the adaptation of the fishing fleet" (133 million euros per year), which have basically materialised in a reduction of the number of boats, mainly artisanal fishing boats).
- 23 The net balance in terms of CO₂ emissions is the result of the difference between the new emissions from the execution of certain infrastructures and emissions savings due to reduced activity in the non-sustainable fishing.
- 24 As Graph 1 shows, jobs generated in artisanal fisheries: 20,478 and jobs lost in non-low impact fisheries 6,681 give a net job creation in the sector of 13,597 jobs.

This summary has been elaborated by Alicia Cantero, Celia Ojeda, Elvira Jiménez and Marta González from the report “Empleo a bordo: Impacto socioeconómico de un modelo pesquero sostenible” for Greenpeace conducted by Abay Analistas Económicos y Sociales.

Design and Layout : Rebeca Porras

Editor : Conrado García

GREENPEACE

Photos :

Cover: © Greenpeace/ Lorenzo Moscia
page 2 y 4 : © Greenpeace/ Pedro Armestre
page 3 y 19 : © Greenpeace/ Marta Ramoneda
page 5 : © Greenpeace / S. Psarou
page 6 : © Markel Redondo / Greenpeace
page 11 : © Greenpeace
page 12, 17 : © Greenpeace/ Pedro Armestre
page 20, 21, 22, 26 : © Greenpeace/ Pedro Armestre
page 24 : © Greenpeace/ Matías Costa

Infographics :

page © Cristina Jardón

Greenpeace
San Bernardo 107 1ª planta
28015 Madrid