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Race for the last bluefin

Capacity of the purse seine fleet targeting bluefin tuna in the Mediterranean Sea and estimated capacity reduction needs

Report published by WWF Mediterranean, March 2008

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This WWF-commissioned report, researched and compiled by independent consultancy ATRT, is the first ever real estimate of the actual catch capability of the Mediterranean purse seine fleet targeting bluefin tuna. The results are disturbing, and make a compelling case for urgent reduction in the capacity of these industrial vessels – while there are still tuna to be saved in the Mediterranean Sea.

The Atlantic bluefin tuna (BFT) fishery has been exposed to rampant overfishing inside the entire ICCAT[1] Convention Zone, namely the Atlantic Ocean and the Mediterranean Sea, particularly during the past decade (1996 to 2007). This has resulted, *inter alia*, from poorly managed Total Allowable Catches (TAC) by ICCAT (with systematic upward adjustment of quotas based on false claims of undercatches); intentional under-reporting of BFT catches by ICCAT Contracting Parties; and an uncontrolled increase in fishing capacity. Overfishing of the largest scale, however, has occurred inside the Mediterranean Sea, and this has been almost completely attributable to the activity of purse seine fishing fleets, fuelled by the ever-increasing demand for live fish for fattening in Mediterranean tuna farms[2].

Purse-seiners in the Mediterranean Sea accounted for 50 per cent of all the BFT catches within the entire ICCAT Convention Zone during the period of 1996-2006, a figure which rose to almost 60 per cent when considering 2005 and 2006 catches alone. This huge proportion of catches has been a result of an ever-expanding fleet size, as well as an immense increase in fleet efficiency. With the BFT fishery nearing commercial collapse, it thus became an urgent necessity to estimate in detail the fishing capacity of operative purse seine fleets targeting BFT inside the Mediterranean Sea. This report aims at filling the current gap in the quantification of real at-sea capacity of BFT purse seine fleets, thus providing a much-needed baseline for the ongoing management processes targeting the reduction of fishing pressure on the East Atlantic and Mediterranean bluefin tuna stock. The latter include the mid-term review of the 2006 ICCAT management plan scheduled for November 2008, the EU requirement of its Member States to establish annual fishing plans for the BFT fishery aligning fishing capacity to national quotas, and the use of the European Fishing Fund (EFF) established at national level to reduce capacity in certain fleets.

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[1] ICCAT – International Commission for the Conservation of Atlantic Tunas – (www.iccat.int) is the Regional Fisheries Management Organisation (RFMO) which regulates this particular bluefin tuna fishery.

[2] Tuna farms involve the enclosure in floating pens or cages of live wild-caught tuna captured by industrial purse seine fleets, which are kept for six months or so for fattening, before being sold for high prices to the Japanese market.

WWF's exhaustive new report, *Race for the last bluefin* – the first of its kind, based on database searches, shipyard censuses and importantly, supported by evidence from photographic documentation of vessels – reveals that the current operational purse seine fishing fleet targeting BFT in the Mediterranean Sea consists of 617 ICCAT registered and non-registered vessels from the 11 coastal states of Algeria, Croatia, France, Greece, Italy, Libya, Malta, Morocco, Spain, Tunisia and Turkey.

This fleet alone has a calculated yearly catch potential of 54,783 metric tonnes (Mt). This figure is almost double the annual total TAC set by ICCAT (28,500 Mt in 2008), and more than three and a half times the catch levels advised by scientists to avoid stock collapse (15,000 Mt), and does not yet take into account the catch potential of the rest of the BFT fleet (i.e. longliners, traps, bait boats, pelagic trawlers, hand line boats, etc.).

The report also discloses that fleet overcapacity in terms of number of vessels, as well as in terms of gross registered tonnage and total installed engine power, is by far greatest in Turkey, followed by Italy, Croatia and Libya. However, greatest total annual catch potential in metric tonnes is held by Turkey, France, Italy, Croatia and Libya. Besides, the report contains a detailed analysis of minimum catches required to cover costs and generate minimum revenues (point of economic break-even), focusing on the new BFT purse seine units made operational during 1997-2007. The economic analyses point to a strong overcapitalisation of the fleet, especially in Turkey, Libya, Croatia and Italy, with minimum economically profitable BFT catches largely surpassing the total TAC for the stock.

Based on these findings, WWF has conservatively estimated the minimum reduction in capacity of medium and large purse seiners (those greater than 28.6 metres in length) targeting BFT needed to match both the current unsustainable quotas set by ICCAT, and the maximum catch levels recommended by ICCAT scientists to avoid collapse of the stock (sustainable catches). Our analyses show that to merely comply with the legal quotas Libya should eliminate from the fishery 22 vessels (58 per cent capacity reduction), Italy 17 vessels (36 per cent capacity reduction) and France a total 15 vessels (45 per cent capacity reduction). To match sustainable catch levels and saving the stock, fleet reduction should be far more drastic: decommissioning as many as 31 large purse seiners in Italy (67 per cent capacity reduction), 30 vessels in Libya (78 per cent capacity reduction) and 23 vessels in France (72 per cent capacity reduction). Turkey is a case apart, with an estimate need of capacity reduction ranging between 94-97 per cent, equivalent to 168-173 large seiners[3]. Fleet reduction needs have also been quantified for Algeria, Croatia, Spain and Tunisia. Minimum total fleet reduction in the Mediterranean (excluding Turkey) estimated to avoid collapse of the BFT stock amounts to 110 medium and large purse seine vessels.

[3] Unlike the other Mediterranean large purse seine fleets, BFT may not be the only target species of the Turkish fleet. If so, our figures on overcapacity may be somewhat overestimated.

Key findings of WWF report

The Mediterranean Sea purse seine fleet targeting bluefin tuna is clearly a case of dramatic overcapacity, having an estimated total catch potential double the yearly TAC set by ICCAT for all gears targeting the species.

WWF's report *Race for the last bluefin* reveals:

1) Complete failure of ICCAT quota system

ICCAT's quota system has been highly dysfunctional for the BFT fishery for three main reasons:

- Quotas have never been matched to scientific advice;
- Quotas have been perversely adjusted for nations that claimed to have underfished their quotas in previous years, despite widely acknowledged illegal fishing and under-reporting of catches by some of these nations. Between 1996 and 2006, the increase in nominal fishing possibilities due to this adjustment of quotas has amounted to 39,366 Mt; and
- There has been significant non-compliance to quotas by most nations (irrespective of official reports to ICCAT).

2) Major increase in BFT purse seine fleet size and efficiency in past decade

A total of 229 new purse seine vessels were commissioned in the Mediterranean Sea during the period 1997 to 2008, including 25 vessels still under construction in shipyards in Turkey, Croatia, Spain, Italy and Tunisia. These new units account for a striking 37 per cent of the current estimated fleet.

Operators of active BFT purse seine fishing vessels have also dramatically increased their capture efficiency in the past decade, by increasing the installed power of main engines and purse seine net lifting cranes, extending vessel length, increasing purse seine net efficiency, installing more efficient main seine winches and more powerful seine skiffs, and using tuna-spotting aircrafts and sonar detection to locate schools of BFT. Indeed, purse seine fleets have been given an increased motive to fish efficiently since 1997, due to the introduction and expansion of tuna farms, which have a current capacity amounting to some 59,842 Mt.

3) Fleet capacity greatest in Turkey, Italy, Croatia, Libya

Forty per cent of the 614 BFT purse seine vessels operating in 2008 in the Mediterranean Sea are Turkish-flagged, while 17 per cent are Italian-, 14 per cent are Croatian-, and 9 per cent are Libyan-flagged. These four countries thus make up 80 per cent of the total Mediterranean BFT purse seine fleet, in terms of number of vessels, as well as in terms of gross registered tonnage and total installed power of main engines. Not surprisingly, the greatest numbers of large purse seine vessels (greater than 38.5 metres in length) are registered to Turkey (88) and Italy (25).

4) Italy the worst culprit for overcapacity in the EU

Among the European Union's Mediterranean fishing nations, Italy is by far the worst culprit for BFT purse seine fleet overcapacity. Since 1997, Italy has commissioned 27[4] new vessels to its fleet of BFT purse seiners, bringing the total to 102 vessels, a fleet size second only to Turkey. Italy alone has thus been estimated to hold 14 per cent of the total potential catch of the

[4] EU funds from the former FIFG (Financial Instrument for Fisheries Guidance) structural programme might be still used to fund the ongoing works on BFT purse seine construction in Italian shipyards.

Mediterranean BFT purse seine fleet, some 7,538 Mt. This figure is exactly twice the quota allocated by the Italian Government to its national purse seine fleet for 2007.

Despite the large expansion of its purse seine fleet since 1997, Italy declared its largest catch of BFT in 1997 (7,068 Mt), a fact which would uncover that Italy – like France and Spain – may have been under-reporting its catches and overfishing its annual BFT quotas in the past decade. An independent study on four Italian purse seine vessels found that each vessel fished more than three times their individually allocated BFT quotas in 2001, and this only during the summer fishing season.

5) Significant under-reporting by Spain of BFT purse seine fleet catches

The huge catch capacity of the new generation Mediterranean purse seiners targeting BFT is best exemplified by the Spanish case. According to different sources, ranging from public information provided by the fishing industry to internal reports by the Spanish fishing administration and annual economic balances of the six vessels, recent catches are in the order of 3,500-4,000 Mt per year, up to 100 per cent in excess of official reports.

6) Heavy fleet overcapacity and significant under-reporting of catches by Croatia

Estimated catch capacity of the Croatian BFT purse seine fleet amounts to 5,157 Mt, more than seven times the total adjusted ICCAT quota for this country for 2008. This situation is exacerbated by the current construction of two new very large bluefin tuna purse seiners uncovered by the report (Neptune I and II, Tehnomon Pula shipyard).

Indeed, analysis of data on export figures from Croatian farms, cross-checking official Croatian and Japanese sources, suggest that since 2003 Croatian farms have been carrying out conventional tuna farming, with no significant carry-over of fish from past years[5]. This fact is fully supported by photographic evidence of Croatian-flagged purse seiners operating in central Mediterranean waters around Malta in 2007. The same analysis suggests that as from 2003 real BFT catches by the Croatian fleet should necessarily be much higher than the reported ones (up to 4,793 Mt in 2006) in order to support production by the Croatian tuna farms.

7) Libya and Algeria have developed major fleet overcapacity in record time

The first BFT purse seiner became operational in Libya in 2002, thanks to the reflagging of a former French tuna purse seiner. From 2003, Libya then started a drastic plan to build a national BFT purse seine fleet, mainly by reflagging tuna seiners from other Mediterranean countries. The current (2008) fleet is composed of 39 purse seiners, including vessels transferred from France (12 units), Tunisia (9 units), Italy (6 units) and Turkey (3 units), as well as refitted units reflagged from Panama (1), Isle of Man (1) and the Netherlands (1). The unrealistic decrease of catch rates in recent times based on reported catches, in parallel with the strong development of the industrial fleet uncovers the likely underreporting of real catches by the Libyan BFT fleet. Estimated combined catch capacity by the 39 purse seiners amounts to 4,251 Mt per year, worth three times the total quota for Libya for 2008.

Similarly to Libya, Algeria started a fisheries development plan in 2005, involving the development of a new BFT purse seine fleet (starting from no purse seine fishing capacity for BFT whatsoever). A total of 14 Algerian flagged purse seiners will be operational in 2008, built in Spain and Turkey, with French technical assistance. Estimated capacity of this new fleet amounts to some 1,740 Mt per year, much higher than the total quota (1,460 Mt, to be shared with other fleets targeting BFT, such as longliners).

[5] Croatia has always reported its tuna farming as an exception in the Mediterranean context, since it would involve the farming of juveniles caught in the Adriatic Sea, which would be farmed for periods over a few years (instead of a few months as applies to all other farms in the Mediterranean).

8) Turkey has massive fleet overcapacity, eased only by potential of purse seine fleet to target different species

Turkey's massive fleet of 240 purse seine vessels consists of 88 large, 90 medium and 62 multispecies vessels, 71 of these having been commissioned since 1997. This fleet corresponds to a calculated catch potential for BFT of 19,198 Mt, or an enormous 35 per cent of the total BFT catch capacity of the Mediterranean purse seine fleet. Unsurprisingly, the current report has found Turkey's BFT purse seine fleet the most inefficient and least economically profitable of all the Mediterranean BFT purse seine fleets. It appears, however, that Turkey's purse seine vessels are versatile in their target species (with large reported catches of bonito in recent years), and are geographically flexible (with known operations in the Black, Marmara and Aegean Seas), which may ease at least some of the expected pressure of its enormous fleet on BFT stocks.

9) Mediterranean BFT purse seine fleet seriously overcapitalised and economically bound to overfish

Annual bluefin tuna catches corresponding to a break-even situation (minimum catches necessary to cover fixed and variable expenses and to make a minimum net economic profit) only for fully operational Mediterranean purse seiners built in the last decade (a total 197 units) would amount to some 41,631 Mt. This figure alone is 1.3 times the total adjusted quota for the East Atlantic and Mediterranean stock for 2007.

Under the hypothesis of exclusive reliance on bluefin tuna, overcapitalisation becomes particularly extreme for Turkey, Libya, Croatia and Italy. For these countries, the estimated break even catch for the new purse seine vessels alone already exceeds the respective total annual quotas (an appalling 17 times the national ICCAT quota in Turkey, 4 times the national quotas in Croatia and Libya, and 1.25 times the quota in Italy, thus giving major incentive to these countries to overfish their quotas).

10) Very large reduction in purse seine fleet capacity necessary to comply with current ICCAT TAC and to match catch levels scientifically advised to prevent stock collapse

With the disclosure of invaluable, never-before estimated information on the real at-sea purse seine fleet sizes and capacities of Mediterranean countries targeting BFT, WWF has been able to calculate the estimated purse seine fleet reduction necessary to match ICCAT's 2008 TAC (28,500 Mt) and the maximum catch levels advised by scientists (SCRS of ICCAT) to prevent stock collapse (15,000 Mt), for the Mediterranean and eastern Atlantic bluefin tuna fishery.

WWF's highly conservative approach excludes multispecies purse seiners (ranging from 20 metres to 28,6 metres in length) from the calculation of purse seine fleet overcapacity, by assuming they can entirely rely on other species, thus attributing all catch possibilities of BFT to the more specialized medium and large purse seiners.

These results are indeed alarming. To merely match ICCAT's 2008 TAC, WWF found that a 58 per cent reduction in catch capacity of medium and large vessels is necessary, corresponding to 229 vessels, and ranging from 2 vessels in Algeria and Spain to 168 in Turkey. To match the catch levels recommended by scientists, a 78 per cent reduction in the capacity of medium and large purse seine fleets is necessary, corresponding to 283 vessels, and ranging from 4 vessels in Spain to 173 in Turkey. The detailed results per fishing country are shown in Tables 1 and 2 below.

TABLE 1 - ESTIMATED CAPACITY REDUCTIONS IN MEDIUM AND LARGE BLUEFIN TUNA PS FLEETS NECESSARY TO MATCH ICCAT 2008 QUOTAS
Under the conservative assumption that multispecies PS vessels would fully rely on other species

Contracting Party	2008 Adjusted Quotas (Mt)	Proportion of quota caught by PS fleet in 2006 [1]	Estimated PS share of quota in 2008 (Mt)	No. of M & L PS vessels [2]	Catch capacity of M & L PS vessels (Mt)	% of capacity reduction required to match PS share of ICCAT 2008 quota	Reduction in number of vessels required to match PS share of ICCAT 2008 quota
Algeria	1,460.04	0.819	1,195.77	8	1,500	20.28	2
Croatia	833.08	1.000	833.08	19	1,153	27.73	5
France	5,306.73	0.855	4,537.25	32	8,360	45.73	15
Italy	4,188.77	0.854	3,577.21	46	5,645	36.63	17
Lybia	1,381.99	0.856	1,182.98	38	2,834	58.26	22
Spain	5,378.76	0.426	2,291.35	6	3,498	34.50	2
Tunisia	2,364.48	0.999	2,362.12	14	2,134	-10.69	-1
Turkey	887.19	1.000	887.19	178	15,189	94.16	168
TOTAL				**341**			**229**
TOTAL NECESSARY REDUCTION IN CAPACITY						**58.2%**	
NECESSARY REDUCTION IN CAPACITY EXCLUDING TURKEY						**36.4%**	

PS = purse seine, Mt = metric tonnes, ICCAT = International Commission for the Conservation of Atlantic Tunas, M = medium, L = large

[1] Proportion of quota caught by Tunisian PS fleet is from 2005 data, as 2006 data is unavailable

[2] Any vessel larger than 28.6 m

Note: Capacity reduction figures are particularly underestimated for Tunisia, due to the high weight of the multispecies PS fleet in the national BFT catch. Conversely, Turkish figures might be overestimated in the event that the national medium and large PS fleet is not fully specialised in BFT fishing.

TABLE 2 - ESTIMATED CAPACITY REDUCTIONS IN MEDIUM AND LARGE BLUEFIN TUNA PS FLEETS NECESSARY TO MATCH SCIENTIFICALLY ADVISED CATCH LEVELS

Under the conservative assumption that multispecies PS vessels would fully rely on other species

Contracting Party	Adjusted PS share of quotas to match scientifically advised catch levels [1]	No. of M & L PS vessels [2]	Catch capacity of M & L PS vessels	% of capacity reduction required to match PS share of scientifically advised catch levels	Reduction in number of vessels required to match PS share of scientifcally advised catch levels
Algeria	617.02	8	1,500	58.87	5
Croatia	429.87	19	1,153	62.71	12
France	2341.22	32	8,360	71.99	23
Italy	1,845.84	46	5,645	67.30	31
Lybia	610.42	38	2,834	78.46	30
Spain	1,182.34	6	3,498	66.20	4
Tunisia	1,218.85	14	2,134	42.88	6
Turkey	457.79	178	15,189	96.99	173
TOTAL		**341**			**283**
TOTAL NECESSARY REDUCTION IN CAPACITY				**78.4%**	
NECESSARY REDUCTION IN CAPACITY EXCLUDING TURKEY				**67.2%**	

PS = purse seine, Mt = metric tonnes, ICCAT = International Commission for the Conservation of Atlantic Tunas, M = medium, L = large

[1] Total ICCAT Adjusted Quota 2008 = 29,082.26 Mt
Total quota recommended by scientists for 2008 = 15,000 Mt
Therefore, nescessary proportion of quota reduction = 15,000/29,082.26 = 0.52

[2] Any vessel larger than 28.6 m

Note: Capacity reduction figures are particularly underestimated for Tunisia, due to the high weight of the multispecies PS fleet in the national BFT catch. Conversely, Turkish figures might be overestimated in the event that the national medium and large PS fleet is not fully specialised in BFT fishing.

WWF conclusions

This report sets the most reliable baseline ever made available (based on real fishing capacity at sea) for the necessary reduction of capacity in the purse seine fleets targeting bluefin tuna in the Mediterranean, and is a contribution to the ongoing policy discussions that should lead to the urgent adoption in 2008 of a set of bold and scientifically grounded management measures to secure recovery of the East Atlantic and Mediterranean BFT stock.

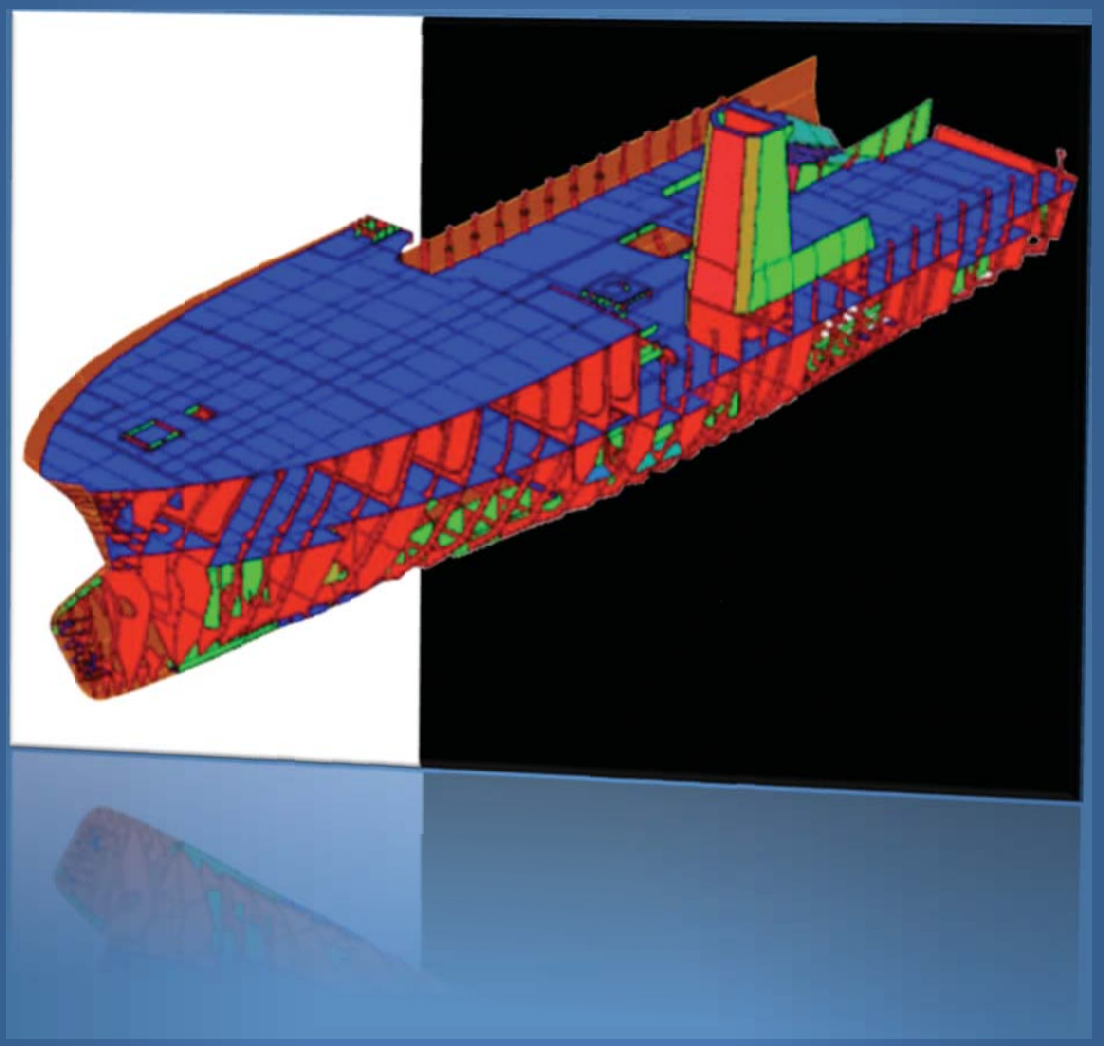
As stated before, the study focuses on the most important fishing fleet currently targeting BFT: the purse seine fleet. WWF is aware that similar conclusions on the need to reduce huge fleet overcapacity would have likely been reached should this study have been extended to industrial pelagic longlining. Indeed, the need for huge cuts in capacity in the purse seine fleet uncovered by this report does not preclude the need to limit capacity in Asian and local medium- and large-scale longline fleets as well (like the Libyan oceanic fleet) targeting bluefin tuna in the Mediterranean and the North Atlantic.

This said, WWF's current report confirms that current priorities for saving BFT from its commercial and ecological extinction are twofold: 1) adopting a real recovery plan including management conservation measures aligned with scientific advice and 2) drastically reducing the capacity of the fleets targeting this species, particularly the huge purse seine fleet.

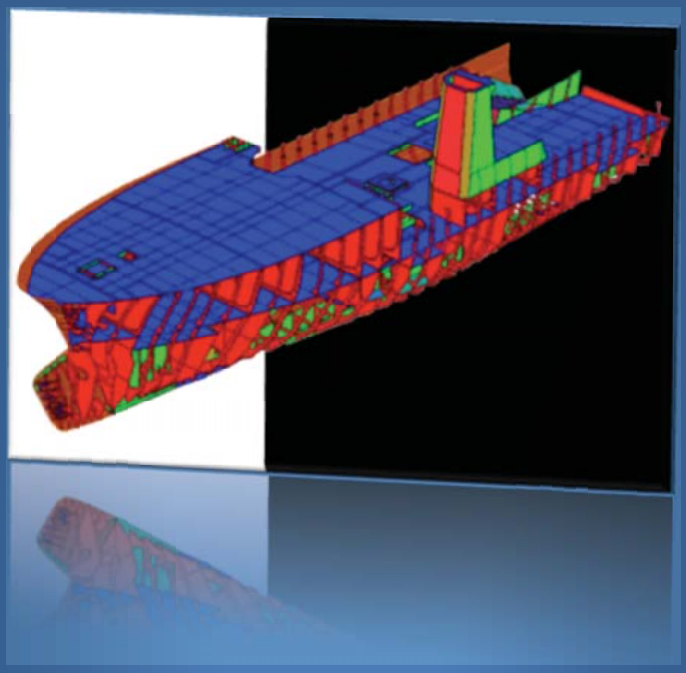
Until the above measures are adopted and conditions for their full implementation are strictly secured, WWF calls on ICCAT Contracting Parties to adopt a moratorium on the fishery, and on citizens, retailers, chefs ad restaurateurs to boycott any trade and consumption of this species[6].

For further information, see: www.panda.org/tuna .

[6] with the sole exception of the intrinsically sustainable trap fishery



Fishing capacity of the bluefin tuna purse seine fleet inside the Mediterranean Sea



Fishing capacity of the bluefin tuna purse seine fleet inside the Mediterranean Sea

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1. Introduction

Rampant overfishing of bluefin tuna (BFT) inside the ICCAT[1] Convention Zone during the past decade (1996 to 2007) has been largely exposed and proven by widely publicised press and professional reports.

ICCAT's BFT quota-based fishery management policy since 1996, has been shambled by *quota-pumping* adjustment mechanisms (see Figures 001 & 002 and Table 001), *national paper-quota-hopping* phenomena, uncontrolled spiralling fishing capacity, unilaterally imposed national autonomous Total Allowable Catch (TAC) limitations, as well as by purported BFT catch under-reporting or non-reporting, wilfully ignored by ICCAT contracting parties' officials.

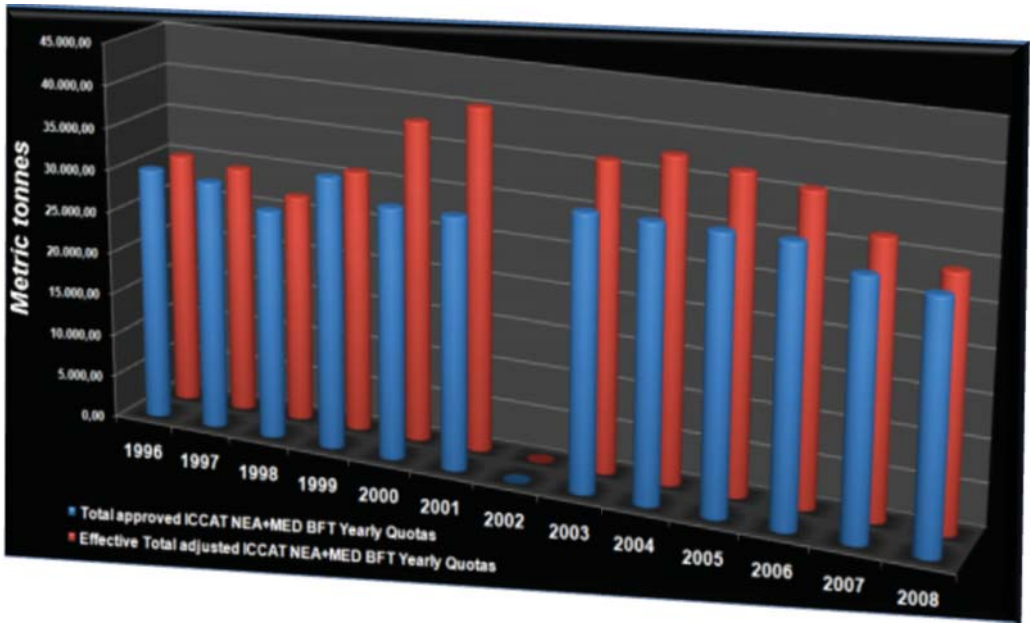

Figure 001: Total approved ICCAT NEA+MED BFT yearly quotas vs. effective total adjusted ICCAT NEA+MED BFT yearly quotas.

The difference between total approved ICCAT North Eastern Atlantic (NEA) + Mediterranean (MED) BFT yearly quotas and effective total adjusted ICCAT NEA+MED BFT yearly quotas during the period 1996-2008, amounts to 39,365.62 metric tonnes (Mt)[2].

The largest NEA+MED BFT yearly quota adjustments took place in 2001 (10,827 Mt), 2000 (8,279 Mt) and 2004 (5,633 Mt).

Furthermore, despite ICCAT's new BFT Management Plan[3] calling for a TAC reduction of 6,500 Mt between 2007 and 2010, adjusted BFT quotas for 2007 and 2008 already exceed the adopted ones by as much as 2,223 Mt in 2007 and 582 Mt in 2008.

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[1] ICCAT: The International Commission for the Conservation of Atlantic Tunas is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas. The organization was established at a Conference of Plenipotentiaries, which prepared and adopted the International Convention for the Conservation of Atlantic Tunas, signed in Rio de Janeiro, Brazil, in 1966. After a ratification process, the Convention entered formally into force March 21st 1969. Through the Convention, it is established that ICCAT is the only fisheries organization that can undertake the range of work required for the study and management of tunas and tuna-like fishes in the Atlantic. Such studies include research on biometry, ecology, and oceanography, with a principal focus on the effects of fishing on stock abundance. The Commission's work requires the collection and analysis of statistical information relative to current conditions and trends of the fishery resources in the Convention area. The Commission also undertakes work in the compilation of data for other fish species that are caught during tuna fishing ("bycatch", principally sharks) in the Convention area, and which are not investigated by another international fishery organization. France, Italy, Portugal, Spain and the United Kingdom withdrew from the Commission following the access of the European Community on November 14th 1997. However, France retains membership as of December 24th 1997 and the United Kingdom as of January 19th 1998 on behalf of their overseas territories not covered by the Treaty of Rome. Cyprus (member since March 20th 2003) and Malta (member since August 7th 2003) withdrew from the Commission following the access to the European Community on May 1st 2004.

[2] NEA+MED BFT catches reported to ICCAT for 2002 amounted to 36,704.40 Mt. No ICCAT BFT quotas for 2002 were approved.

[3] Adopted at the 15th Special Meeting of the International Commission for the Conservation of Atlantic Tuna (ICCAT) held in the Croatian city of Dubrovnik between November 17th & 26th 2006 and finally transposed into EU law (on a permanent basis) in December 17th 2007,

Purported BFT catch under-reporting and/or non-reporting by virtually all ICCAT Contracting Parties are estimated to have been in tune of as much as 25,000 Mt per year since 1996.[4] Such systematic BFT catch under-reporting by ICCAT contracting parties has been denounced by ICCAT-SCRS's latest BFT stock assessment and NGOs such as WWF in 2006 and 2007.

In this sense, the EU Luxembourg-based Court of Auditors (EU CA) recently stated that the European Union's Common Fisheries Policy (CFP), under which the European Commission sets TACs, does not work.[5]

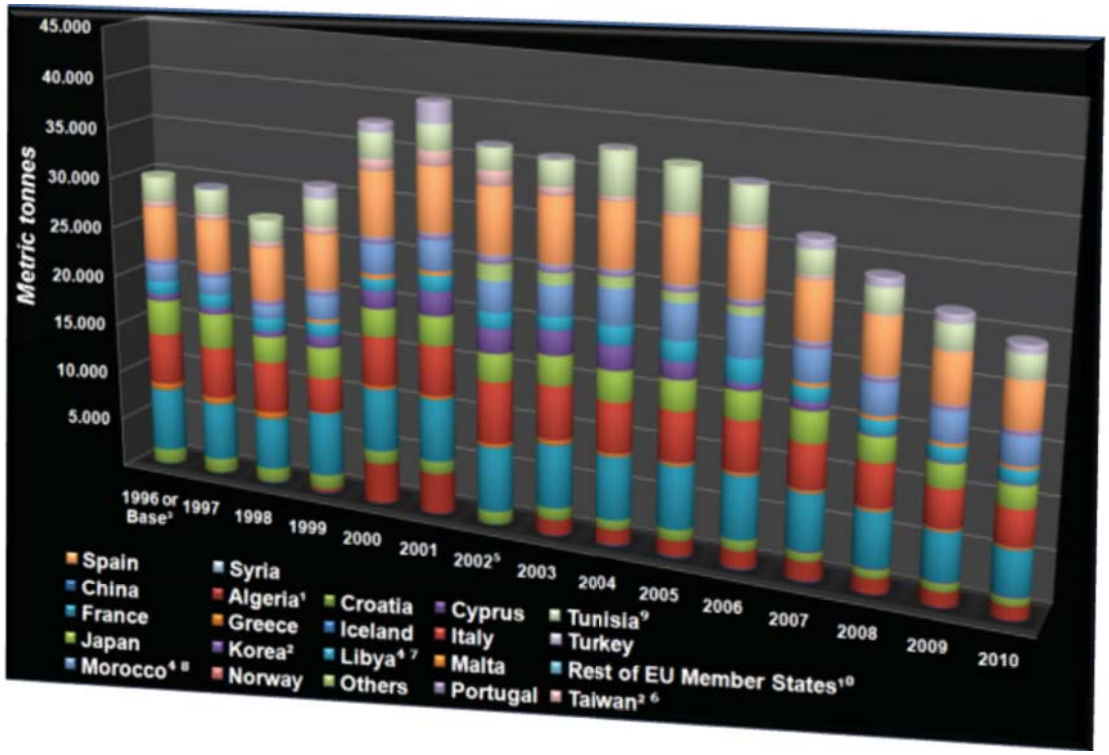

Figure 002: Effective total adjusted ICCAT NEA+MED BFT yearly quotas by major BFT fishing Contracting Parties, including EU Member States.

The EU CA stated that the actual level of catches is "*unknown*", thanks to gaps, errors and "misstatements" in data sent to Brussels by national governments.[6]

Most rule-breakers are not caught, those caught are seldom punished, and the few who are punished face trifling fines. Schemes to reduce overcapacity in fishing fleets are also subverted, not only at EU level but also at international level.

Again, and in further defiance of urgent scientific advice to sustainably manage a depleted BFT stock at high risk of collapse, major BFT fishing Contracting Parties to ICCAT failed to implement a binding capacity reduction plan for the Mediterranean BFT targeting fleets, at ICCAT's Raleigh, North Carolina, US inter-sessional meeting July 2007.

Instead, a formal recommendation to "freeze" present BFT fishing capacity *status-quo* at an under-estimated 50,000 Mt in the Mediterranean and East Atlantic, was reached, thus well overstepping ICCAT's approved TAC levels for 2008 to 2011 and tripling those recommended by ICCAT SCRS itself, to ensure a BFT stock recovery.

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on the Commission's proposal. Source: COUNCIL REGULATION (EC) No 1559/2007, establishing a multi-annual recovery plan for Bluefin Tuna in the Eastern Atlantic and Mediterranean and amending Regulation (EC) No 520/2007.

[4] According to ICCAT-SCRS Task-I database latest available update, 426,067.64 Mt of Bluefin Tuna were reported as having been caught during the decade 1996-2006. 288,918.38 Mt (67,81%) of such BFT reported catches took place inside the Mediterranean Sea.

[5] Special Report No 7/2007 (pursuant to Article 248(4) second paragraph, EC) on the control, inspection and sanction systems relating to the rules on conservation of Community fisheries resources together with the Commission's replies. European Court of Auditors, published on December 2007.

[6] Announcing the closure of the BFT fisheries in the Mediterranean and East Atlantic September 19th 2007, the European Commission admitted that European fleets had well over-fished their quota for 2007 and acknowledged "failings in the reporting of catch data" and illegal fishing.

ICCAT BFT Quotas or EU BFT TACs (Kgs.)

Contracting Parties	1996 or Base[3]	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Algeria[1]	0,00	0,00	0,00	304.000,00	4.000.000,00	4.000.000,00	0,00	1.500.000,00	1.464.000,00	1.523.000,00	1.693.000,00	1.838.770,00	1.460.040,00	1.408.810,00	1.306.350,00
China	84.000,00	84.000,00	120.800,00	117.800,00	55.000,00	75.000,00	76.000,00	74.000,00	128.700,00	128.700,00	117.800,00	103.670,00	63.550,00	61.320,00	56.860,00
Croatia	1.410.000,00	1.410.000,00	1.362.500,00	1.406.500,00	1.313.000,00	1.259.000,00	1.232.000,00	1.155.000,00	951.000,00	1.069.000,00	1.022.000,00	862.310,00	833.080,00	803.850,00	745.390,00
Cyprus	0,00	0,00	0,00	14.000,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	154.680,00	149.440,00	144.200,00	133.710,00
France	6.420.000,00	5.840.000,00	5.250.000,00	6.413.000,00	6.279.000,00	6.279.000,00	6.461.000,00	6.298.000,00	6.233.000,00	6.192.700,00	6.182.000,00	5.493.650,00	5.306.730,00	4.636.557,98	4.311.071,61
Greece	664.500,00	664.500,00	664.500,00	126.000,00	329.000,00	329.000,00	359.500,00	473.500,00	326.000,00	323.400,00	323.000,00	287.230,00	277.460,00	242.417,80	225.400,07
Iceland	0,00	0,00	0,00	0,00	0,00	0,00	0,00	30.000,00	40.000,00	50.000,00	60.000,00	53.340,00	51.530,00	49.720,00	46.110,00
Italy	5.161.500,00	5.161.500,00	5.161.500,00	3.463.000,00	4.958.000,00	4.958.000,00	6.105.000,00	5.264.700,00	4.920.000,00	4.888.000,00	4.880.000,00	4.336.310,00	4.188.770,00	3.659.780,42	3.402.863,83
Japan	3.554.000,00	3.554.000,00	2.666.000,00	3.122.000,00	2.780.000,00	2.949.000,00	2.813.000,00	2.949.000,00	3.050.000,00	2.982.000,00	2.790.000,00	3.030.920,00	2.430.540,00	2.345.260,00	2.174.690,00
Korea[2]	688.000,00	688.000,00	591.000,00	1.197.000,00	1.816.000,00	2.429.400,00	2.429.400,00	2.428.900,00	2.428.900,00	1.728.900,00	741.900,00	851.700,00	171.770,00	165.740,00	153.690,00
Libya	1.332.000,00	1.332.000,00	1.302.000,00	1.300.000,00	1.199.000,00	1.570.000,00	1.570.000,00	1.286.000,00	1.833.800,00	1.934.200,00	2.283.500,00	1.359.000,00	1.381.990,00	1.338.600,00	1.251.810,00
Malta	0,00	0,00	0,00	344.000,00	419.000,00	387.000,00	0,00	0,00	0,00	0,00	0,00	355.590,00	343.540,00	331.490,00	307.380,00
Morocco	1.812.000,00	1.812.000,00	1.359.000,00	2.430.000,00	3.028.000,00	3.028.000,00	3.028.000,00	3.030.000,00	3.551.000,00	3.551.000,00	3.948.000,00	3.151.300,00	3.055.560,00	2.959.820,00	2.768.340,00
Norway	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	53.340,00	51.530,00	49.720,00	46.110,00
Others	0,00	0,00	0,00	0,00	0,00	0,00	1.633.000,00	1.146.000,00	1.100.000,00	1.000.000,00	823.000,00	0,00	0,00	0,00	0,00
Portugal	500.718,75	500.718,75	500.718,75	519.000,00	599.000,00	599.000,00	803.500,00	752.300,00	594.000,00	590.200,00	590.000,00	523.880,00	506.060,00	442.146,84	411.108,13
Rest of EU Member States[1]		0,00	0,00	60.000,00	60.000,00	60.000,00	60.000,00	59.500,00	60.000,00	60.000,00	60.000,00	60.000,00	60.000,00	5.741,47	0,00
Spain	5.321.896,50	5.321.896,50	5.321.896,50	5.555.000,00	6.365.000,00	6.365.000,00	6.497.000,00	6.383.700,00	6.317.000,00	6.276.700,00	6.266.000,00	5.568.210,00	5.378.760,00	4.699.485,49	4.369.581,61
Syria	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	53.340,00	51.530,00	49.720,00	46.110,00
Taiwan[2]	546.750,00	546.750,00	546.750,00	714.000,00	1.123.000,00	1.468.000,00	1.493.000,00	827.000,00	382.000,00	331.000,00	480.000,00	333.600,00	68.710,00	66.300,00	61.480,00
Tunisia	2.503.000,00	2.503.000,00	2.180.300,00	2.761.300,00	2.553.300,00	2.513.300,00	2.144.000,00	2.503.000,00	4.254.000,00	4.197.000,00	3.573.000,00	2.333.600,00	2.364.480,00	2.365.370,00	2.231.160,00
Turkey	0,00	0,00	0,00	1.155.000,00	903.000,00	2.058.000,00	0,00	0,00	0,00	0,00	0,00	918.320,00	887.190,00	856.060,00	793.800,00
Effective Total adjusted ICCAT NEA+MED BFT Yearly Quotas	29.998.365,25	29.418.365,25	27.026.965,25	31.001.600,00	37.779.300,00	40.326.700,00	36.704.400,00	36.160.600,00	37.633.400,00	36.825.800,00	35.833.200,00	31.722.760,00	29.082.260,00	26.682.110,00	24.843.015,25
ICCAT Recommendation Nº and/or EU Commission Regulation Nº:	94-11 & 95-05	94-11 & 95-05	94-11 & 95-05	98-05 & EU Creg. 49/1999	98-05 & EU Creg. 2742/1999	00-09 & EU Creg. 2848/2000	No ICCAT quotas & EU Creg. 2555/2001 + EU Creg. 1811/2002	02-08 & EU Creg. 2341/2002	02-08 & EU Creg. 2287/2003	02-08 & EU Creg. 27/2005	02-08 & EU Creg. 51/2006	06-05 & EU Creg. 41/2007	06-05 & EU proposed 2008 TACs (Pink)	06-05 & EU TAC Estimations	06-05 & EU TAC Estimations

ICCAT National Quota adjustments:

- Adjusted quotas according to EA + MED BFT Compliance Table adopted in 1999. ICCAT biennial period, 1998-1999 Part II (1999)-Vol. 1.
- Adjusted quotas according to EA + MED BFT Compliance Table adopted in 2001. ICCAT biennial period, 2000-2001 Part II (2001)-Vol. 1.
- Adjusted quotas according to EA + MED BFT Compliance Table adopted in 2002. ICCAT biennial period, 2002-2003 Part I (2002)-Vol. 1.
- Adjusted quotas according to EA + MED BFT Compliance Table adopted in 2003. ICCAT biennial period, 2002-2003 Part II (2003)-Vol. 1.
- Adjusted quotas according to EA + MED BFT Compliance Table adopted in 2004. ICCAT biennial period, 2004-2005 Part I (2004)-Vol. 1.
- Adjusted quotas according to EA + MED BFT Compliance Table adopted in 2005. ICCAT biennial period, 2004-2005 Part II (2005)-Vol. 1.
- Adjusted quotas according to EA + MED BFT Compliance Table adopted in 2006. ICCAT biennial period, 2006-2007 Part I (2006)-Vol. 1.
- Adjusted quotas according to EA + MED BFT Compliance Table adopted in 2007.

1. Algeria reported an autonomous quota of 4.000 Mt for 2000 and 2001.
2. Fishing possibilities attributed to Korea & Taiwan during 2003 to 2006, are based on their traditional shares of 1,5% will only be activated in a given year when they individually have fished their current level of underages.
3. National EA + MED BFT ICCAT Quotas were to be initially calculated, starting 1996, on the basis of a 25% reduction (or such lower amount which may have been specified by the SCRS) from the catch level in 1993 or 1994 (Whichever was higher). Such reduction was to be accomplished by the end of 1998.
4. Recommendation 98-5 objected by Libya and Morocco. Figures for Morocco 1999 and 2000 are autonomous catch limits (Recommendation 98-5 established a catch limit of 820 t and 756 t for 1999 and 2000) Recommendation 00-09 states that Morocco and Libya established catch limits of 3.028 Mt and 1.570 Mt respectively, for 2001.
5. For 2002, no catch limits/quotas were in force. It was agreed that no carry over of under harvest from 2002 to 2003 would be permitted. EC and Croatia adjusted 2003 quotas using 2001 balances, from which Croatia deducted its 2002 over-harvest. EC may adjust in 2005, and may include 30 Mt unused quota from Iceland.
6. Taiwan 2003 catch limit was adjusted using 2002 figures, as the quota share for Taiwan was not activated until the under harvest was fished.
7. Libya has indicated that it intends to distribute its under-harvest over the period up to 2010, with 79 Mt in 2007, 145,25 Mt in 2008, 2009 and 2010 (Total = 2006 balance/2)
8. Quotas for 2007 to 2010 included are adjusted as follows: Balance of 2005+2006 x 50% = 1.308 Mt. Such tonnage will be spread over 4 years by adding 327 Mt per year to initial quota.
9. Tunisia has indicated that it intends to distribute its under-harvest over the period up to 2010 as follows: 2008 = +110 Mt, 2009 = +190 Mt and 2010 = 214 Mt (Total = 1.028/2 = 514 Mt)
10. Except Cyprus, Greece, Spain, France, Italy, Malta and Portugal, and only as by-catch.

Table 001: Effective Total adjusted ICCAT NEA+MED BFT Yearly Quotas by major BFT fishing Contracting Party and year.

Such an appalling state of fisheries management anomy is yet in tune with the December 2007 EU Commission DG Fisheries & Maritime Affairs report's findings, based on the most recent annual statements provided by EU Member States on their active fishing fleets.[7]

Although overfishing of BFT has taken place all over the ICCAT Convention Zone by all kinds of fleets using different fishing gears, nowhere else as inside the Mediterranean Sea, has the plunder of such a species been directly and almost fully attributable to a specific ever-growing fleet, using a specific fishing gear and ever-increasing fishing technology efficiency: the Mediterranean Sea purse seine fishing fleet, all by itself accounting for 50 % of all BFT catches during the period 1996-2006 (see Figure 003).

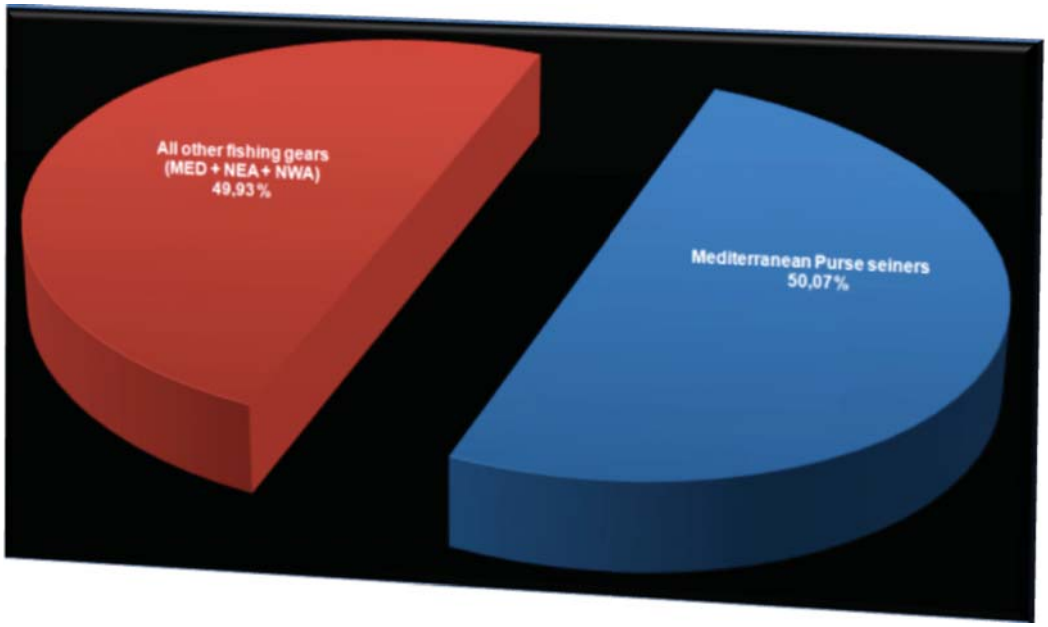

Figure 003: Comparison between total BFT catches by Mediterranean PS vessels and rest of BFT fishing fleets, 1996-2006 inside the ICCAT Convention Zone. Source: ICCAT-SCRS Task I 2007 12 21 Update.

According to Alain Fonteneau, IRD tropical tuna expert, "*simulation models show that the bluefin tuna CPUE*[8] *of mobile & modern purse seiners should tend to remain stable, even at very low stock biomass. On the opposite, CPUs of fixed coastal fisheries tend to over-estimate the decline of total biomass… Atlantic bluefin tuna stock, fisheries and market show all the characteristics of an inevitable disaster, even if the calendar of this disaster is still unknown. There is little doubt for most scientists that the bluefin stock is now facing a danger of recruitment over fishing, and possibly of a collapse*" (see Figure 004)[9] [10].

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[7] EU Nominal fishing capacity decline in 2006 at a slow rate of 3% annually is more than compensated for by the constant technological improvements which make it possible to catch more fish per unit of effort, thus cancelling the effects of a flimsy capacity reduction. "*As a result, it is not possible for the Commission to judge whether fleet capacity is in balance with fishing opportunities, or whether effort limitation measures are having an effective impact on capacity reduction*."

[8] Catch per Unit of Effort (CPUE) calculated as the volume or value of landings of the fleet divided by the number of GT-days or kW-days (product of vessel capital and vessel activity) In the case of BFT fishing fleets, the distinction between GT and kW is proven important since such fleets are characterized by different physical factors (e.g. proximity to fishing grounds).
CPUE can therefore be calculated as follows:

$$CPUE_{GT,kW} = \frac{Catch}{Capital_{GT,kW} * Days\ at\ Sea}$$

From the view of economic theory, CPUE serves a direct indicator of production in relation to the fixed and variable inputs applied, and can hence be directly compared to a standard production function in industry. Catch output can also be given in revenue terms, allowing the estimation of a value per unit effort (VPUE) indicator. Agreeably, all factors of production are not captured in the effort unit, but it should still be regarded as a general productivity indicator that shows the average output per aggregate input, assuming constant returns to scale. It can also serve as an indicator of changes in stock biomass (Cochrane, 2002). Source: FAO Fisheries Circular No. 994, MEASURING AND APPRAISING CAPACITY IN FISHERIES:FRAMEWORK, ANALYTICAL TOOLS AND DATA AGGREGATION. Rome, 2004.

[9] Back in 1996 (SCRS BFT Stock Assessment Session, Genoa, Italy-September 12th to 20th 1996) ICCAT-SCRS already warned that *"technological developments that result in increased efficiency in harvesting have occurred and will continue to occur in Bluefin (and other) fisheries." "Since the current spawning stock biomass is estimated to be only 19% of the MSY level, the MSY of 40.000 Mt would*

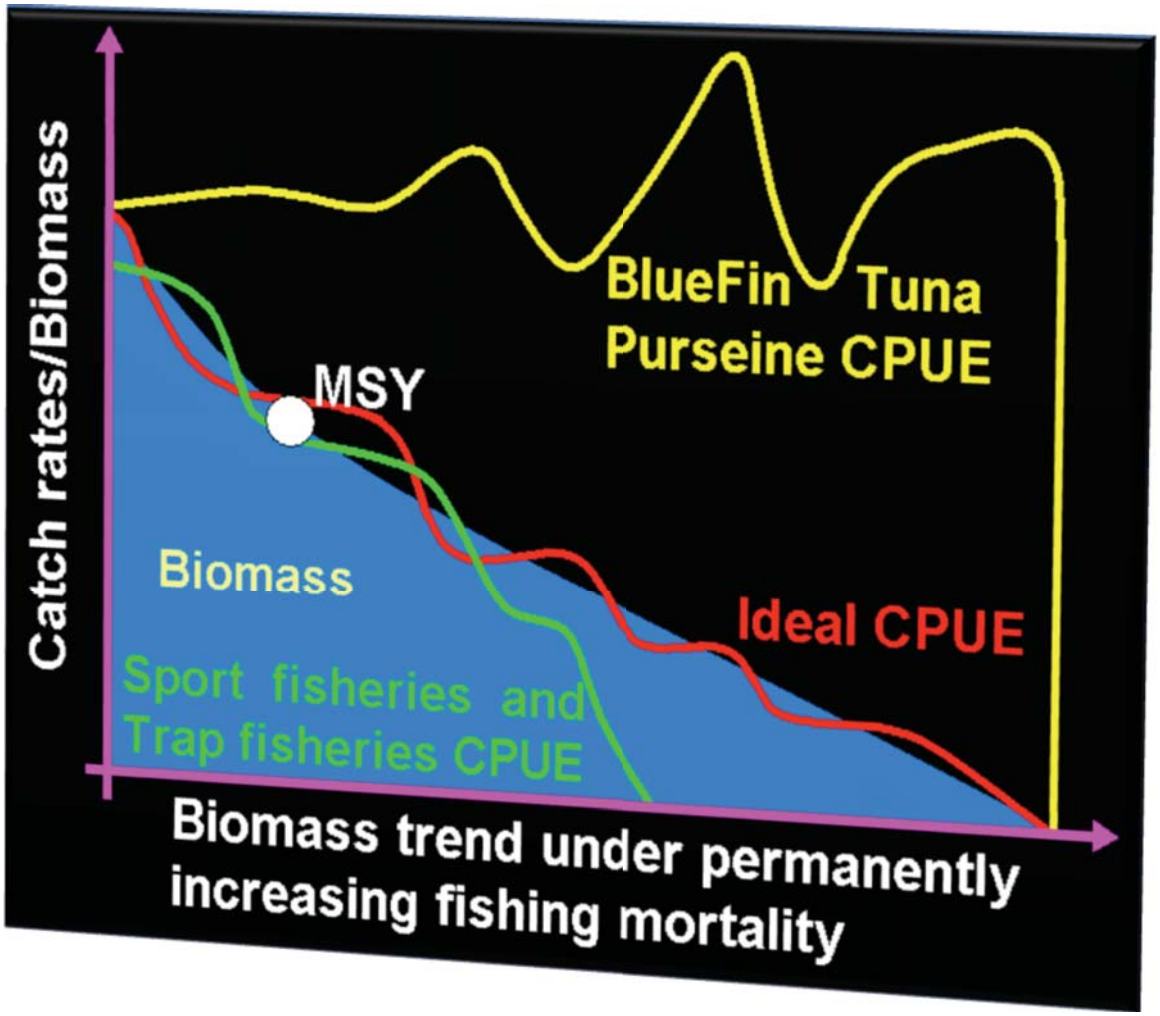

Figure 004. Bluefin tuna biomass trend under permanently increasing fishing mortality, as seen in "Bluefin tuna management and conservation issues. Save bluefin tuna!" By Alain Fonteneau, IRD tropical tuna expert. Rome 2005.

Although bluefin tuna CPUEs of mobile & modern purse seiners tend to remain stable, even at very low stock biomass, it is nevertheless worthwhile noting that since the year 2003, BFT purse seine catches inside the Mediterranean Sea have consistently followed an increasing trend of yearly caught BFT tonnages, and with respect to those yearly BFT catches having taken place by other fleets both inside the Mediterranean Sea and the Atlantic (see Figure 005).

According again to ICCAT-SCRS statistical data, the percentage of total BFT catches by Mediterranean purse seiners with respect to total BFT catches (MED+NEA+NWA) rose from 51.31 % in 2003 to 57.98 % in 2006, with a 59.81 % peak during 2005.

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not be currently sustainable." "The projections indicate that catches of 25.000 Mt or less could result in stock growth." "The level of annual catch that gives a 50% probability of recovery to MSY level within 10 years is approximately 10.000 Mt." Source: SCRS/1996/026 Col. Vol. Sci. Pap. ICCAT, 46 (1): 1-186 (1997).

[10] In 2006, ICCAT-SCRS indicated that "*Current fishing is expected to drive the spawning per recruit relative to virgin levels (%SPR), and thus the spawning stock biomass, to very low levels; i.e. about 6% SPR and about 17% of the spawning biomass per recruit estimated for 1970. This combination of high F and low SPR is considered to result in a high risk of fisheries and stock collapse." "Only scenarios considering the closure of the entire Mediterranean around the spawning season (i.e. mid-May until early July) together with increasing size limits for both the East Atlantic and the Mediterranean (minimum sizes of 10, 25 and 30 kg overall) are able to significantly reduce fishing mortalities and to rebuild the SSB up to levels that are considered safe enough to avoid fishery and stock collapse." "It is apparent that the TAC regulation until 2006 was not respected and was largely ineffective in controlling overall catch." "The only scenarios which have potential to address the declines and initiate recovery are those which (in combination) close the Mediterranean to fishing during spawning season and decrease mortality on small fish through fully enforced increases in minimum size. Realized catches during the next few years implied by fully implementing these actions are expected to be in the order of 15.000 Mt.*" Source: ICCAT-SCRS Executive Summary BFT E, Madrid, June 2006. Madrid. Report of the Standing Committee on Research and Statistics (Madrid, Spain, October 1 to 5, 2007).

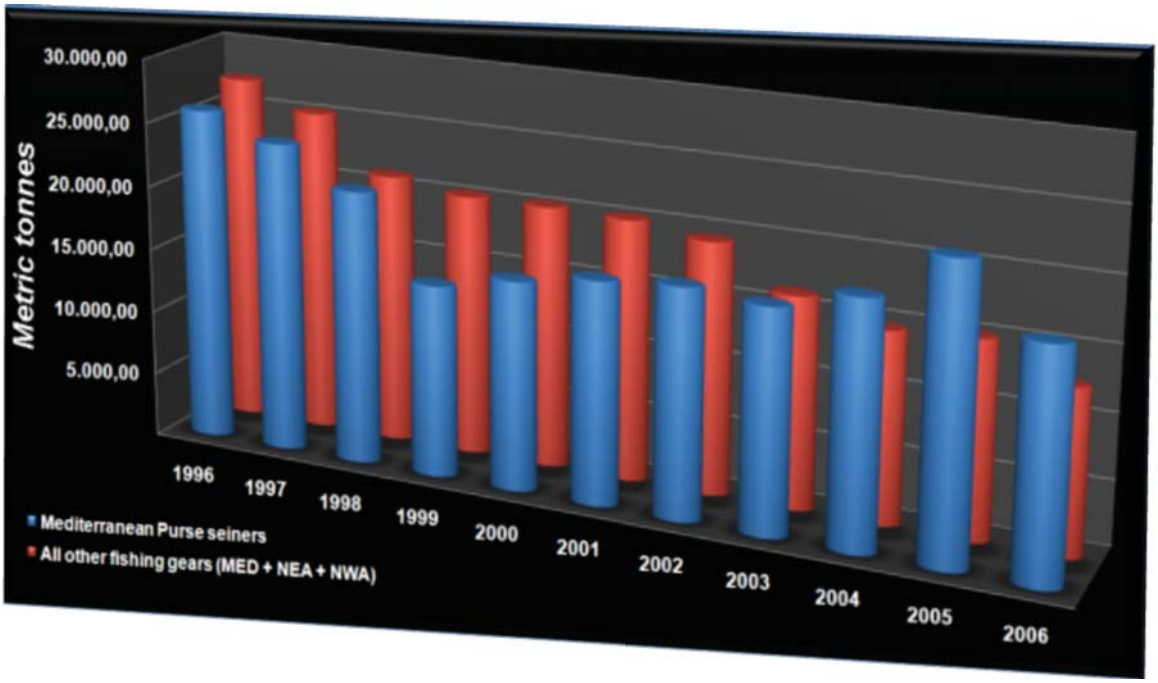

Figure 005: Yearly variations of total BFT catches by Mediterranean PS vessels and rest of BFT fishing fleets, 1996-2006 inside the ICCAT Convention Zone. Source: ICCAT-SCRS Task I 2007 12 21 Update.

Such upward trend is further verified when comparing BFT yearly purse seined catches inside the Mediterranean Sea against total yearly BFT catches by other fishing gears inside the same sea.[11]

The percentage of total BFT catches by Mediterranean purse seiners with respect to all other BFT catches in the Mediterranean rose from 71.74 % in 2003 to 86.46% in 2006 (see Figure 006).

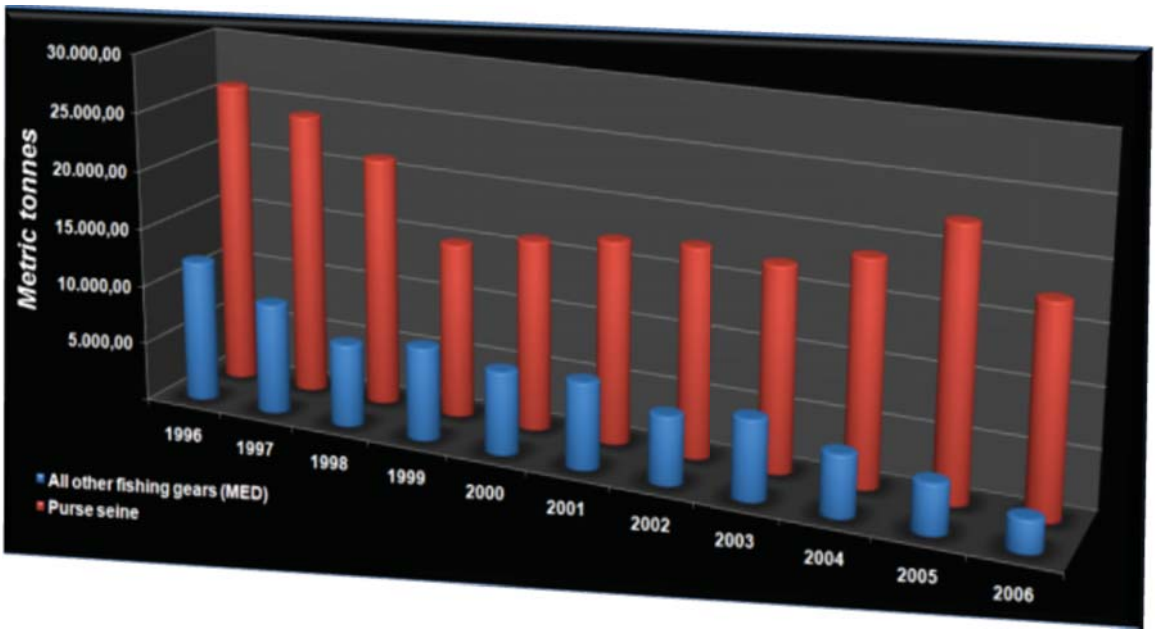

Figure 006: Yearly variations of total BFT catches, by fishing gears, 1996-2006 inside the Mediterranean Sea. Source: ICCAT-SCRS Task I 2007 12 21 Update.

If BFT purse seiners' CPUEs have remained stable since 1996 and both yearly caught tonnages and their percentages with respect to total yearly catches have soared, the immediate conclusions to be reached are:

[11] According to ICCAT-SCRS Task-I database latest available update, out of the reported 288.918,38 metric tonnes of BFT as having been caught inside the Mediterranean Sea during the decade 1996-2006, 213.330,04 metric tonnes (74 %) were purse seined.

- A growing number of new purse seine fishing units have been built and put into service during the 1997-2007 decade (see Figure 007 and Annexes 1 &2).

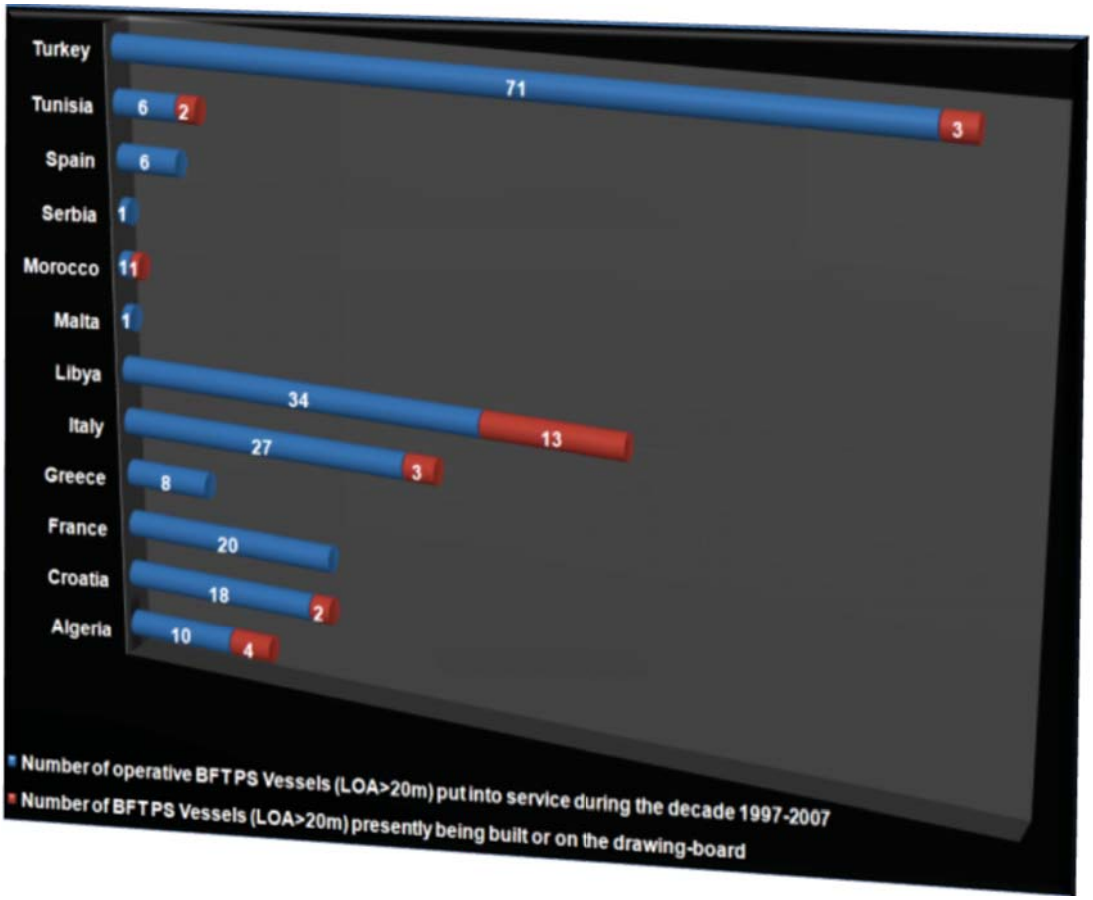

Figure 007: Estimated number of operative BFT PS Vessels (LOA > 20m) commissioned and/or put into service during the decade 1997-2007, by Country. Source: ATRT, SL.

- Operators of active BFT purse seine fishing units during the decade 1996-2006 have:
    - Increased the Installed Power of their main-engines (Hp/kW) and onboard generators[12] (see Figure 008);

Figure 008: Turkish flagged BFT PS Vessel DENIZAR (LOA: 51m) built by Ba aran Gemi and equipped with a Volvo Penta D65A Mt engine.

[12] French, Spanish and Italian purse seine vessels before 1995 were concentrated on small pelagic fisheries. As of 1995 all three fleets started to modernise vessels and fishing gears as a result of first tuna ranches starting operations both in Croatia and Spain. Mediterranean BFT PS vessels today, can reach maximum steaming speeds of up to 19 knots. Both main engines' HP and hull lengths have dramatically soared. In 1992 all Mediterranean BFT PS vessels were below 27m long. As of 2001, the latest generation of hyper-specialized BFT PS vessels is average 35m long.

- *Jumborized*/extended BFT PS Vessels' lengths (LOA) (see Figure 009);[13]

Figure 009: 10m LOA jumborization of Italian flagged BFT PS vessel Eureka (Società Euromar di Ganesio Pietro) by 10m. 2004. Picture: Courtesy by Cantieri Navali Megaride®©, Naples, Italy.

- Transformed BFT longliners/trawlers into BFT PS vessels (see Figure 10);

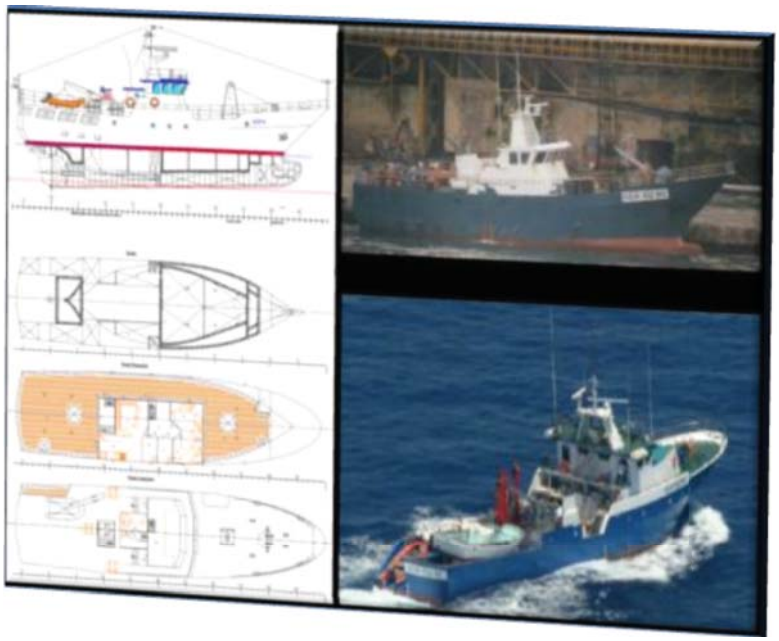

Figure 010: (Left) General Plan of Italian flagged longliner ASIA (352MV) Courtesy by: Cantiere Navale "Il Carpentiere" di Asaro S. & C. s.n.c. (Right-Top). ASIA seen at the Port of Valletta, Malta. (Right-Bottom) ASIA seen in the Mid-Mediterranean Sea during the 2007 BFT fishing season. Pictures ©®: by: M.S.P.A.P. (Right-Top) and Courtesy by: Greenpeace/Care (Right-Bottom)

[13] Several Italian BFT PS were stretched during the period 2001-2004, of which:
- Italian flagged MARIA PIA, (Owner: STELLA DEL MARE Srl.) was stretched by 9m. Year: 2001.
- Italian flagged MADONNA DELLE LACRIME, (Owner: AZZURA PESCA Srl.) was stretched by 8,5m. Year 2002.
- Italian flagged GIUSEPPE PADRE II, (Owner: F.LLI D'ALESSIO Srl.) was stretched by 10m. Year 2003.
- Italian flagged EUREKA, (Owner: EUROMAR DI GANESIO PIETRO Srl.) was stretched by 10m. Year 2004.

Several French BFT PS were stretched during the period 1996-1999, of which:
- French flagged RAYMOND-ELISE, was stretched from 27m to 32m. Year: 1995.
- French flagged VILLE D'AGDE II, was stretched from 25m to 33m. Year: 1996.
- French flagged GERARD LUC III, was stretched from 25m to 33m. Year: 1997.

- Installed more powerful hydraulic PS net lifting cranes (see Figure 11);

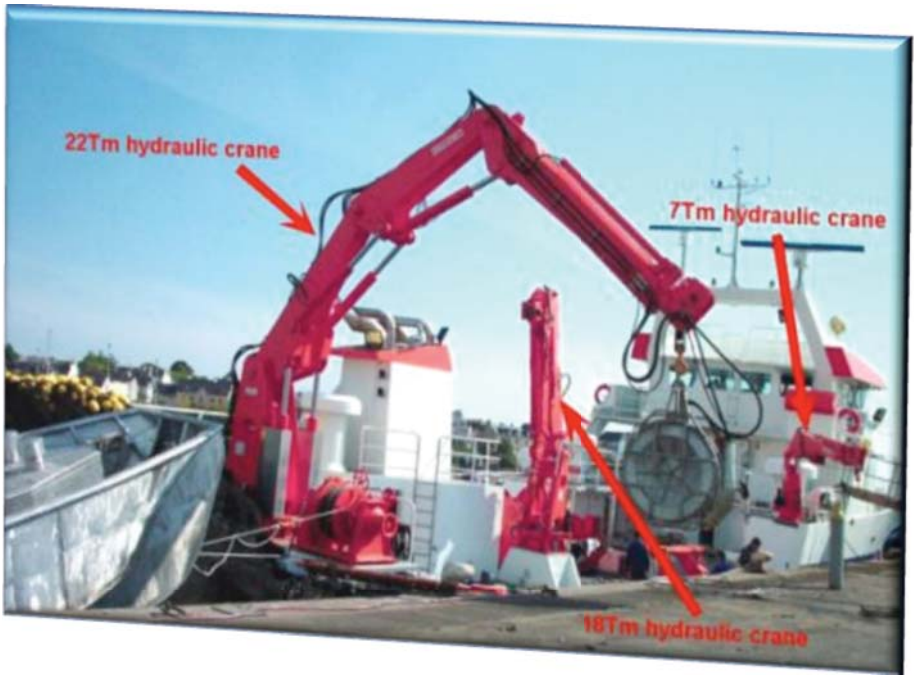

Figure 011: 22 Mt, 18 Mt and 7 Mt hydraulic cranes onboard a last generation Mediterranean Sea BFT purse seine fishing vessel.

- Increased purse seine net fishing efficiency (see Figure 12);

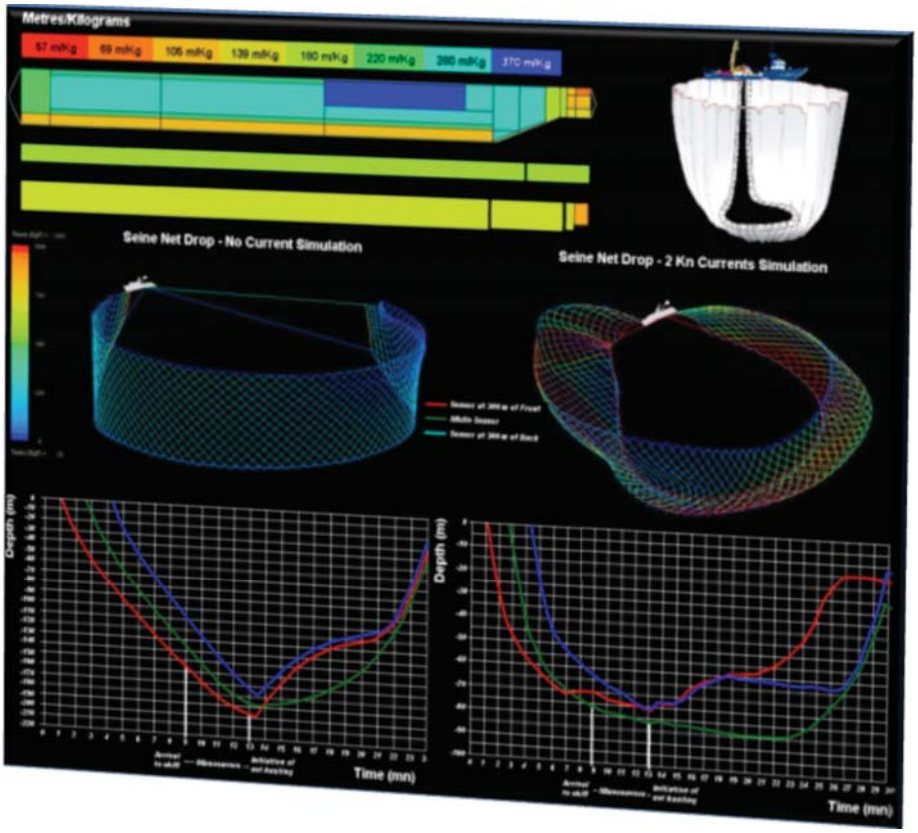

Figure 012: Design of a standard 1500m long by 265 m deep BFT purse seine net, used by most Mediterranean Sea BFT purse seine fishing vessel.[14]

[14] More efficient, bigger and faster sinking nets (Up to 1.800m l. x 300m d.)are designed to secured bigger live-BFT schools before their transfer into gravity transport pens. Caught live BFT can sometimes be secured inside a purse seine net for over 48 hours before a tugboat arrives to the spot and transferring of the fish inside the gravity transport pen is initiated.

- Massively used tuna-spotting aircrafts (see Figure 13);

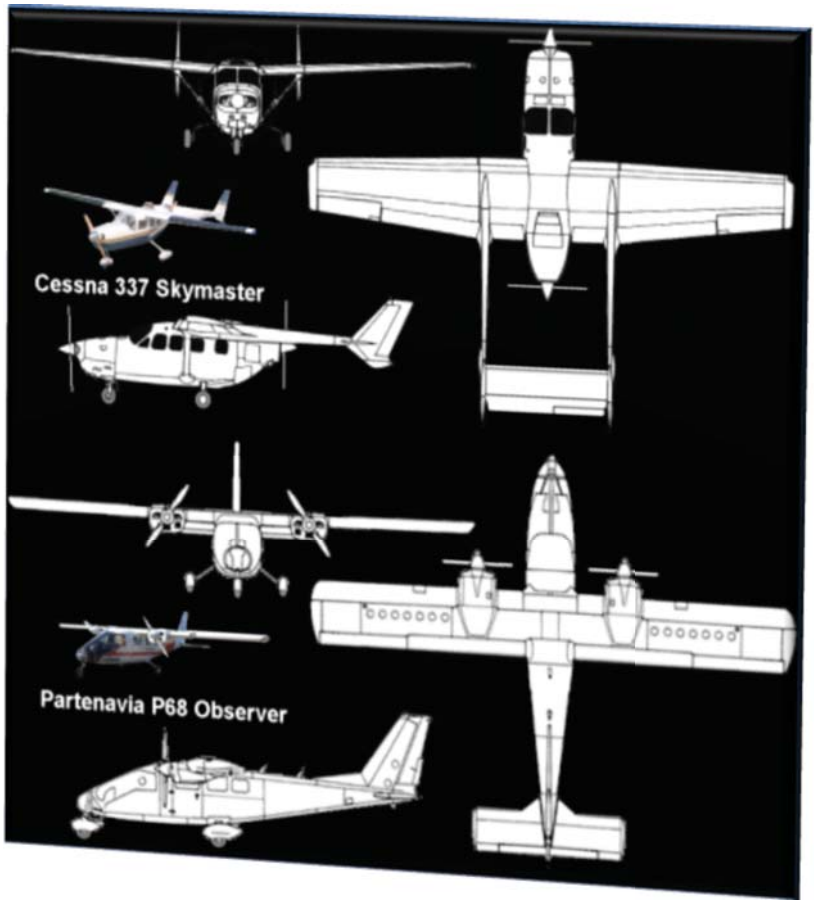

Figure 013: Cessna 337 Skymaster and Partenavia P-68 Observer type tuna-spotting aircrafts used mainly by BFT fishing companies during the summer fishing season inside the Mediterranean Sea.

- Installed more efficient main seine winches (see Figure 14);

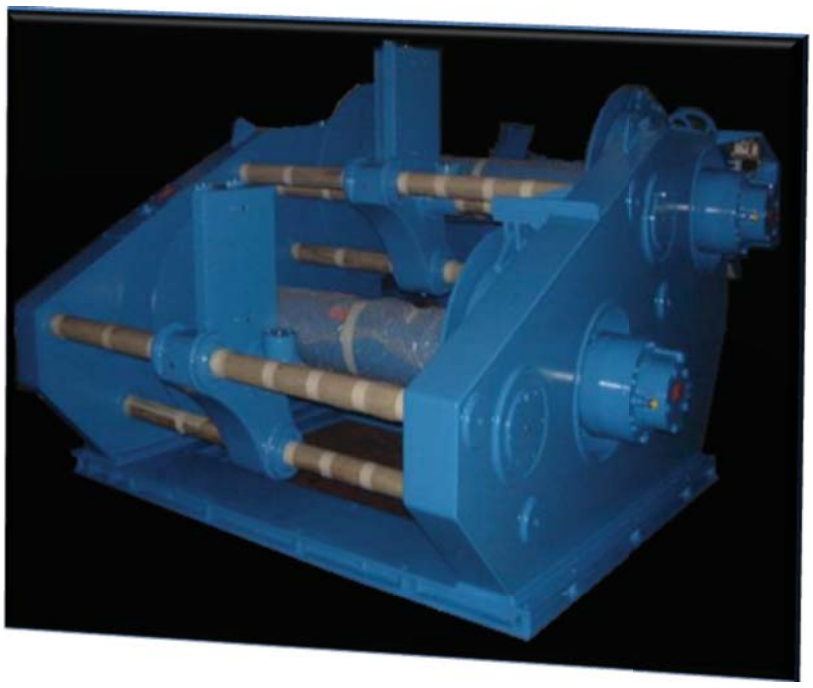

Figure 014: French designed and manufactured BOPP hydraulic main seine winch (capacity: from 1800 m Ø 20 to 2500 m Ø 24) used onboard by most last generation Mediterranean Sea BFT purse seine fishing vessel.

- Installed more powerful and efficient seine skiffs (see Figure 15);

Figure 015: Spanish designed and manufactured 250hp BFT purse seining skiff used onboard by most last generation Mediterranean Sea BFT purse seine fishing vessel.

- Increased fish sounder and sonar detection and radar technology efficiencies, coupled with chlorophyll and zooplankton satellite telemetry.

The case of BFT purse seining fleets inside the Mediterranean Sea has thus become a rather unique paradigmatic case of spiralling overfishing, thus deserving an in-depth analysis of its real fishing capacity.[15]

The present report provides a detailed account of the estimated fishing capacity of operative purse seine fleets (LOA > 20m) targeting bluefin tuna inside the Mediterranean Sea (see Figure 016), namely inside FAO-CFGM geographic sub-areas 1 to 27, as shown in Figure 017.

The estimated active Mediterranean bluefin tuna purse seine fleet (LOA > 20m) is fully characterized in terms of:

- Identification of ICCAT registered and non-registered operative BFT PS fishing vessels (LOA > 20m);
- Maximum recorded and/or reported catch capacity[16] based on a detailed analysis of catch rates per specific national and multi-national BFT PS fishing fleets;
- Minimum economic "break-even" catch-capacity per operative fleet and excess fleet capacity, in number of vessels per fleet segment[17].

[15] FAO defines fishing capacity, as *" the maximum amount of fish over a period of time that can be produced by a fishing fleet if fully utilised, given the biomass and age structure of the fish stock and the present state of the technology". Nevertheless,* Prof. Makoto Miyake opportunely points out: "*…the term "fishing capacity" is often misunderstood, even by the fisheries scientists. Fishing capacity is the potential of catching tunas. Therefore, the term not only includes the vessel's carrying capacity or number and/or size of fishing vessels but socio-economic aspects as well. For example, the fishing capacity of a fishing fleet may decline by fish price, and soaring labour cost while increase by improvements in fishing gears and efficiency.*" Source: OPRT Newsletter Nº: 10, March 2006.

[16] *"Today, there is clearly a wide overcapacity of Bluefin fishing fleets: large increases of fishing efforts have been observed until today, Often, this increase of the fleets, for instance the present fleet of about 200 purse seiners, has been widely supported by various types of subsidies. Most of these vessels cannot move to another target species, being highly specialized in the Bluefin fishery (French purse seiners). This situation of overcapacity has been created despite of the serious overfishing risks that were already well identified by Bluefin Tuna scientists. Present tuna fleets can easily catch 2 or 3 times the yearly quotas recommended by ICCAT."* Source: Bluefin Tuna management and conservation issues. Save Bluefin Tuna ! By Alain Fonteneau, IRD tropical tuna expert. Rome 2005.

[17] In each EU member state, taking as a reference the adjusted BFT fishing quotas for 2008, as well as the increase of capacity of BFT fleets in non-EU Mediterranean countries.

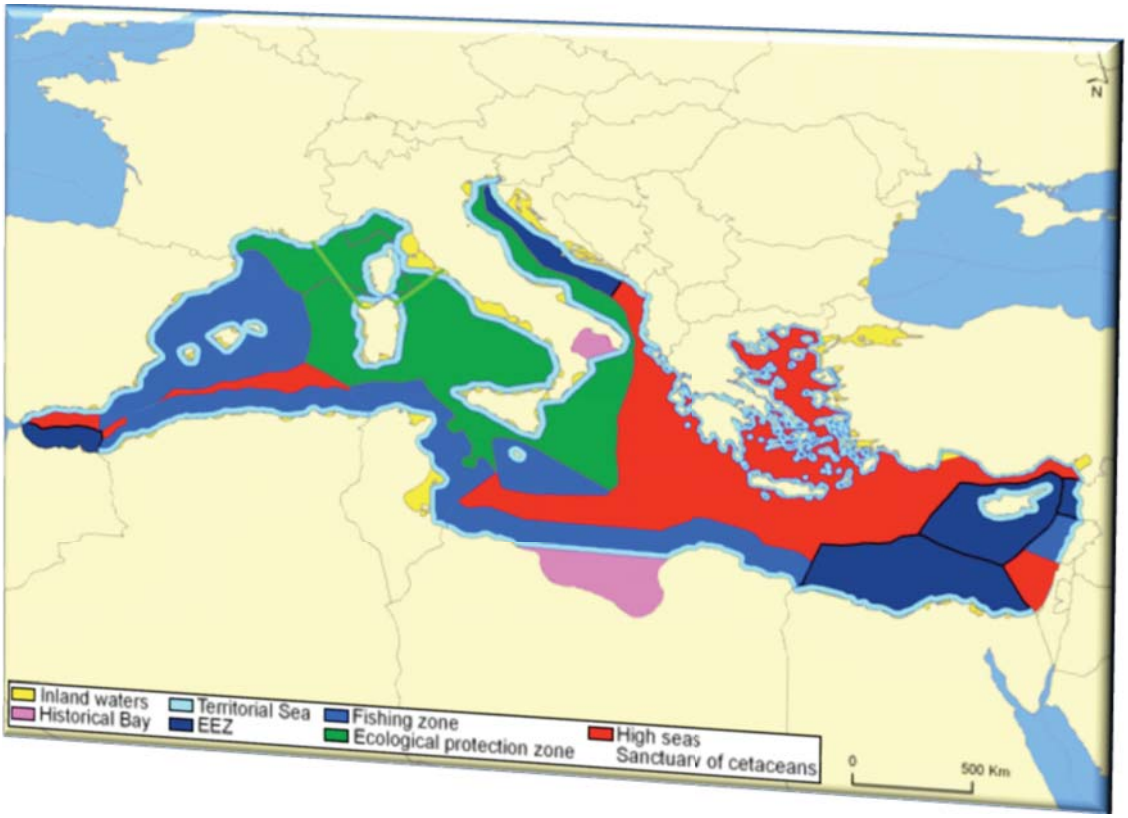

Figure 016: The European Union is the political institution that has the greatest jurisdictional presence in the Mediterranean Sea: about 60% of the sea's waters are under the control of one of the Member States. The 2004 enlargement (ten new members, seven of which were coastal) included three Mediterranean countries and two of these, Cyprus and Malta, contributed the greatest expanse of jurisdictional waters. Source: http://www.eurocean.org/contents.php?id=416

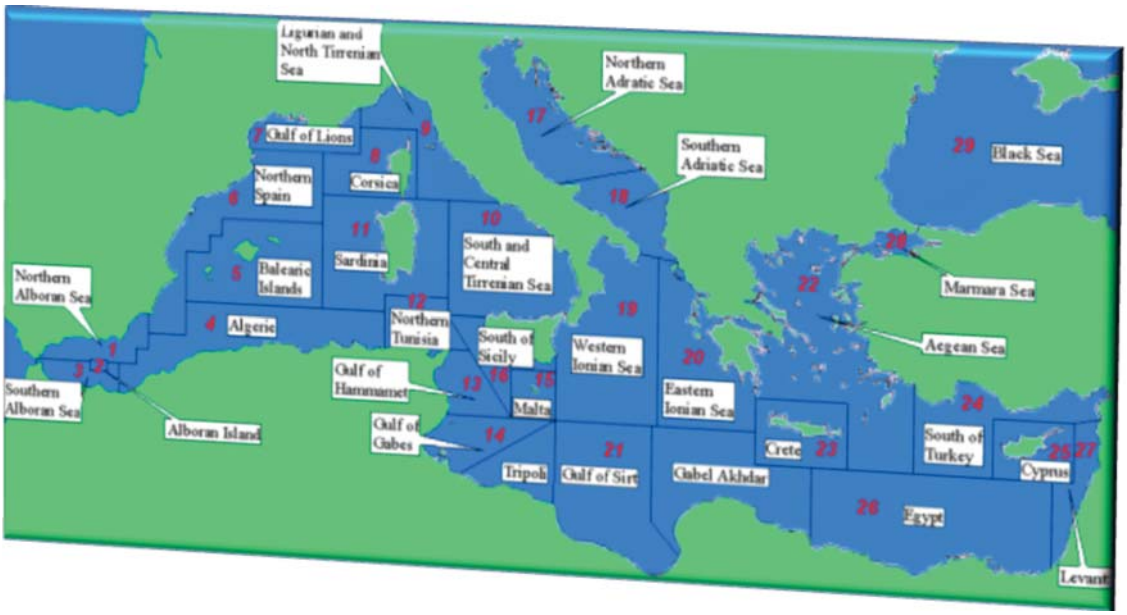

Figure 017: Mediterranean Sea FAO-CFGM Geographic Sub-areas.

2. A brief spatial & temporal analysis of the Mediterranean Bluefin Tuna Purse seining fishery.

Bluefin tuna (*Thunnus thynnus*) (BFT) spawning across the Mediterranean Sea takes place from early May to mid-July, as seen in Figure 018.

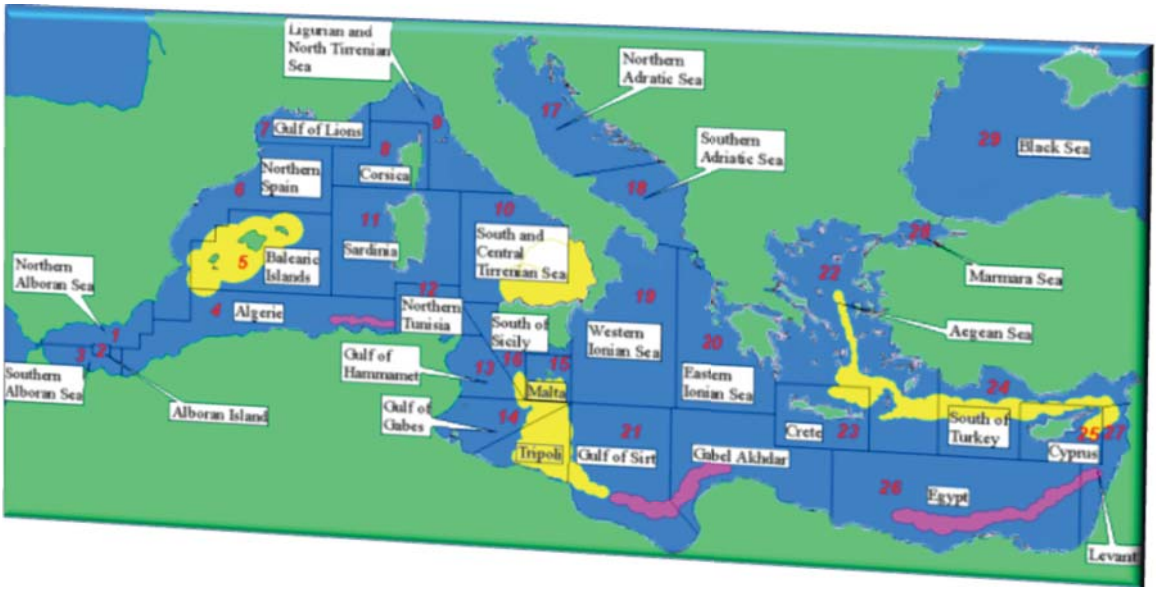

Figure 018: Major known (yellow) and newly-found (pink) spawning areas for BFT inside the Mediterranean Sea. Source: EU Commission Scientific, Technical and Economic Committee for Fisheries (STECF) April 3rd to 7th 2006 plenary session staff working paper (Opinion on sensitive and essential fish habitats in the Mediterranean Sea) and Industry sources.

The most relevant spawning areas are:

- The Balearic Islands fishing grounds (FAO-CFGM geographic sub-area Nº: 5)
- The central and southern Tyrrhenian Sea fishing grounds (FAO-CFGM geographic sub-area Nº: 10)
- The central Mediterranean Sea, south and southwest of Malta fishing grounds (FAO-CFGM geographic sub-areas Nº: 13, 15 & 16)
- The central Mediterranean Sea, north of Libya (FAO-CFGM geographic sub-areas Nº: 14, & 21)
- The eastern Mediterranean, South Aegean Sea (FAO-CFGM geographic sub-areas Nº: 22, & 23)
- The eastern Mediterranean, Levantine Sea[18] (FAO-CFGM geographic sub-areas Nº: 24, 25 & 27)
- The eastern Mediterranean Sea, north of Egypt (FAO-CFGM geographic sub-area Nº: 26)

BFT spawning-peaks, depending on climate and oceanographic conditions, take place during the months of June and July. Important spatial changes in some of the most relevant spawning areas have been noticed in the last 10 years, particularly in the south Tyrrhenian and central Mediterranean.

Mature BFT specimens are reported from most of the Mediterranean areas, with the only exception of the Gulf of Lions and the northern Adriatic Sea. BFT larvae are found in most of the Mediterranean Sea surface waters, with major concentrations occurring in areas where gyres and fronts are present, particularly in the second part of summer.

[18] Particularly the area between Anamur and Mersin, to the area north of Cyprus.

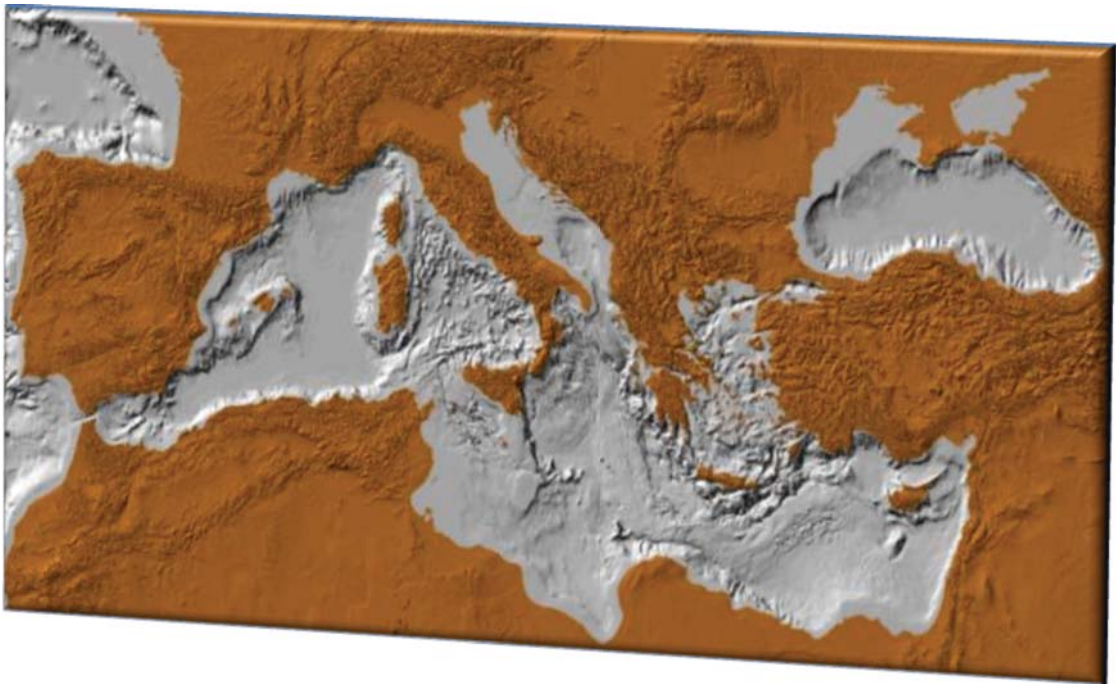

Figure 019: Bathymetrical chart of the Mediterranean Sea, showing the continental shelf.

Juvenile BFT (age 0) are mostly found in coastal areas over the continental shelf (see Figure 019), whenever a suitable trophic chain is present.

Most of the available information reports a major presence along the coasts of Croatia, south Adriatic Sea, western Ionian Sea, Tyrrhenian Sea, all the north-western Mediterranean coast, in some areas of Morocco and Tunisia, in a few Aegean areas and in the Levantine Sea, between Anamur and Mersin (see Figure 020).

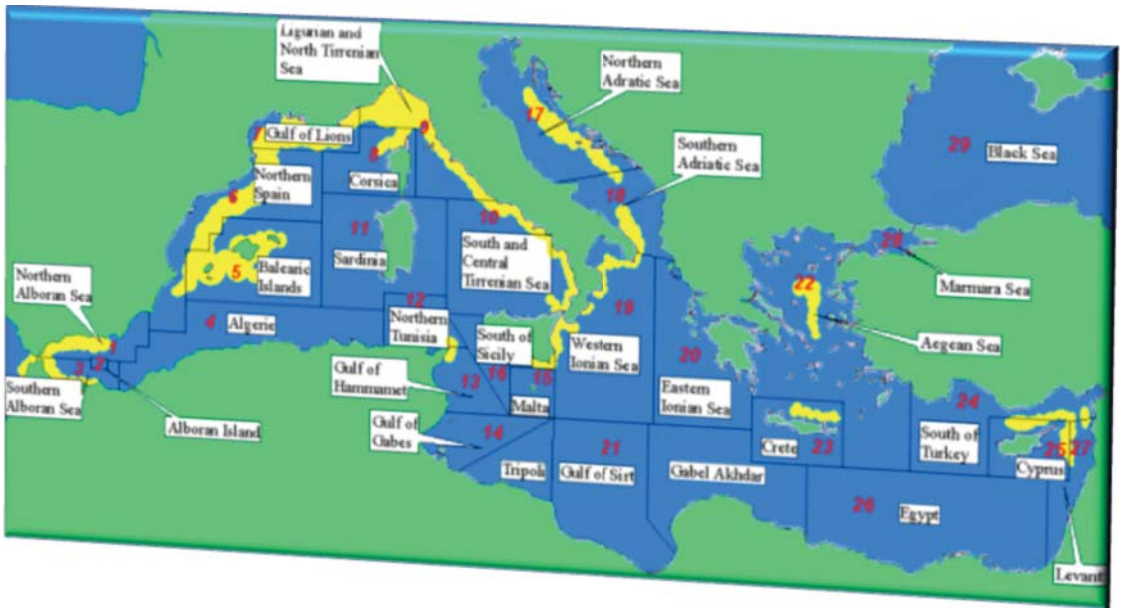

Figure 020: Major known areas where juvenile BFT (Thunnus thynnus) occurs inside the Mediterranean Sea. (Yellow) Source: EU Commission Scientific, Technical and Economic Committee for Fisheries (STECF) April 3rd to 7th 2006 plenary session staff working paper (Opinion on sensitive and essential fish habitats in the Mediterranean Sea)

Remarkable shifting of areas where juveniles are concentrated has been noticed from year to year. Juveniles are mostly present in feeding aggregations or schools during fall, from September to December.

3. Identification of ICCAT registered and non registered operative BFT PS fishing vessels (LOA > 20m)

An exhaustive Mediterranean BFT purse seine fishing vessel (LOA > 20m) fleet's survey (See Annexe 2 of this report) was carried-out for 617 fishing units, between October 2006 and October 2007, based on the following databases, and sources of information:

- ICCAT Record of Vessels over 24m (LOA) Authorized to Operate in the Convention Area.[19]

  The following updates of such database were used:

  ICCAT_VESSELS_04012006
  ICCAT_VESSELS_02082006
  ICCAT_VESSELS_14112006
  ICCAT_VESSELS_29012007
  ICCAT_VESSELS_03042007
  ICCAT_VESSELS_11042007
  ICCAT_VESSELS_17042007
  ICCAT_VESSELS_23042007
  ICCAT_VESSELS_04052007
  ICCAT_VESSELS_07052007
  ICCAT_VESSELS_16052007
  ICCAT_VESSELS_25052007
  ICCAT_VESSELS_04062007
  ICCAT_VESSELS_06062007
  ICCAT_VESSELS_20062007
  ICCAT_VESSELS_29062007
  ICCAT_VESSELS_02072007
  ICCAT_VESSELS_04072007
  ICCAT_VESSELS_06072007
  ICCAT_VESSELS_12072007
  ICCAT_VESSELS_14082007
  ICCAT_VESSELS_21082007
  ICCAT_VESSELS_30082007
  ICCAT_VESSELS_04092007
  ICCAT_VESSELS_10092007
  ICCAT_VESSELS_14092007
  ICCAT_VESSELS_27092007
  ICCAT_VESSELS_03102007
  ICCAT_VESSELS_18102007
  ICCAT_VESSELS_31102007
  ICCAT_VESSELS_13112007
  ICCAT_VESSELS_13112007
  ICCAT_VESSELS_15012008

- ICCAT Record of Vessels over 24m (LOA) Authorized to fish actively for eastern Atlantic and Mediterranean bluefin tuna.[20]

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[19] The Recommendation [Rec.02-22] by ICCAT Concerning the Establishment of an ICCAT Record of Vessels over 24 m Authorized to Operate in the Convention Area requires that each ICCAT Contracting Party, Cooperating non-Contracting Party.

Entity or Fishing Entity submits the list of its large-scale fishing vessels that are authorized to operate in the Convention Area. This list includes the following information:

- Name of vessel, register number,
- Previous name (if any)
- Previous flag (if any)
- Previous details of deletion from other registries (if any)
- International radio call sign (if any)
- Type of vessels, length and gross registered tonnage (GRT)
- Name and address of owner(s) and operator(s)
- Gear used
- Time period authorized for fishing and/or transhipping.

The following updates of such database were used:

ICCAT_VESSELS_FIS_02072007
ICCAT_VESSELS_FIS_06072007
ICCAT_VESSELS_FIS_18072007
ICCAT_VESSELS_FIS_09082007
ICCAT_VESSELS_FIS_13082007
ICCAT_VESSELS_FIS_30082007
ICCAT_VESSELS_FIS_31102007
ICCAT_VESSELS_FIS_13112007
ICCAT_VESSELS_FIS_15012008

- Lloyd's MIU Ship Database.[21]
- The European Union Fishing Fleet Register.[22]
- The Turkish Chamber of Shipping (Deniz Ticaret Odası).[23]
- The Croatian Register of Ships (Hrvatski Registar Brodova).[24]
- Shipyards around the Mediterranean Sea and other Industry sources.
- On-sight detection, identification and full confirmation, backed with photographic evidence.

Identified operative PS fishing vessels were classified as follows:

- Large PS: LOA > 38.5m
- Medium PS: 38.5m > LOA ≥ 28.6m
- PS Multispecies: 28.6m ≥ LOA ≥ 20m

The survey also took into account:

- Possible double ICCAT registering of PS fishing vessels between Malta, Tunisia, Italy and Libya, 8 cases were detected:
  - 1 PS vessel double-registered (Malta-Libya), with vessel name:
    - ♣ TA'MATTEW (Malta) NAWRAS (Libya)

    has been retained as being only Maltese flagged and registered for calculation purposes;
  - 6 PS vessels double-registered (Libya-Tunisia)
    - ♣ ESSAHM ELFIDHI I (Libya) ABDELWAHEB II (Tunisia)
    - ♣ ESSAHM ELFIDHI II (Libya) JANNET V (Tunisia)
    - ♣ ESSAHM ELFIDHI III (Libya) MERIEM (Tunisia)
    - ♣ AL WAHAT (Libya) CHAFFAR (Tunisia)
    - ♣ EL AMINE (Libya) EL AMINE (Tunisia)
    - ♣ YOUMAN (Libya) MOEZ II (Tunisia)

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[20] The Recommendation by ICCAT to Establish a Multi-annual Recovery Plan for bluefin tuna in the Eastern Atlantic and Mediterranean [Rec.06-05] requires that each ICCAT Contracting Party, Cooperating non-Contracting Party, Entity or Fishing Entity submit the list of its vessels that are authorized to fish actively for eastern Atlantic and Mediterranean Bluefin Tuna . This list includes the following information:

- Name of vessel, register number,
- Previous name (if any)
- Previous flag (if any)
- Previous details of deletion from other registries (if any)
- International radio call sign (if any)
- Type of vessels, length and gross registered tonnage (GRT)
- Name and address of owner(s) and operator(s)
- Gear used
- Time period authorized for fishing

[21] www.lloydsmiu.com

[22] www.ec.europa.eu/fisheries/fleet

[23] www.chamber-of-shipping.org.tr

[24] www.crs.hr

were retained as being only Libyan flagged and ICCAT registered for calculation purposes.

- 2 PS vessels double-registered (Libya-Italy)
  - ♣ AL SAFA III (Libya) AURORA (Italy)
  - ♣ ABR ALBIHAR II (Libya) MARIA MADRE I (Italy)

  were retained as being only Libyan flagged and ICCAT registered for calculation purposes.

- PS vessels registered as trawlers and vice-versa, either on ICCAT or on the European Union DG Fisheries Fishing Vessels' Database.
- One French trawler, VINCENT MARINELLO (see Figure 021), being decommissioned, transformed into a BFT PS vessel (LOA ≤ 24.17m). It is unclear if she will be re-flagged to Libya or if she will operate under French flag and French BFT fishing license in 2008.

Figure 021: French trawler: VINCENT MARINELLO, being decommissioned, transformed into a BFT PS vessel (LOA ≤ 24.17m) Seen at the Port of Sète, France, January 2008. Picture ©®: Courtesy by ATRT, SL.

- PS fishing vessels currently under construction (Turkey, Croatia, Spain, Italy and Tunisia for Libya, Algeria, Croatia and Tunisia).
  - Turkey:
    - ♣ 25.50m BFT PS vessel OSMAN SERTER I under construction in 2007,
    - ♣ 40.20m BFT PS vessel KASIMO ULLARI IV under construction in 2007,
    - ♣ 46m BFT PS vessel FATOGLU BALIKCILIK II under construction in 2007,
    - ♣ 45m BFT PS vessel (NO NAME) under construction in 2007.
  - Croatia:

- ♣ NEPTUN I, NEPTUN II, NEPTUN III & NEPTUN IV having been or being built in 2007-2008 to be fully operational during 2008-2009 by Tehnomont Pula shipyard for Solin-Croatia-based BFT fishing operator Conex-Trade.
- ♣ SARDINA I, having been built in 2007 to be fully operational during 2008.

- Spain: Four large BFT PS vessels (LOAs = 33.10m and 49.50m) to be built for Algeria, delivery 2008, two of which by Astilleros la Parilla (BV certified) for Algerian companies KBB and Albacore, sarl.
- Italy: According to unconfirmed Industry reports:
  - ♣ Six large BFT PS vessels (LOA = 38m) and six medium BFT PS vessels (LOA = 31m) to be built for Libya, delivery 2008/2009.
  - ♣ Three EU FIFG-IFOP[25] financed large BFT PS vessels, of which one (Hull: Steel; LOA = 42m; Main engines: x 2 Guascor SF 480 TA SP 1570 Hp / 1800') to be built for delivery in 2008/2009 (see Figure 022).
- Tunisia: Two large BFT PS vessels (LOA > 33.10m) having being built at Sfax shipyard Mecanav. DOB ETA May and October 2006. Delivery in time unconfirmed. Fully operational in 2008.

- Detected Mediterranean PS fishing vessels with LOAs < 20m, have purposely not been included in this survey, regardless whether they were registered or not with ICCAT as authorised BFT fishing vessels.
- Out of 612 detected PS fishing units, 113 vessels were not recorded with ICCAT at the time the survey was carried-out, of which:
  - 26 units were effectively being built at the time the survey was carried-out,
  - 6 units were flagged to Algeria and have positively been identified as fully operational PS fishing vessels (see Annexe 2),
  - 17 units were flagged to Croatia and have positively been identified as fully operational PS fishing vessels,
    - ♣ 11 PS multispecies: 28.6m ≥ LOA ≥ 20m,
    - ♣ 6 medium PS: 38.5m > LOA ≥ 28.6m.
  - 5 units were flagged to EU states and have positively been identified as fully operational PS fishing vessels,
  - 1 unit was flagged to Libya and has positively been identified as a fully operational large PS fishing vessel, inside the Mediterranean Sea during the 2007 BFT fishing season,
  - 8 units were flagged to Tunisia and have positively been identified as fully operational PS multispecies fishing vessels, inside the Mediterranean Sea during the 2007 BFT fishing season,
  - 50 units were flagged to Turkey of which:
    - ♣ 10 PS multispecies: 28.6m ≥ LOA ≥ 20m,
    - ♣ 23 medium PS: 38.5m > LOA ≥ 28.6m,
    - ♣ 17 large PS: LOA > 38.5m,

[25] FIFG: Financial Instrument for Fisheries Guidance. The Regulation on the Financial Instrument for Fisheries Guidance (FIFG) set out the policy priorities and the terms of assistance for the fisheries and aquaculture sector for the period 2000-2006. The FIFG was designed to help achieve the aims of the common fisheries policy by providing structural assistance to strengthen the competitiveness of the operating structures and the development of economically viable enterprises. Council Regulation (EC) No 1263/1999 of 21 June 1999 on the Financial Instrument for Fisheries Guidance. This Regulation granted FIFG support to the following in line with the FIFG's overall objectives: Fleet renewal and modernisation of fishing vessels; adjustment of fishing effort; joint enterprises; small-scale coastal fisheries; socio-economic measures; protection of marine resources in coastal waters; aquaculture; fishing port facilities; processing and marketing of fishery and aquaculture products; seeking new outlets for such products; operations by members of the trade; innovative actions, in particular those of a transnational nature and involving the networking of operators and areas dependent on the sector. technical assistance.

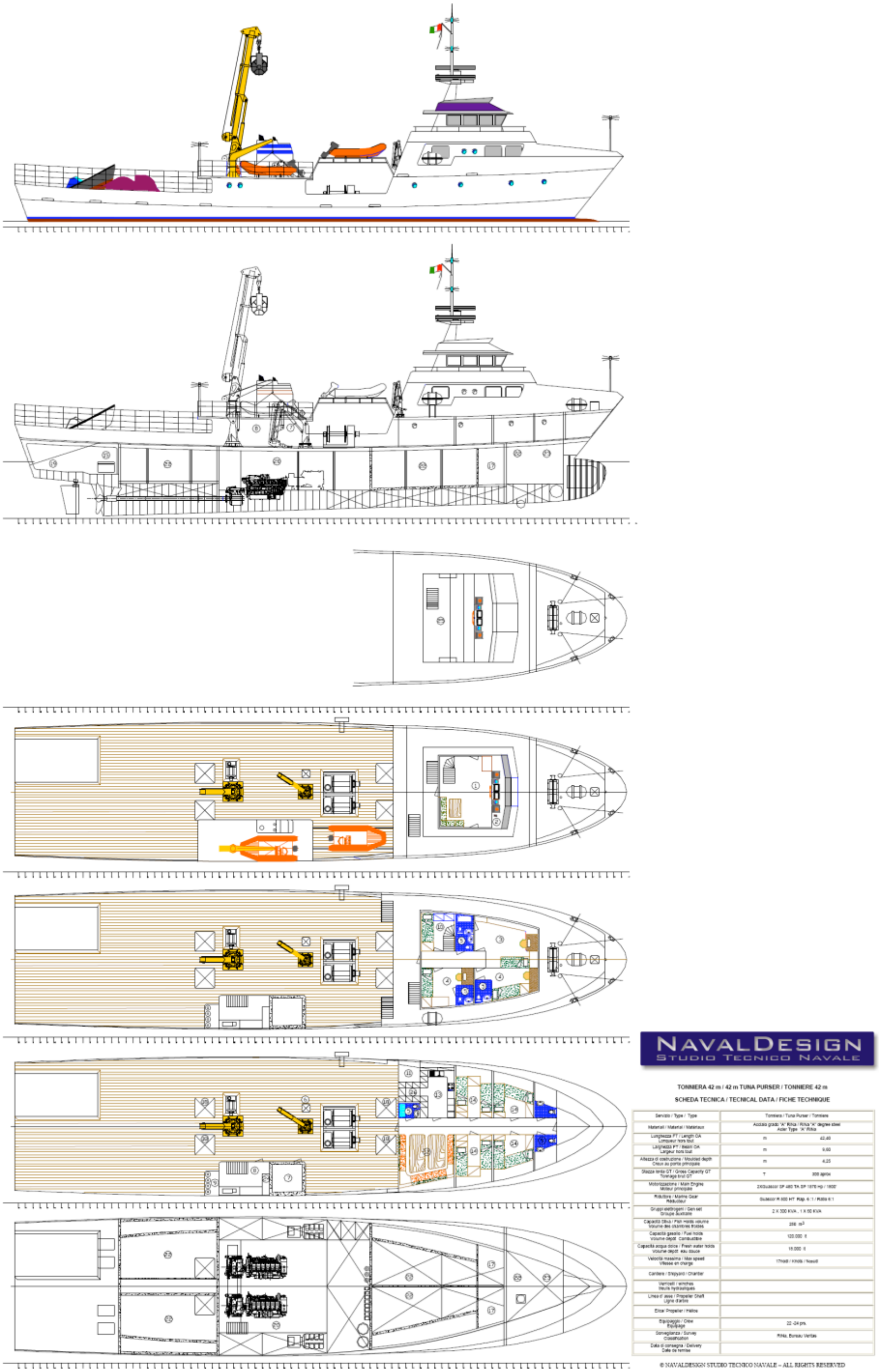


Figure 022: Italian EU-IFOP financed Large BFT PS vessel (Hull: Steel; LOA = 42m; Main engines: x 2 Guascor SF 480 TA SP 1570 Hp / 1800') to be built for delivery in 2008/2009.

Data obtained from the Mediterranean Sea BFT PS fleet shows that this fleet has increased by 203 new commissioned and operative fishing units during the 1996-2007 period (see Figure 007).

In 2007, the number of recorded operative BFT PS vessels inside the Mediterranean Sea amounted to 593 and an expected estimated 621 could be operative during 2008-2009 (see Figure 023).

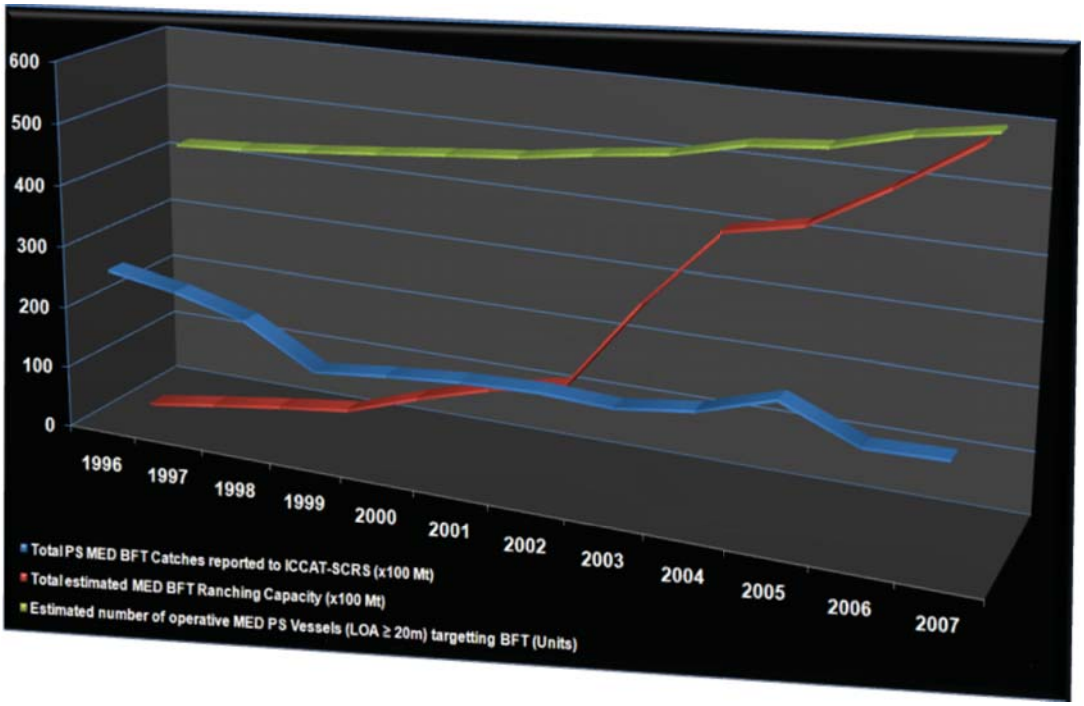


Figure 023: Yearly variations of MED BFT PS Catch reported to ICCAT-SCRS Vs. MED PS operative fishing fleets and ICCAT recorded MED BFT ranching capacities.

In 2007, the total declared Mediterranean Sea BFT ranching capacity, according to ICCAT itself reached a staggering level of 59,842 Mt, that is an almost 100 Mt per operative BFT PS vessel, yet this does not mean that Mediterranean Sea tuna ranches were filled to their maximum biomass capacity during that year (see Figure 024).

Figure 024: Aerial view of AJD Tuna's infrastructure at Comino Channel on July 19th 2007. 20 Ø50m empty tuna cages with a total ranching capacity for 3.000.000,00 Kgs. were counted. Picture ©®: by: M.S.P.A.P.

According to Industry reported data[26], submitted by the Japanese delegation to ICCAT's latest November 2007 Antalya Meeting, total amount of purse-seined and live-transferred BFT into Mediterranean tuna ranches amounted to only 17,830 Mt which would mean that tuna ranches across the Mediterranean were filled to just 29.8% of their full capacity.

[26] Source: Suisan Times, October 15th 2007.

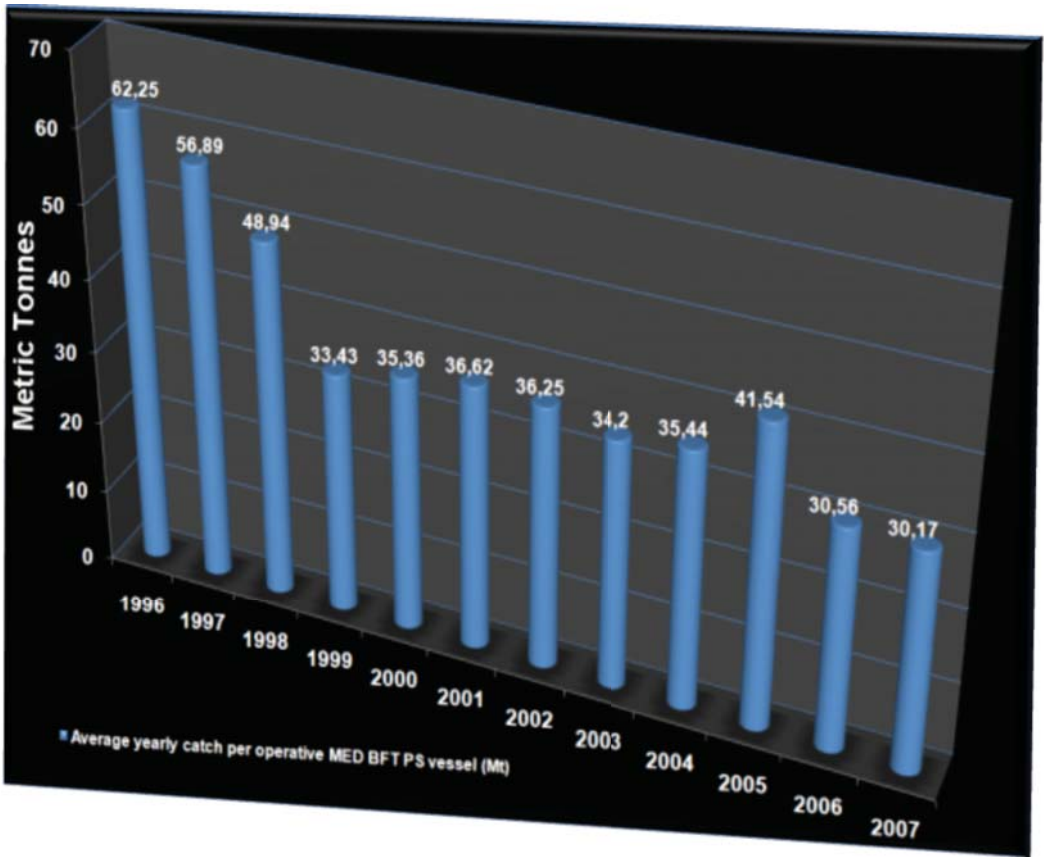


Figure 025: Average yearly catch per operative MED BFT PS vessel, according to yearly MED PS BFT catch reports to ICCAT-SCRS. Source: ICCAT-SCRS Task I 2007 12 21 Update.

Should yearly MED PS BFT catch reports to ICCAT-SCRS by Mediterranean Sea contracting parties be believed, the average yearly BFT catch per operative purse seine vessel would have plummeted by as much as 51.53 % during the 1996-2007 period (see Figure 025).

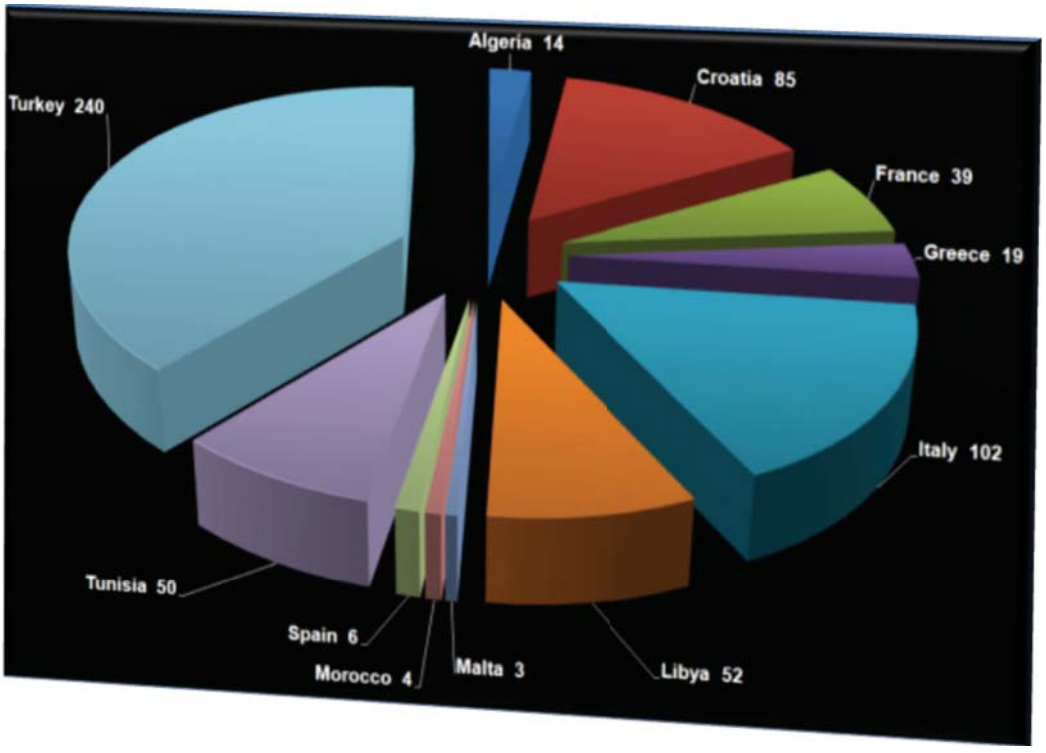


Figure 026: Expected estimated Number of BFT PS units operative during 2008.

As stated previously, some 614 BFT PS vessels could be operative during 2008 inside the Mediterranean Sea of which 39% Turkish-flagged, 17% Italian-flagged, 14% Croatian-flagged and 9% Libyan-flagged (see Figure 026).

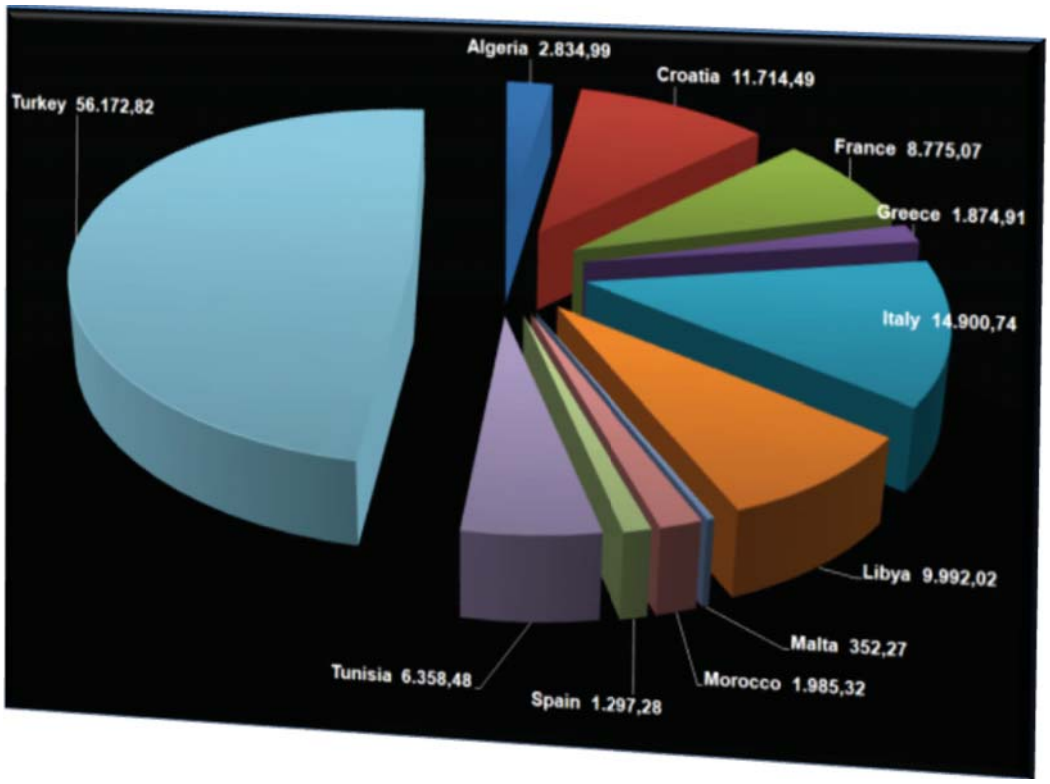


Figure 027: Expected estimated or indicated total GRTs of BFT PS units operative during 2008.

In terms of Gross Registered Tonnages corresponding to such fishing fleets, 48 % would correspond to Turkish-flagged PS vessels, 13 % to Italian-flagged PS vessels, 10 % to Croatian-flagged PS vessels and 9 % to Libyan-flagged PS vessels (see Figure 027).

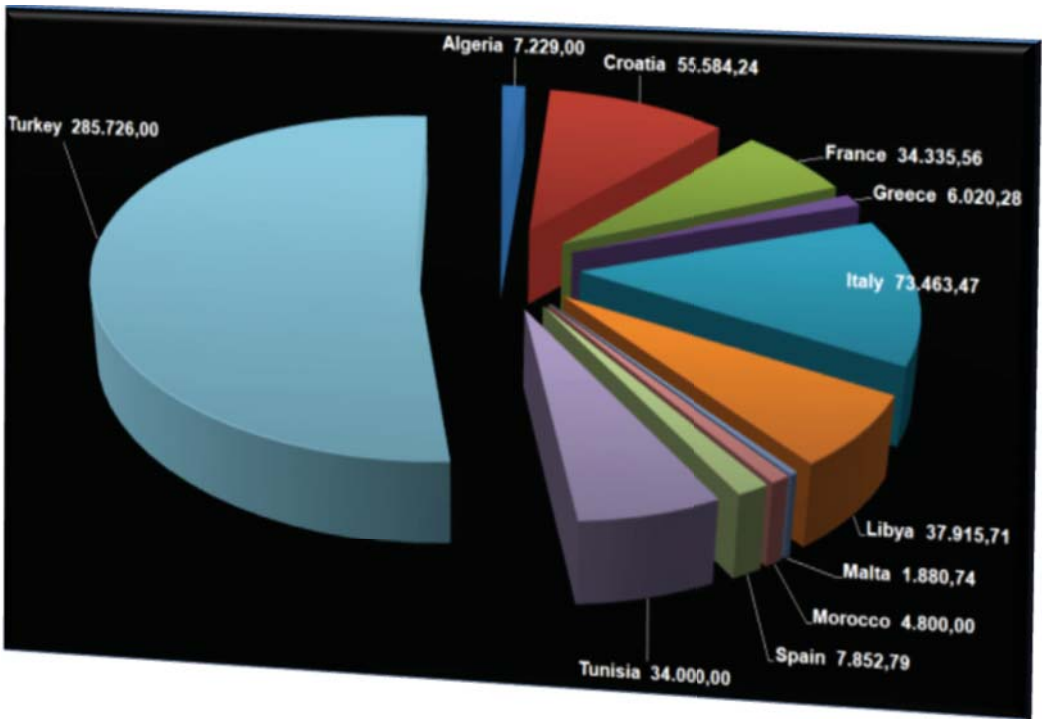


Figure 028: Expected or indicated Total Installed Power Main Engines (Hp) of BFT PS units operative during 2008.

In terms of Total Installed Power of Main Engines (IHP) corresponding to such fishing fleets, 52 % would correspond to Turkish-flagged PS vessels, 13 % to Italian-flagged PS vessels, 10 % to Croatian-flagged PS vessels and 7 % to Libyan-flagged PS vessels (see Figure 028).

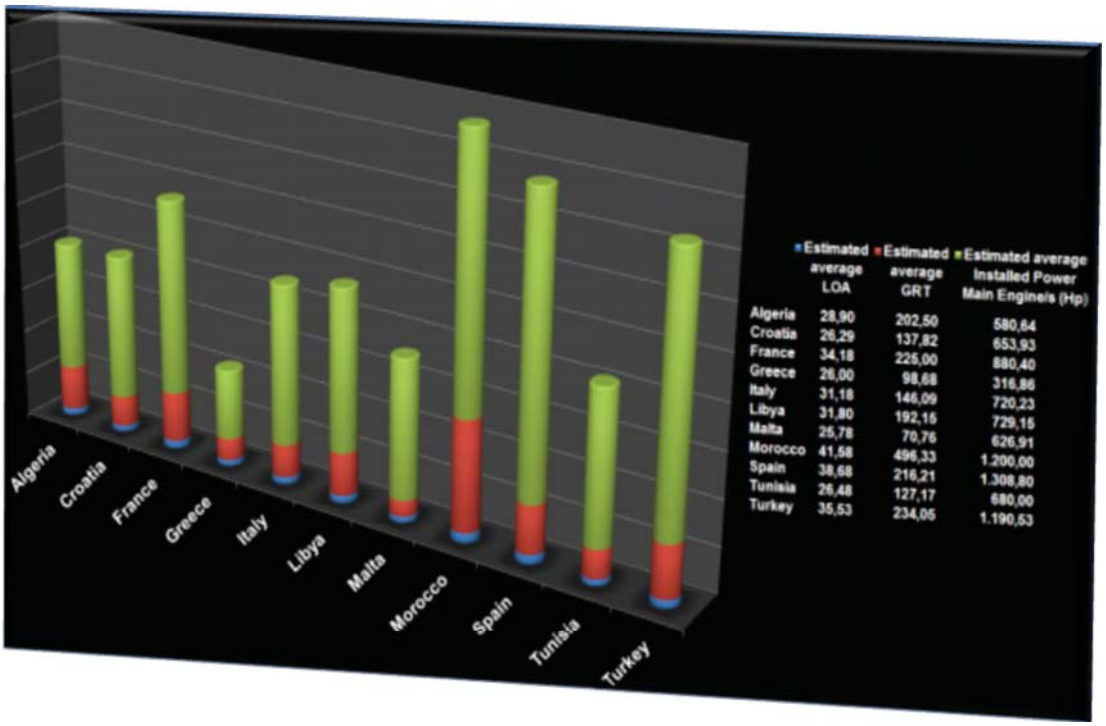


Figure 029: Average LOAs, GRTs and IHPs for BFT PS vessel fleets, by country, operative during 2008.

Disparities between total GRTs and IHPs percentages for all eleven national BFT PS fleets (see Figure 029) are mainly due to differences in hull (length, beam and hydrodynamics) fish holds/decks and propulsion designs and configurations. Such differences are clearly shown in Annexe 1 of this report.

In order to refine our comparison between all eleven national BFT PS fleets, operative inside the Mediterranean Sea, we choose to introduce a Gross Fishing Capacity per fleet indicator (GFCi/F), calculated as follows:

$$GFCi/F = \sum_{Units}^{sum} \left(\frac{LOA\ (m) \times GRT\ (T) \times IHP\ (hp)}{1{,}000{,}000.00} \right)$$

Such indicator allows to refine our initial quantitative comparisons between operative BFT PS fleets inside the Mediterranean Sea, but is in no way a definitive real fishing capacity indicator, as it does not take into consideration a number of technical and logistical variables, such as geographical flexibility, the use of tuna-spotting aircrafts, tuna detection electronics, purse seine net configuration and other fishing efficiency variables described in the Introduction of this report, that indeed may ponder, increase or decrease, fishing capacity for a given fleet of vessels.

It thus appears that the Turkish-flagged BFT PS fleet would account for 62 % of the total consolidated Mediterranean BFT PS fleet GFCi, the Italian fleet would account for 10 %, the French fleet for 8 % and the Croatian fleet for 6 % (see Figure 030).

ICCAT-SCRS differentiates three different types of bluefin tuna purse seine fishing vessels:

- Large PS: LOA > 38.5m
- Medium PS: 38.5m > LOA ≥ 28.6m
- PS multispecies: 28.6m ≥ LOA ≥ 20m

Turkey again stands second to none in terms of the number of operative large (LOA > 38.5m) PS vessels: 88; followed by Italy: 25 and France: 12 (see Figure 031).

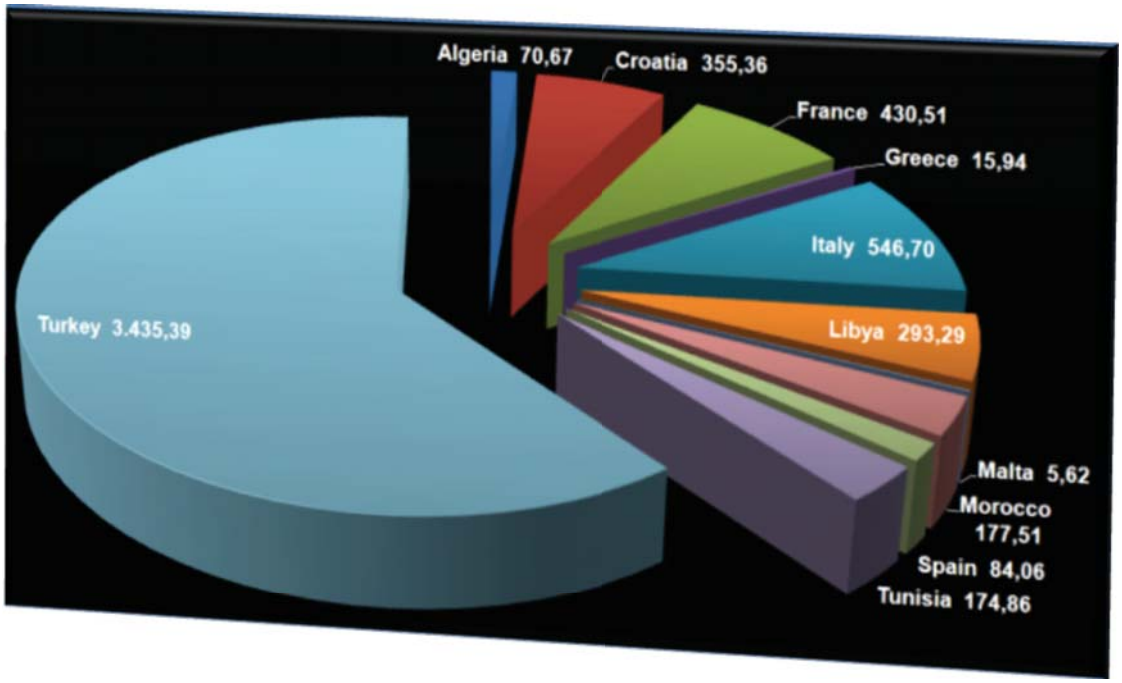


Figure 030: Distribution of national BFT PS GFCi/Fs inside the Mediterranean Sea.

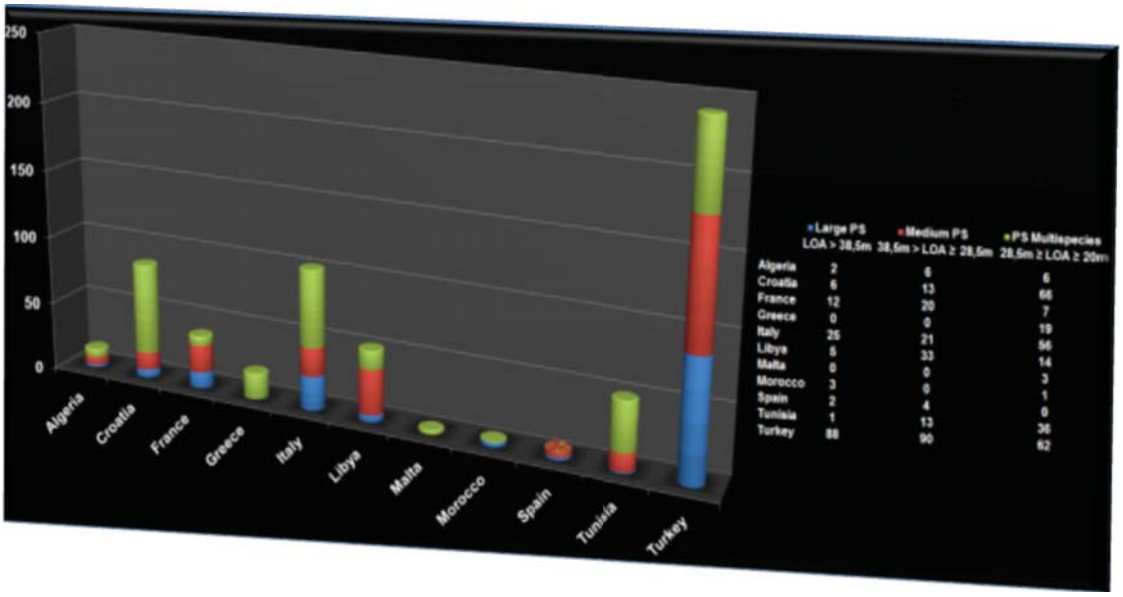


Figure 031:Composition of the Mediterranean Sea national BFT PS fishing vessel fleets, by LOA size.

Turkey, again leads in terms of the number of operative medium (38.5m > LOA ≥ 28.6m) PS vessels: 90; followed by Libya: 33 and Italy: 21 (see Figure 031).

Croatia is, however, the leading Mediterranean country in terms of PS (28.6m ≥ LOA ≥ 20m) multispecies vessels: 66; followed by Turkey: 62 and Italy: 56 (see Figure 031).

According to ICCAT-SCRS[27], the best yearly potential BFT catch estimation for:

- ♣ Large PS (LOA > 38.5m) would be: 300 Mt
- ♣ Medium PS (38.5m > LOA ≥ 28.6m) would be: 150 Mt
- ♣ PS multispecies (28.6m ≥ LOA ≥ 20m) would be: 40 Mt

[27] Estimations of the total number of vessels fishing bluefin tuna in the Mediterranean Sea during the most recent years (2004 and 2005). Catch estimates by vessel are based on ICCAT Data Base and/or national surveys Data Bases and are expressed in Metric Tonnes per year. Source: SCRS/ICCAT June 2006.

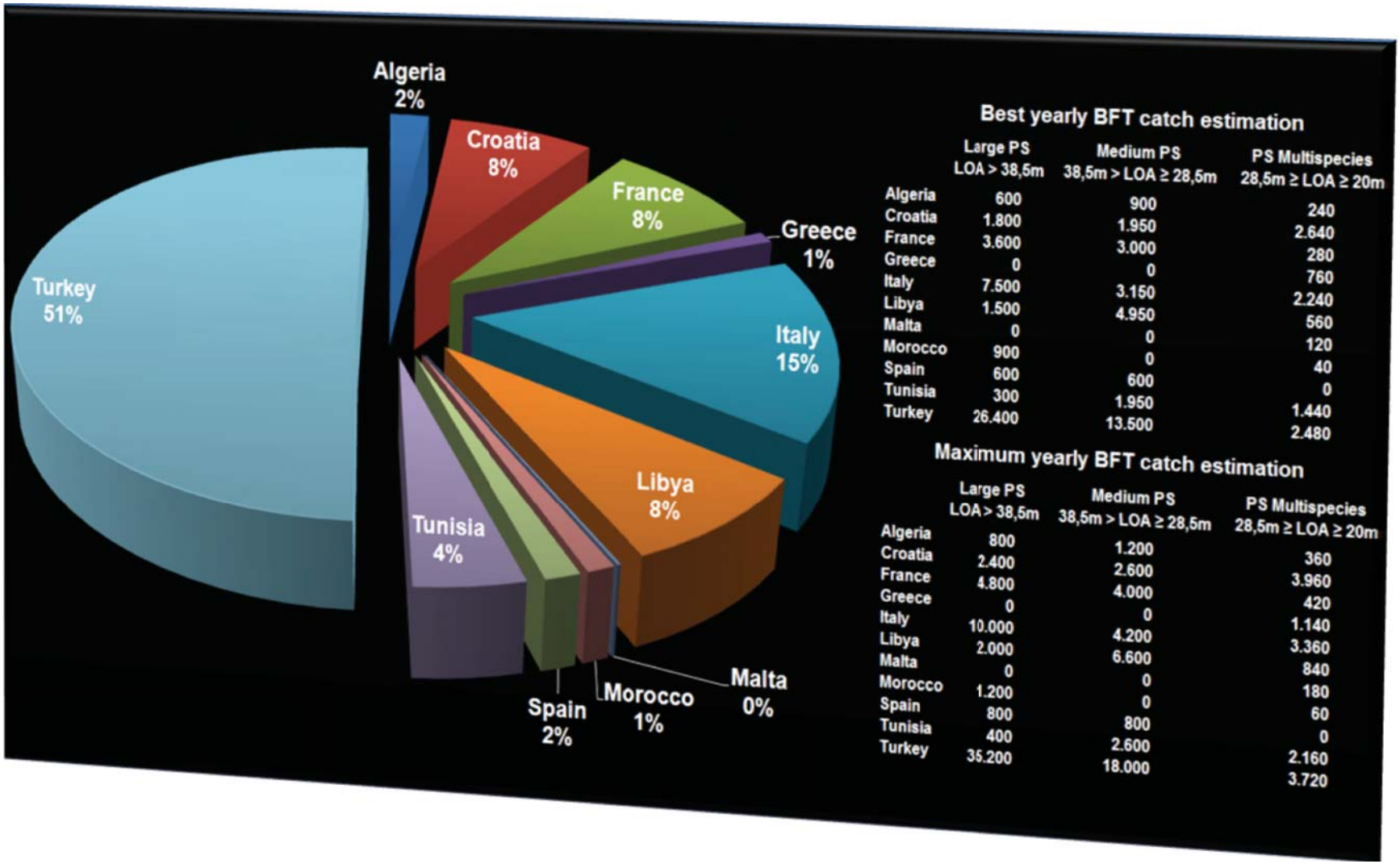


Figure 032: Best and maximum yearly BFT catch estimation by national PS fleets and percentage distribution according to ICCAT-SCRS ratios.

Maximum yearly potential BFT catch estimation for:

- ♣ Large PS (LOA > 38.5m) would be: 400 Mt
- ♣ Medium PS (38.5m > LOA ≥ 28.6m) would be: 200 Mt
- ♣ PS multispecies (28.6m ≥ LOA ≥ 20m) would be: 60 Mt

Once such potential catch estimates are applied to each national PS fleet, it would appear that total best yearly potential BFT catch estimation for the entire operative BFT PS fishing fleet inside the Mediterranean Sea, would rise to 84,000 Mt/Year (see Figure 032).

Maximum yearly potential BFT catch estimation for the entire operative BFT PS fishing fleet inside the Mediterranean Sea, would reach the 113,800 Mt/Year.

Turkey would again head the score with a 50.2 % (42,380 Mt ~ 56,920 Mt) of total catches, followed by Italy with 15.43 % (12,890 Mt ~ 17,560 Mt) and Libya 8.30 % (7,010 Mt ~ 9,440 Mt).

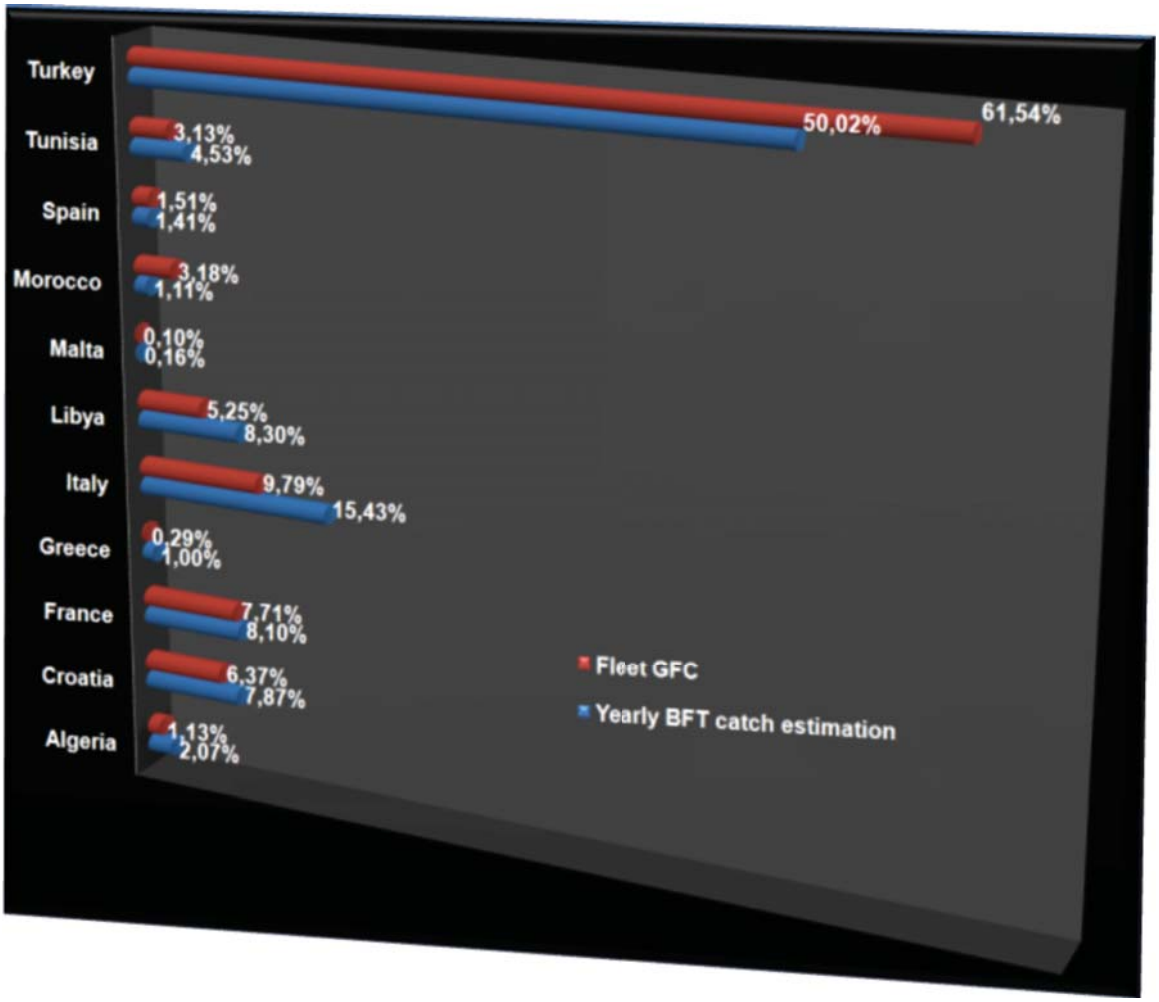


Figure 033: Disparities between Mediterranean Sea national PS fishing vessel fleets' best and maximum yearly potential BFT catch estimation and national BFT PS GFCi/Fs percentages.

Substantial differences between best and maximum yearly potential BFT catch estimations and national BFT PS GFCi/Fs percentages for a given number of Mediterranean Sea national PS fishing vessel fleets, **-** Turkey (**-11.52%**) and Italy (**+5.64%**) **-** are yet to be noted (see Figure 033).

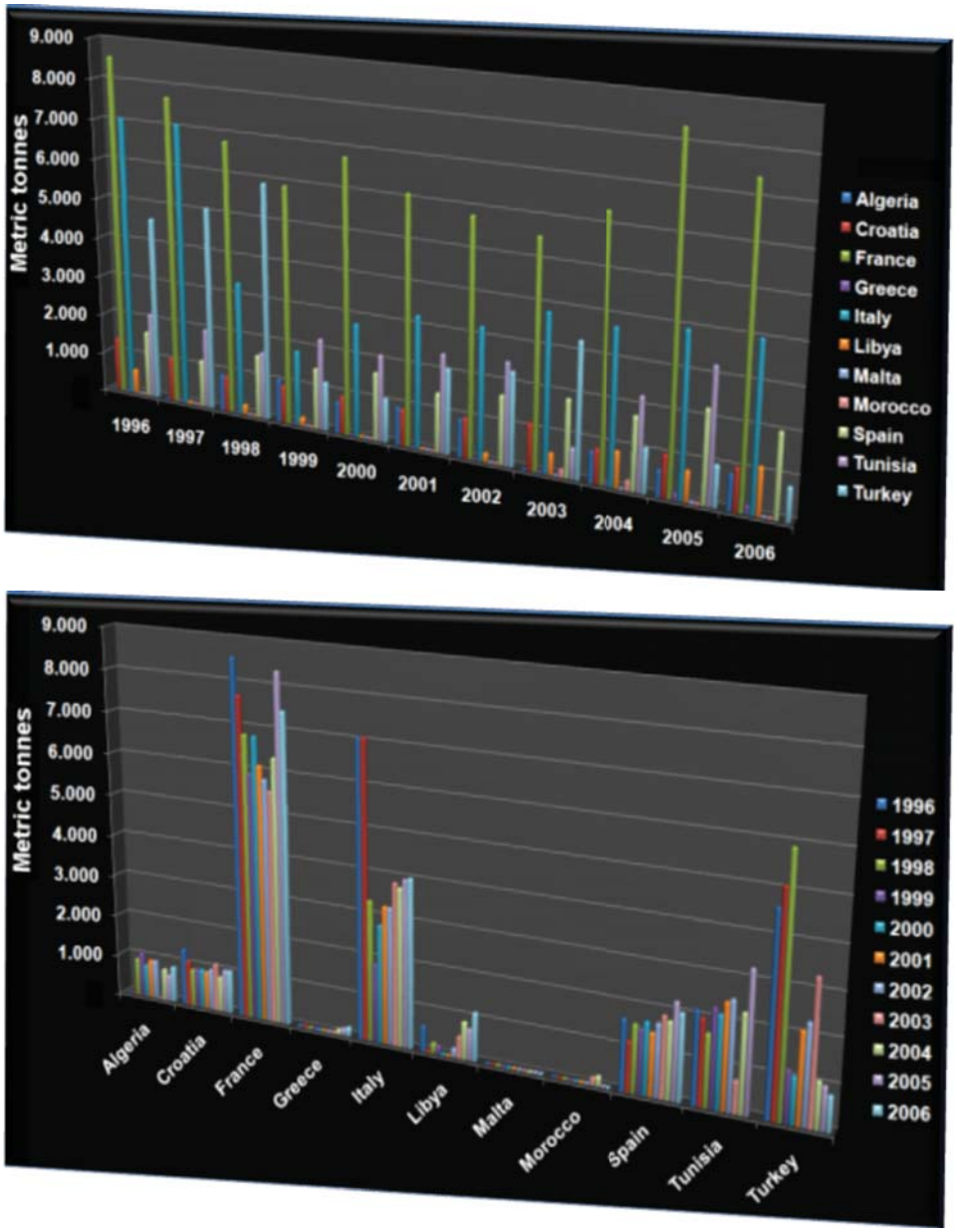
Furthermore, best and maximum yearly potential BFT catch estimation for a given number of Mediterranean Sea national PS fishing vessel fleets are well below recorded yearly BFT catches, as will be seen in following chapters.

Such disparities thus call for a more refined analysis of fishing capacities for each and every Mediterranean Sea BFT PS fleet.

4. Maximum recorded and/or reported catch capacity based on a detailed analysis of catch rates per specific national and multi-national BFT PS fishing fleets.

According to the Fishing in Europe magazine No 23 September 2004, published by the Directorate-General for Fisheries of the European Commission, BFT PS catches accounted for over 75 % of total BFT catches in the Mediterranean Sea. [28]

Total yearly BFT catch potential for 2004 and 2005 inside the Mediterranean Sea, by purse seine BFT fishing vessels alone, was estimated at the time by ATRT,SL. to be 64,300 Mt.[29]



Figures 034 A & B: Reported total BFT PS catches inside the Mediterranean Sea, by year and ICCAT Contracting Parties, for the decade 1996-2006.

[28] CPUE values, calculated as catch per vessel and day at sea on board 43 previous generation PS vessels during a Mediterranean Sea Summer fishing season, were Spanish PS: ≈ 3.46 Mt, Greek PS:≈ 0.22 Mt, Italian PS:≈ 2.50 Mt and Turkish PS:≈ 3.22. Source: Project Nº 94/050: Investigations on abundance indices of purse seine bluefin tuna in the Mediterranean Sea by observers on board and Ciheam.

[29] Source: The plunder of bluefin tuna in the Mediterranean and East Atlantic in 2004 and 2005, Uncovering the real story The collapse of fisheries management". Published by WWF July 2006.

Such figures have since then been revised and refined by ATRT, SL. based on an exhaustive Mediterranean BFT purse seine fishing vessel fleet's survey, carried-out between October 2006 and October 2007, based on ICCAT's registered ships databases.

According to ICCAT-SCRS[30] a total of 211,387 Mt of BFT were purse seined inside the Mediterranean Sea during the decade 1996-2006 (see Figures 034 A & B) by eleven coastal states[31], operating national BFT PS fishing fleets.

France has reported a total of 75,318 Mt of BFT having been caught by its national Mediterranean PS fishing fleet during this period, followed by Italy: 44,191 Mt, Turkey: 28,449 Mt and Tunisia: 21,391 Mt.[32]

Record yearly reported total BFT PS catches inside the Mediterranean Sea, by ICCAT contracting parties during the period 1996-2007, correspond to: (see Figure 035)

- France's 1996, 8,547 Mt PS BFT catch,
- Italy's 1997, 7,068 Mt PS BFT catch,
- Turkey's 1998, 5,899 Mt PS BFT catch.

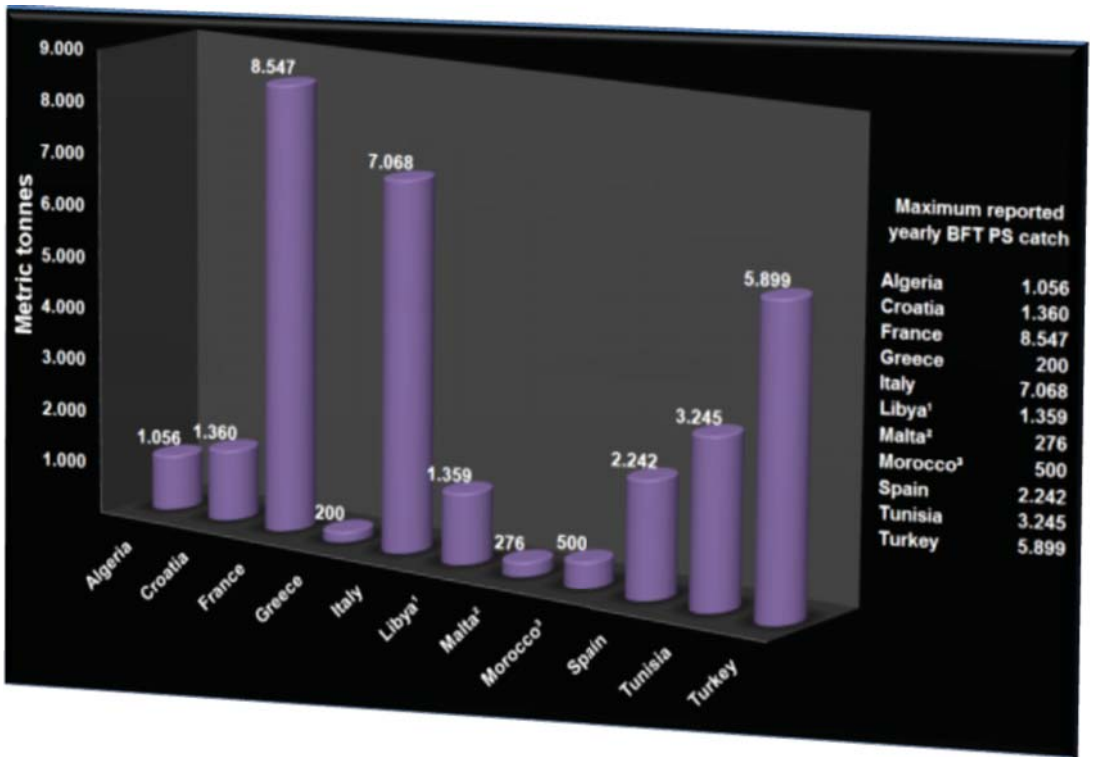


Figure 035: Maximum reported total BFT PS catches inside the Mediterranean Sea, by ICCAT Contracting Parties during the period 1996-2007. Maximum BFT PS catches reported for Libya, Malta and Morocco correspond to the year 2007. Malta's 2007 BFT PS catch under charter with Korea. Morocco's 2007 BFT PS catch by just one operative vessel inside the Mediterranean Sea: LE MARSOUIN.

It is worthwhile noting that operative PS fishing vessel fleets since 1996 (number of units and size of such fleets) have either remained stable (in the case of France, Spain and Tunisia) or have dramatically increased (in the case of Libya, Croatia and Turkey), as shown in Figures 023 & 026.

When comparing reported maximum and average yearly BFT PS catches inside the Mediterranean Sea, by ICCAT Contracting Parties with best and maximum yearly BFT catch estimations by national PS fleets according to ICCAT-SCRS ratios for the period 1996-2007 (see Figures 036 and 037), it appears that the only reported catch data that is consistent with ICCAT-SCRS estimations, is the one provided by France.

[30] TASK I statistical database.

[31] All of which are currently ICCAT Contracting Parties.

[32] Tunisia has not yet reported its 2006 BFT PS catches. Figure corresponds to 1996-2005 period.

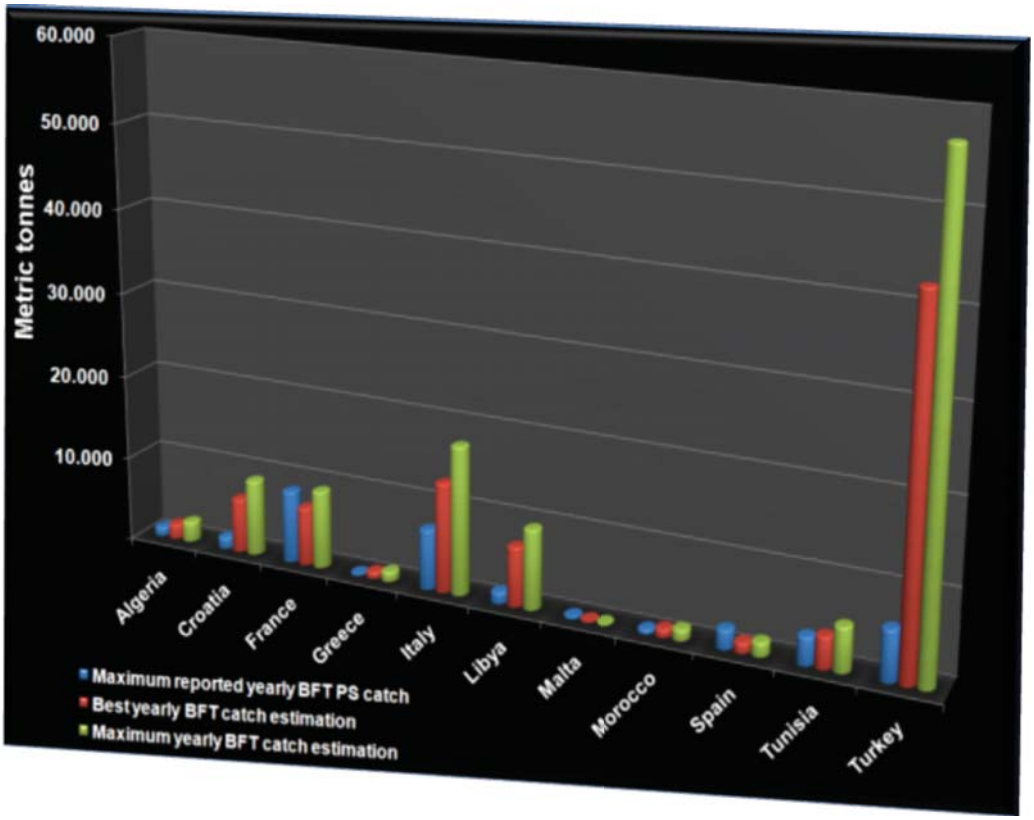


Figure 036: Disparities between maximum reported total BFT PS catches inside the Mediterranean Sea, by ICCAT Contracting Parties during the period 1996-2007 and best - maximum yearly BFT catch estimations by national PS fleets according to ICCAT-SCRS ratios.

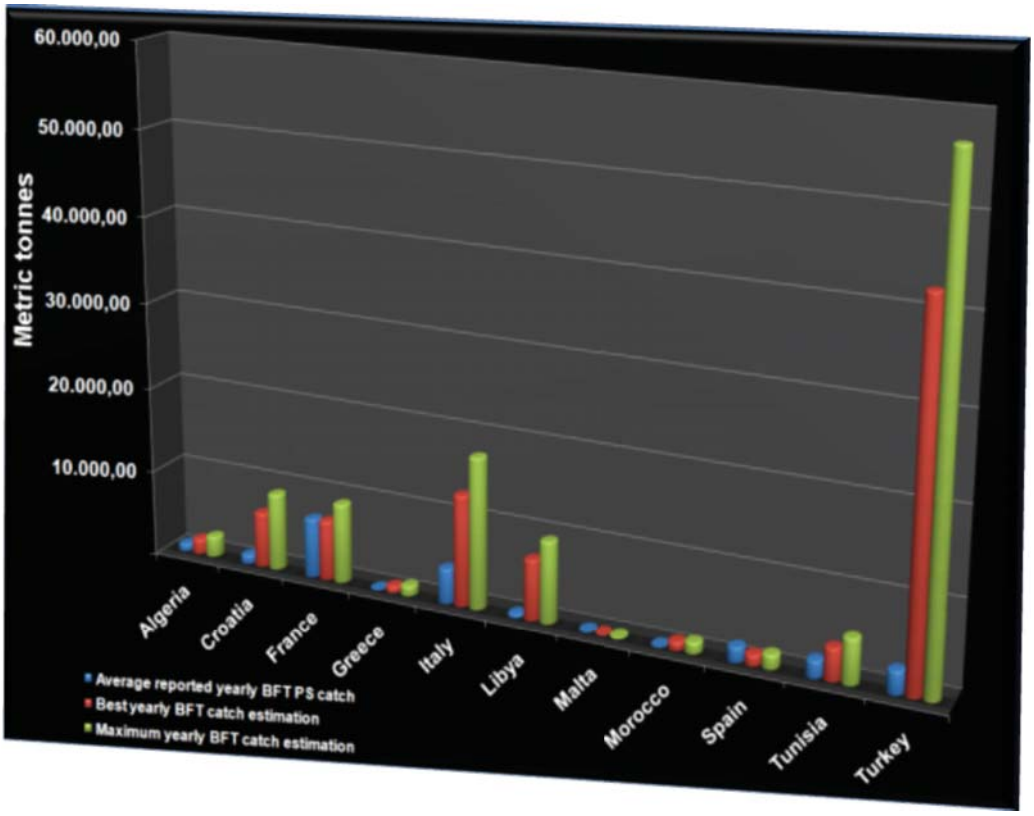


Figure 037: Disparities between average reported total BFT PS catches inside the Mediterranean Sea, by ICCAT Contracting Parties during the period 1996-2007 and best - maximum yearly BFT catch estimations by national PS fleets according to ICCAT-SCRS ratios.

a. The case of the French MED BFT PS Fleet.

Reported French BFT PS catches inside the Mediterranean Sea during the decade 1996-2006, consistently almost match best and maximum yearly BFT catch estimations (according to ICCAT-SCRS ratios) for the French PS fleet[33] (see Figure 038).

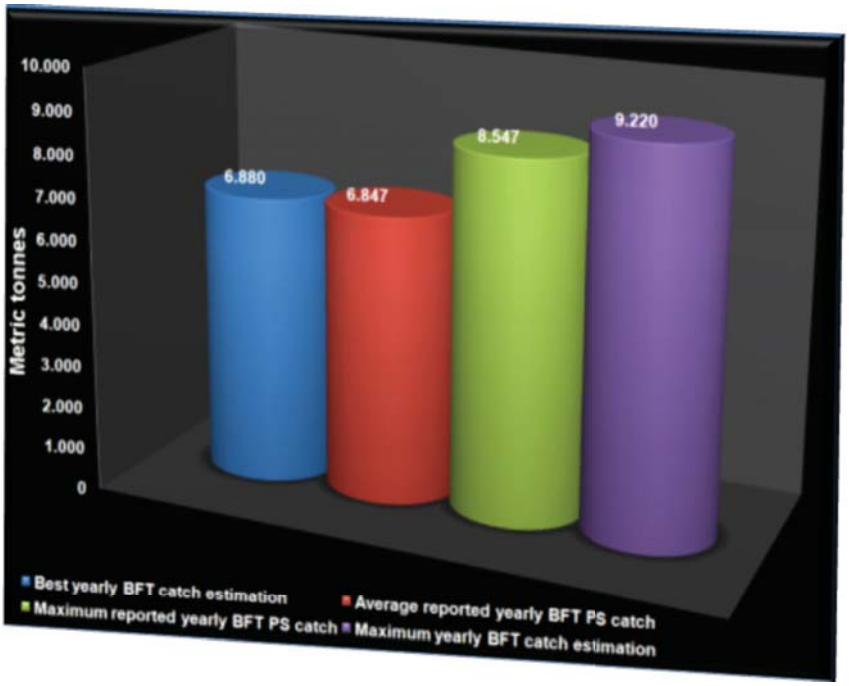


Figure 038: Maximum and average reported total BFT PS catches inside the Mediterranean Sea, by French fishing vessels during the period 1996-2006 consistently coincide with best - maximum yearly BFT catch estimations for this fleet, according to ICCAT-SCRS catch estimation ratios.

A survey conducted for 10 French BFT PS vessels operating in the Balearic Islands during the 2001 summer fishing season, consistently corroborates previous average BFT catch estimations.

Total catch for all 10 purse seiners amounted to ≈ 1,771 Mt, which by extrapolation to all of the 38 French operative PS vessels during 2001, would amount to a total catch of some ≈ 6,730 Mt.

France declared a total 2001 MED PS catch of 6,119 Mt, 9.09 % below the previously extrapolated result.

Details of catch for the previously mentioned ten ships can be found in Tables 002 A & B.

Another survey conducted for 23 French BFT PS vessels operating in the Balearic Islands and Libyan waters during the 2007 summer fishing season, again consistently corroborates previous average BFT catch estimations.

Total catch for all 23 purse seiners amounted to ≈ 5,274 Mt, which by extrapolation to all of the 38 French operative PS vessels during 2007, would amount to a total catch of some ≈ 8,715 Mt.

Though France has not declared yet its total 2007 MED PS catch, the result of such extrapolation is yet inside the best-maximum yearly MED BFT PS catch estimation for its currently operative fleet. Details of catch for the previously mentioned 23 ships can be found in Tables 003 A, B, C & D.

[33] Though overfishing by the French Mediterranean PS fleet is not in question here, it might be said in all fairness that France has not under-reported its BFT yearly catches since 1996; both to the EU and to ICCAT.

Name of PS Vessel	Date	Time	Position		Catches		Destination
			Latitude	Longitude	N° of Tunas	W/RW (Kgs)	
ANNE ANTOINE II	18 May 2001	n/a	37°27'N	01°24'E	167	1.290	Dead & hauled onboard
	24 May 2001	n/a	37°50'N	01°23'E	132	1.090	Dead & hauled onboard
	25 May 2001	n/a	37°37'N	01°27'E	1.506	12.080	Dead & hauled onboard
	02 June 2001	n/a	38°54'N	03°00'E	1.000	170.000	Transferred live
	02 June 2001	n/a	38°54'N	03°00'E	268	55.368	Dead & hauled onboard
	09 June 2001	n/a	38°48'N	00°50'E	100	3.500	Dead & hauled onboard
	13 June 2001	n/a	39°06'N	03°24'E	390	74.100	Transferred live
	13 June 2001	n/a	39°06'N	03°24'E	27	5.180	Dead & hauled onboard
Total BFT Summer Fishing Season Catch:					**3.590**	**322.608**	
CISBERLANDE III	18 May 2001	n/a	37°34'N	01°02'E	140	4.408	Dead & hauled onboard
	23 May 2001	n/a	38°01'N	01°45'E	3.126	26.447	Dead & hauled onboard
	25 May 2001	n/a	37°50'N	01°14'E	1.579	13.000	Dead & hauled onboard
	22 June 2001	n/a	37°51'N	01°02'E	400	13.300	Dead & hauled onboard
	04 June 2001	n/a	38°01'N	01°20'E	330	60.000	Transferred live
	04 June 2001	n/a	38°01'N	01°20'E	34	6.755	Dead & hauled onboard
	24 June 2001	n/a	37°37'N	00°54'E	300	80.000	Transferred live
	24 June 2001	n/a	37°37'N	00°54'E	100	8.900	Dead & hauled onboard
	30 June 2001	n/a	38°02'N	00°46'E	368	7.000	Dead & hauled onboard
	01 July 2001	n/a	37°57'N	00°48'E	1.020	57.400	Transferred live
	01 July 2001	n/a	37°57'N	00°48'E	102	5.420	Dead & hauled onboard
Total BFT Summer Fishing Season Catch:					**7.499**	**282.630**	
CISBERLANDE IV	02 June 2001	n/a	38°15'N	01°17'E	270	50.000	Transferred live
	02 June 2001	n/a	38°15'N	01°17'E	9	1.597	Dead & hauled onboard
	26 May 2001	n/a	37°58'N	01°34'E	31	675	Dead & hauled onboard
	26 May 2001	n/a	37°56'N	01°32'E	789	6.400	Dead & hauled onboard
Total BFT Summer Fishing Season Catch:					**1.099**	**58.672**	
JEAN-LOUIS RAPHAEL 2	23 May 2001	n/a	37°21'N	00°39'E	886	7.000	Dead & hauled onboard
	25 May 2001	n/a	37°18'N	00°43'E	3.424	27.392	Dead & hauled onboard
	27 May 2001	n/a	38°37'N	02°07'E	3.494	28.770	Dead & hauled onboard
	22 June 2001	n/a	38°01'N	01°04'E	110	2.500	Dead & hauled onboard
	04 July 2001	n/a	38°09'N	03°10'E	1.700	157.500	Transferred live
	04 July 2001	n/a	38°09'N	03°10'E	57	4.600	Dead & hauled onboard
Total BFT Summer Fishing Season Catch:					**9.671**	**227.762**	
VILLE D'ARZEU	23 May 2001	n/a	38°37'N	02°07'E	2.241	17.928	Dead & hauled onboard
	26 May 2001	n/a	38°12'N	01°12'E	1.378	11.323	Dead & hauled onboard
Total BFT Summer Fishing Season Catch:					**3.619**	**29.251**	

Table 002 A: Detailed account of BFT catches by 10 French PS vessels during summer 2001.

Name of PS Vessel	Date	Time	Position		Catches		Destination
			Latitude	Longitude	Nº of Tunas	W/RW (Kgs)	
LOUIS FRANCOISE II	18 May 2001	n/a	37°47'N	01°30'E	113	3.840	Dead & hauled onboard
	23 May 2001	n/a	37°59'N	01°16'E	1.367	13.936	Dead & hauled onboard
	24 May 2001	n/a	37°41'N	01°13'E	2.400	19.306	Dead & hauled onboard
	26 May 2001	n/a	37°53'N	01°34'E	1.903	14.964	Dead & hauled onboard
	04 July 2001	n/a	37°33'N	00°48'E	231	10.328	Dead & hauled onboard
Total BFT Summer Fishing Season Catch:					**6.014**	**62.374**	
MARCAL II	18 May 2001	n/a	37°53'N	01°15'E	480	3.850	Dead & hauled onboard
	23 May 2001	n/a	37°22'N	00°36'E	878	7.500	Dead & hauled onboard
	24 May 2001	n/a	38°03'N	01°43'E	2.215	18.340	Dead & hauled onboard
	01 June 2001	n/a	37°17'N	00°30'W	200	30.000	Transferred live
	01 June 2001	n/a	37°17'N	00°30'W	4	989	Dead & hauled onboard
	30 June 2001	n/a	38°02'N	00°47'E	1.000	35.000	Transferred live
Total BFT Summer Fishing Season Catch:					**4.777**	**95.679**	
PROVENCE COTE D'AZUR	31 May 2001	n/a	37°21'N	00°25'W	270	54.000	Transferred live
	31 May 2001	n/a	37°21'N	00°25'W	13	2.830	Dead & hauled onboard
	18 May 2001	n/a	37°30'N	01°14'E	350	2.800	Dead & hauled onboard
	23 May 2001	n/a	37°23'N	00°38'E	1.737	14.000	Dead & hauled onboard
	17 June 2001	n/a	38°44'N	00°58'E	313	20.040	Dead & hauled onboard
	24 June 2001	n/a	37°37'N	00°54'E	5.000	100.000	Transferred live
	24 June 2001	n/a	37°37'N	00°54'E	615	15.000	Dead & hauled onboard
	30 June 2001	n/a	37°59'N	00°50'E	1.020	33.600	Transferred live
	30 June 2001	n/a	37°59'N	00°50'E	75	3.600	Dead & hauled onboard
Total BFT Summer Fishing Season Catch:					**9.393**	**245.870**	
ROGER CHRISTIAN II	27 May 2001	n/a	37°22'N	01°59'E	3.060	25.212	Dead & hauled onboard
	23 June 2001	n/a	37°54'N	01°03'E	1.200	270.000	Transferred live
	23 June 2001	n/a	37°54'N	01°03'E	264	28.402	Dead & hauled onboard
Total BFT Summer Fishing Season Catch:					**4.524**	**323.614**	
ROSINE ARTHUR	18 May 2001	n/a	37°50'N	00°52'E	1.692	13.536	Dead & hauled onboard
	24 May 2001	n/a	37°56'N	01°00'E	941	7.528	Dead & hauled onboard
	27 May 2001	n/a	38°05'N	01°17'E	886	7.982	Dead & hauled onboard
	27 May 2001	n/a	37°20'N	00°10'W	240	50.000	Transferred live
	22 June 2001	n/a	38°06'N	01°11'E	132	20.500	Transferred live
	22 June 2001	n/a	38°06'N	01°11'E	154	23.200	Dead & hauled onboard
Total BFT Summer Fishing Season Catch:					**4.045**	**122.746**	

Table 002 B: Detailed account of BFT catches by 10 French PS vessels during summer 2001.

Name of PS Vessel	Date	Time	Position		Catches		Destination
			Latitude	Longitude	Nº of Tunas	W/RW (Kgs)	
CAP HORIZON	30 June 2007	n/a	n/a	n/a	n/a	25.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**25.000**	
CISBERLANDE V	28 April 2007	n/a	n/a	n/a	n/a	650	n/a
	25 June 2007	n/a	n/a	n/a	n/a	190.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**190.650**	
ERIC MARIN	16 April 2007	n/a	n/a	n/a	n/a	1.000	n/a
	28 April 2007	n/a	n/a	n/a	n/a	3.000	n/a
	13 June 2007	n/a	n/a	n/a	n/a	15.000	n/a
	29 June 2007	n/a	n/a	n/a	n/a	25.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**44.000**	
GERALD JEAN III	11 April 2007	n/a	n/a	n/a	n/a	4.950	n/a
	21 April 2007	n/a	n/a	n/a	n/a	9.000	n/a
	24 April 2007	n/a	n/a	n/a	n/a	23.000	n/a
	08 June 2007	n/a	n/a	n/a	n/a	10.000	n/a
	17 June 2007	n/a	n/a	n/a	n/a	94.500	n/a
	29 June 2007	n/a	n/a	n/a	n/a	3.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**144.450**	
GERALD JEAN IV	22 April 2007	n/a	n/a	n/a	n/a	5.840	n/a
	23 April 2007	n/a	n/a	n/a	n/a	1.940	n/a
	24 April 2007	n/a	n/a	n/a	n/a	23.780	n/a
	26 April 2007	n/a	n/a	n/a	n/a	2.070	n/a
	29 April 2007	n/a	n/a	n/a	n/a	4.700	n/a
	17 May 2007	n/a	n/a	n/a	n/a	7.000	n/a
	18 May 2007	n/a	n/a	n/a	n/a	10.950	n/a
	03 June 2007	n/a	n/a	n/a	n/a	96.000	n/a
	05 June 2007	n/a	n/a	n/a	n/a	45.000	n/a
	08 June 2007	n/a	n/a	n/a	n/a	200.000	n/a
	09 June 2007	n/a	n/a	n/a	n/a	18.000	n/a
	11 June 2007	n/a	n/a	n/a	n/a	49.300	n/a
	14 June 2007	n/a	n/a	n/a	n/a	84.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**548.580**	
JUANICO LUCIEN RAFAELA	30 April 2007	n/a	n/a	n/a	n/a	25.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**25.000**	
MARCAL	30 April 2007	n/a	n/a	n/a	n/a	117.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**117.000**	

Table 003 A: Detailed account of BFT catches by 23 French PS vessels during summer 2007.

Name of PS Vessel	Date	Time	Position		Catches		Destination
			Latitude	Longitude	Nº of Tunas	W/RW (Kgs)	
GERARD-LUC III	10 April 2007	n/a	n/a	n/a	n/a	3.800	n/a
	20 April 2007	n/a	n/a	n/a	n/a	1.330	n/a
	21 April 2007	n/a	n/a	n/a	n/a	20.000	n/a
	23 April 2007	n/a	n/a	n/a	n/a	2.300	n/a
	25 April 2007	n/a	n/a	n/a	n/a	5.000	n/a
	28 April 2007	n/a	n/a	n/a	n/a	6.300	n/a
	29 April 2007	n/a	n/a	n/a	n/a	1.900	n/a
	06 June 2007	n/a	n/a	n/a	n/a	197.000	n/a
	08 June 2007	n/a	n/a	n/a	n/a	21.000	n/a
	09 June 2007	n/a	n/a	n/a	n/a	10.000	n/a
	14 June 2007	n/a	n/a	n/a	n/a	6.000	n/a
	30 June 2007	n/a	n/a	n/a	n/a	24.900	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**299.530**	
GERARD-LUC IV	16 April 2007	n/a	n/a	n/a	n/a	4.300	n/a
	20 April 2007	n/a	n/a	n/a	n/a	9.250	n/a
	24 April 2007	n/a	n/a	n/a	n/a	4.800	n/a
	26 April 2007	n/a	n/a	n/a	n/a	12.830	n/a
	18 May 2007	n/a	n/a	n/a	n/a	3.400	n/a
	07 June 2007	n/a	n/a	n/a	n/a	63.000	n/a
	08 June 2007	n/a	n/a	n/a	n/a	13.000	n/a
	10 June 2007	n/a	n/a	n/a	n/a	90.000	n/a
	19 June 2007	n/a	n/a	n/a	n/a	4.150	n/a
	20 June 2007	n/a	n/a	n/a	n/a	13.500	n/a
	28 June 2007	n/a	n/a	n/a	n/a	15.000	n/a
	29 June 2007	n/a	n/a	n/a	n/a	2.500	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**235.730**	
GOLFE DU LION 5	30 May 2007	n/a	n/a	n/a	n/a	55.000	n/a
	31 May 2007	n/a	n/a	n/a	n/a	113.000	n/a
	14 June 2007	n/a	n/a	n/a	n/a	40.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**208.000**	
GOLFE DU LION 6	21 May 2007	n/a	n/a	n/a	n/a	118.000	n/a
	23 May 2007	n/a	n/a	n/a	n/a	11.000	n/a
	12 June 2007	n/a	n/a	n/a	n/a	200.000	n/a
	23 June 2007	n/a	n/a	n/a	n/a	185.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**514.000**	

Table 003 B: Detailed account of BFT catches by 23 French PS vessels during summer 2007.

Name of PS Vessel	Date	Time	Position		Catches		Destination
			Latitude	Longitude	Nº of Tunas	W/RW (Kgs)	
JANVIER GIORDANO	30 April 2007	n/a	n/a	n/a	n/a	14.000	n/a
	31 May 2007	n/a	n/a	n/a	n/a	3.300	n/a
	15 June 2007	n/a	n/a	n/a	n/a	247.800	n/a
	22 June 2007	n/a	n/a	n/a	n/a	40.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**305.100**	
MARCAL 3	12 June 2007	n/a	n/a	n/a	n/a	110.000	n/a
	16 June 2007	n/a	n/a	n/a	n/a	60.000	n/a
	22 June 2007	n/a	n/a	n/a	n/a	20.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**190.000**	
PIERRE JOSEPH SALVADOR	21 May 2007	n/a	n/a	n/a	n/a	56.000	n/a
	10 June 2007	n/a	n/a	n/a	n/a	120.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**176.000**	
PROVENCE COTE D'AZUR	13 June 2007	n/a	n/a	n/a	n/a	40.000	n/a
	25 June 2007	n/a	n/a	n/a	n/a	150.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**190.000**	
SAINT ANTOINE MARIE	12 June 2007	n/a	n/a	n/a	n/a	100.000	n/a
	13 June 2007	n/a	n/a	n/a	n/a	120.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**220.000**	
SAINT ANTOINE MARIE II	21 May 2007	n/a	n/a	n/a	n/a	150.000	n/a
	01 June 2007	n/a	n/a	n/a	n/a	250.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**400.000**	
VENT DU NORD	23 May 2007	n/a	n/a	n/a	n/a	4.450	n/a
	01 June 2007	n/a	n/a	n/a	n/a	80.000	n/a
	12 June 2007	n/a	n/a	n/a	n/a	105.000	n/a
	22 June 2007	n/a	n/a	n/a	n/a	20.000	n/a
	26 June 2007	n/a	n/a	n/a	n/a	241.000	n/a
	30 June 2007	n/a	n/a	n/a	n/a	50.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**500.450**	
VILLE D'ARZEW	09 June 2007	n/a	n/a	n/a	n/a	40.000	n/a
	18 June 2007	n/a	n/a	n/a	n/a	40.000	n/a
	21 June 2007	n/a	n/a	n/a	n/a	160.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**240.000**	
SAINTE SOPHIE FRANCOIS 2	22 June 2007	n/a	n/a	n/a	n/a	20.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**20.000**	
SAINTE SOPHIE FRANCOIS 3	2007	n/a	n/a	n/a	n/a	472.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**472.000**	

Table 003 C: Detailed account of BFT catches by 23 French PS vessels during summer 2007.

Name of PS Vessel	Date	Time	Position		Catches		Destination
			Latitude	Longitude	Nº of Tunas	W/RW (Kgs)	
LOUIS FRANCOISE II	12 June 2007	n/a	n/a	n/a	n/a	4.900	n/a
	22 June 2007	n/a	n/a	n/a	n/a	7.000	n/a
	26 June 2007	n/a	n/a	n/a	n/a	50.000	n/a
	30 June 2007	n/a	n/a	n/a	n/a	7.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**68.900**	
ROGER CHRISTIAN IV	24 April 2007	n/a	n/a	n/a	n/a	1.500	n/a
	25 April 2007	n/a	n/a	n/a	n/a	3.000	n/a
	29 April 2007	n/a	n/a	n/a	n/a	3.000	n/a
	18 May 2007	n/a	n/a	n/a	n/a	9.000	n/a
	04 June 2007	n/a	n/a	n/a	n/a	7.000	n/a
	08 June 2007	n/a	n/a	n/a	n/a	25.000	n/a
	09 June 2007	n/a	n/a	n/a	n/a	2.000	n/a
	26 June 2007	n/a	n/a	n/a	n/a	50.000	n/a
	30 June 2007	n/a	n/a	n/a	n/a	40.000	n/a
Total BFT Summer Fishing Season Catch:					**n/a**	**140.500**	

Table 003 D: Detailed account of BFT catches by 23 French PS vessels during summer 2007.

By taking into account ICCAT-SCRS best yearly potential BFT catch ratios for large PS (LOA > 38.5m) being double the ones for medium PS (38.5m > LOA ≥ 28.6m) and 7.5 times the ones for PS multispecies (28.6m ≥ LOA ≥ 20m), it would be safe to say that France's estimated 2007 annual BFT catches amounting to 8,715 Mt could be broken-down to:

$$8{,}715\ Mt = (n^1.x/4) + (n^2.x) + (n^3.3{,}75x) + (n\ .7.50x)$$

Where n^1 (0) is the number of French operative BFT PS small multispecies boats, n^2 (7) the number of French operative BFT PS multispecies boats, n^3 (20) the number of French operative BFT medium PS vessels and **n** (12) the number of French operative BFT large PS vessels, all in 2007; thus:

$$8{,}715\ Mt = (0\ .\ x/4) + (7\ .\ x) + (20\ .\ 3.75x) + (12\ .\ 7.50x)$$
$$8{,}715\ Mt = (7x) + (75x) + (90x)$$
$$8{,}715\ Mt = (172x)$$
$$x = 8{,}715 / 172 = 50.67$$

That is:

4,560.00 Mt having been caught by 12 large PS vessels,	**(380.00 Mt/ship)**
3,800.00 Mt having been caught by 20 medium PS vessels,	**(190.00 Mt/Ship)**
354.69 Mt having been caught by 7 PS multispecies boats,	**(50.67 Mt/Ship)**

b. The case of the Spanish MED BFT PS Fleet.

Spain has renewed its entire Mediterranean Sea BFT fishing vessel fleet between 1999 and 2002.

Figure 039: Spain's old and decommissioned BFT PS fleet. From Top to Right: FV/ LEONARDO BRULL, FV/ CHORROLL II, FV/ LA VITERA, FV/ TIO GEL, FV/ PANCHILLETA and FV/ ELORZ.

Up until the year 2000, this fleet was composed of 7 PS multispecies (28.6m ≥ LOA ≥ 20m) ships (see Figure 039).

LOAs, GRTs and IHPs of which are stated in Table 004.

	TIO GEL	LA FRAU	PANCHILLETA II	LA VITERA	ELORZ	LEONARDO BRULL	CHORROLL DOS
GRT	82,39	86,00	119,98	91,47	113,00	113,73	55,57
LOA	27,00	25,50	25,30	23,32	28,00	23,00	21,00
IHP	725,00	435,00	950,00	500,00	660,00	560,00	150,00

Table 004: The Spanish BFT PS fishing fleet up until the year 2000.

According to ICCAT-SCRS[34], the best yearly potential BFT catch estimation for this fleet would have therefore amounted to some ≈ 280 Mt.

Such yearly best catch estimation is, however, refuted by catch reports for 5 of such ships during the 1999 summer BFT fishing season, as can be seen in Table 005.

[34] Estimations of the total number of vessels fishing bluefin tuna in the Mediterranean Sea during the most recent years (2004 and 2005). Catch estimates by vessel are based on ICCAT Data Base and/or national surveys Data Bases and are expressed in Metric Tonnes per year. Source: SCRS/ICCAT June 2006.

Name of PS Vessel	Date	Time	Position		Catches		Destination
			Latitude	Longitude	Nº of Tunas	W/RW (Kgs)	
EL CHOROLL II	11 June 1999	13:00	39º03'N	00º53'E	300	80.000,00	Transferred live
	05 June 1999	20:30	39º13'N	01º28'E	300	40.000,00	Transferred live
ELORZ	28 May 1999	8:00	38º38'N	01º03'E	n/a	100.000,00	Transferred live
LA FRAU	15 June 1999	13:00	Isla de Dragonera		n/a	180.000,00	Transferred live
LA VITERA	19 June 1999	12:00	39º16'N	01º53'E	1.679	240.000,00	Transferred live
TIO GEL	14 June 1999	8:30	39º11'N	00º39'E	272	30.000,00	Transferred live
	26 June 1999	9:00	Seco de Cabo de Palos		1.054	140.000,00	Transferred live
	14 June 1999	16:00	39º14'N	00º27'E	172	25.000,00	Transferred live

Table 005: BFT PS catch report for five Spanish flagged vessels, operative in the Balearic Islands fishing grounds and Spanish SE territorial waters (12nm) during 1999.

Total catch for all 5 purse seiners amounted to ≈ 835 Mt, which by extrapolation to all of the 7 Spanish operative PS vessels during 1999, would amount to a total catch of some ≈ 1,169 Mt.

Spain, however, declared a total 1999 yearly MED PS BFT catch of 1,504 Mt[35], thus certifying a fishing capacity for Spanish PS multispecies (28.6m ≥ LOA ≥ 20m) ships, of ≈ 214.86 Mt/year.

Such a high calculated yearly fishing capacity per PS multispecies (28.6m ≥ LOA ≥ 20m) ship, is due to the exclusive access of such ships into Spanish territorial waters (12nm) highly abundant in spawning and juvenile BFT (see Chapter 2 - Figures 018, 019 & 020).

In 2000, two of Spain's old BFT PS vessels (FV/ TIO GEL and FV/ LA FRAU) were decommissioned and replaced by two new generation medium PS (38.5m > LOA ≥ 28.6m) fishing vessels[36]:

- FV/ LA FRAU II (LOA: 34.60m, GRT: 149.37t, IHP: 917.82hp)
- FV/ TIO GEL SECON (LOA: 35.95m, GRT: 191.78t, IHP: 1.206.99hp)

According to ICCAT-SCRS the best and maximum yearly potential BFT catch estimation for each of such vessels, should have been 150 Mt and 200 Mt, respectively.

A survey conducted for these two Spanish BFT PS vessels operating in the Balearic Islands during the 2000 summer fishing season along with a third Spanish PS multispecies, consistently corroborates the previously mentioned importance of fishing vessels operative in the Balearic Islands fishing grounds, having access, or not, to Spanish territorial waters.

Total catch for all 3 purse seiners, during the 2000 summer fishing season alone, amounted to ≈ 459.35 Mt (see Table 006), that is the maximum yearly potential BFT catch estimation for such ships, according to ICCAT-SCRS ratios.

Spain declared a total MED PS catch during 2000 of 1,676 Mt, that is 3.35 times more than the best catch estimate and 2.39 times more than the maximum catch estimate, according to SCRS ratios for a Spanish 2000 BFT PS fleet configuration of 2 medium PS and 5 PS multispecies.

[35] The difference between extrapolated 1.169 Mt estimated Summer fishing season catch and total yearly catch by Spain of 1.504 Mt, is due to catches by those same ships, of small BFT in the Gulf of Lions during the 1999 Spring and Fall fishing season.

[36] See Annexe II of this report for further technical details on these two ships.

Name of PS Vessel	Date	Time	Position		Catches		Destination
			Latitude	Longitude	Nº of Tunas	W/RW (Kgs)	
TIO GEL SECON	30 May 2000	14:00	37º 58' N	01º 19' E	n/a	135.000,00	Transferred live
	08 June 2000	16:00	39° 27' N	02° 13' E	630	150.000,00	Transferred live
	29 May 2000	17:00	38º 21' N	01º 32' E	230	46.580,00	Transferred live
LA FRAU SECON	16 June 2000	18:10	37° 28' N	01° 56' E	370	61.000,00	Transferred live
	23 June 2000	19:00	37° 41' N	00° 51' E	455	8.579,00	Dead & hauled onboard
EL CHOROLL II	23 June 2000	6:00	37° 47' N	00° 48' E	274	27.271,00	Dead & hauled onboard
	02 July 2000	n/a	n/a	n/a	301	30.895,00	Dead & hauled onboard

Table 006: BFT PS catch report for three Spanish flagged vessels, operative in the Balearic Islands fishing grounds and Spanish SE territorial waters (12nm) during 2000.

As can be seen in Figure 040, reported Spanish BFT PS catches inside the Mediterranean Sea during the decade 1996-2006, do not match best and maximum yearly BFT catch estimations (according to ICCAT-SCRS ratios) for the Spanish PS fleet's present vessel size configuration.

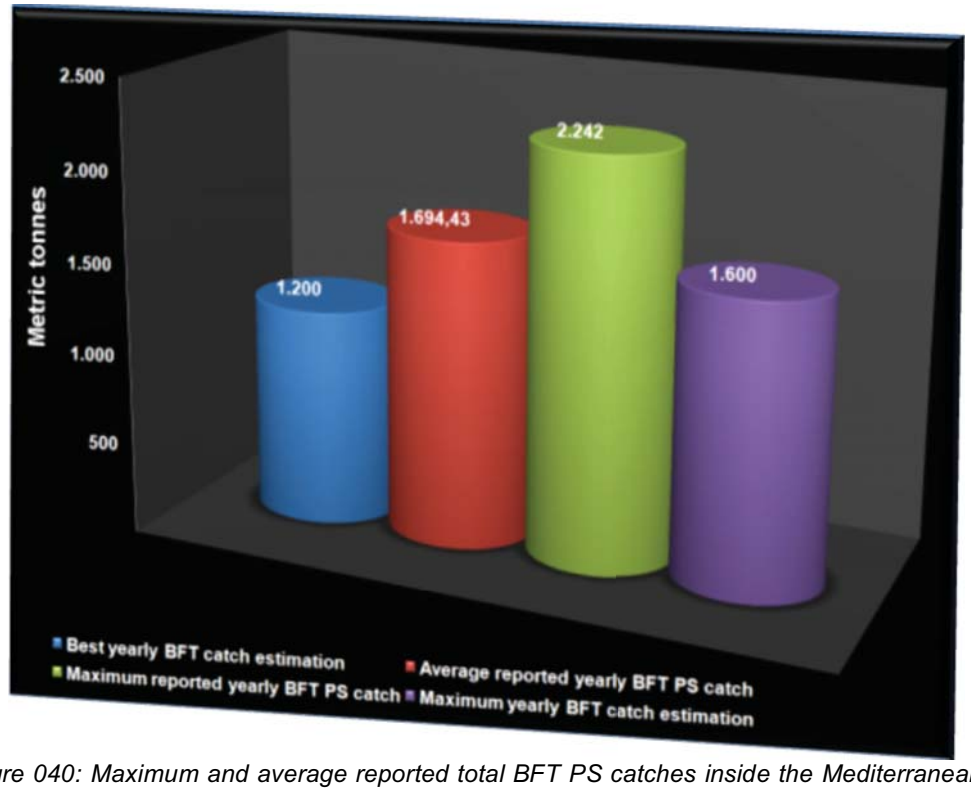


Figure 040: Maximum and average reported total BFT PS catches inside the Mediterranean Sea, by Spanish fishing vessels during the period 1996-2006 do not coincide with best - maximum yearly BFT catch estimations for such a fleet, according to ICCAT-SCRS catch estimation ratios.

In 2001, FV/ CHORROLL II was effectively decommissioned as a BFT PS vessel. That same year the old FV/ LEONARDO BRULL was also decommissioned and replaced by latest generation medium PS (38.5m > LOA ≥ 28.6m) vessel FV/LEONARDO BRULL SEGON.

In 2002, both FV/ PANCHILLETA II and FV/ ELORZ were decommissioned and replaced by latest generation purse seine fishing vessels: NUEVO ELORZ and NUEVO PANCHILLETTA, built in France by Concarneau-based shipyard Piriou (see Figure 041).

Figure 041: Latest generation Spanish-flagged purse seine fishing vessels: NUEVO ELORZ and NUEVO PANCHILLETTA, built in France by Concarneau-based shipyard Piriou in 2002, seen, side by side at their home port of L'Ametlla de Mar, Tarragona.

As of 2002 and again according to ICCAT-SCRS, such fleet counting 4 medium PS (38.5m > LOA ≥ 28.6m) and 2 large PS (LOA > 38.5m), should therefore enjoy a maximum yearly potential BFT catch estimation of 1,600 Mt ((4 x 200 Mt) + (2 x 400)) (see Figure 040).

Such estimations are nevertheless disputed by Spain's conflicting MED PS BFT annual catch reporting to ICCAT-SCRS[37] and SGPM[38] internal documentation, according to which, these 6 vessels would have caught inside the Mediterranean Sea alone[39]:

ICCAT-SCRS	SGPM	
1,686 Mt	**2,601.5 Mt**	**in 2002**
1,886 Mt	**2,579.7 Mt**	**in 2003**
1,778 Mt	**2,547.8 Mt**	**in 2004**
2,242 Mt	**3,051.9 Mt**	**in 2005**
2,013 Mt	**2,591.7 Mt**	**in 2006**

Notwithstanding Spain's officially reported MED BFT PS yearly catch reports to ICCAT, an ATRT, SL survey of such 6 vessels' activity inside the Mediterranean Sea, estimated their total yearly catches in 2006 at **≈ 4,850 Mt and in 2007 at ≈ 3,031 Mt**.[40] These figures are more in tune with Industry's statements regarding average yearly BFT catches for all such six vessels.

According to the Spanish Federation of Fishing Organizations (FEOPE) of which all six BFT PS vessels are members, the annual average consolidated BFT catch of all these six PS vessels is **≈ 3,500 Mt**, worth some **≈ € 8,750,000.00**. [41]

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[37] Source: TASK I database. ICCAT-SCRS.

[38] SGPM: Secretaria General de Pesca Maritima, Madrid, Spain.

[39] **From Irish Times - 06/10/2003, By LORNA SIGGINS, Marine Correspondent**.
Ireland boasts one of the last sanctuaries for Bluefin Tuna , but US marine scientists have warned that it could be wiped out by the activities of foreign vessels. A 40 metre Spanish purse seiner was targeting shoals of the migratory fish inside the six-mile limit off south Donegal last week, according to the scientists who were participating with Bord Iascaigh Mhara (BIM) in a research programme on the fish. Mr Andre Boustany, marine biologist at Stanford University's tuna research and conservation centre, said that at one point the purse seiner, NUEVO ELORZ, steamed very aggressively towards the vessel he was working on. It is believed the purse seiner may have Japanese business links. A Naval Service spokesman said the vessel had been picked up by satellite and was en route south to Spain at the weekend.

[40] December 1st 2007. "*New evidence points to Spain under-reporting Bluefin Tuna Catches in 2006 & 2007*"

[41] Source: http://www.feope.com/asociaciones.html

Such yearly average consolidated BFT catch is confirmed by annual accounts and returns filed by the owners/operators of all six Spanish PS vessels, with Spain's Public Register of Companies for 2004, 2005 and 2006, the detail of which can be seen in Table 007

	By Fleet	2004 to 2006		
Source: Spanish Federation of Fishing Organizations (FEOPE) www.feope.com/asociaciones.html	Average BFT Yearly Sales according to Industry	8.750.000,00 €		
	Average Total BFT Yearly catch according to Industry (Kgs.)	3.500.000,00		
	Average price per Kilogram of caught and sold BFT according to Industry (€/Kgs.)	2,50 €		
Source: Spanish Public Companies Register	By Ship	2004	2005	2006
	Nuevo Elorz	1.251.272,60 €	1.751.316,34 €	1.002.598,25 €
	Nuevo Panchilleta	1.207.520,64 €	1.700.459,55 €	2.817.126,15 €
	La Frau Secona	1.584.557,84 €	1.985.549,34 €	2.567.350,00 €
	Tio Gel Second	1.570.556,74 €	2.021.561,08 €	2.540.595,63 €
	Gepus	850.858,73 €	741.038,78 €	685.315,62 €
	Leonardo Brull Second	481.192,38 €	942.105,36 €	680.088,80 €
	Total Yearly Sales for the Spanish MED BFT PS fishing fleet according to Spanish Public Companies Register	6.945.958,93 €	9.142.030,45 €	10.293.074,45 €
Calculated	Total BFT Yearly catch based on average price per Kilogram (€/Kgs.) of caught and sold BFT according to Industry (Kgs.)	2.778.383,57	3.656.812,18	4.117.229,78
ICCAT-SCRS Task-I	Spain's MED PS BFT annual catch reporting to ICCAT (Kgs.)	1.778.000,00	2.242.000,00	2.013.000,00
Calculated	Level of Spain's yearly MED PS BFT catch under-reporting to ICCAT (Kgs.)	1.000.383,57	1.414.812,18	2.104.229,78

Table 007: MED BFT PS sales according to annual accounts and returns filed by the owners/operators of all six Spanish PS vessels, with Spain's Public Register of Companies for 2004, 2005 and 2006.

Accordingly we choose to set Spain's:

- ♣ Best yearly potential MED BFT PS catch estimation[42] at: **≈ 583 Mt/Vessel**
- ♣ Maximum yearly potential MED BFT PS catch estimation[43] at: **≈ 808 Mt/Vessel**

[42] Corresponding to annual average consolidated BFT catch of all such six PS vessels ≈ 3,500 Mt, according to Spanish Federation of Fishing Organizations (FEOPE)

[43] Corresponding to Spain's 2006 estimated ≈ 4,850 Mt BFT PS total catch.

c. The case of the Tunisian MED BFT PS Fleet.

Reported Tunisian BFT PS catches inside the Mediterranean Sea during the decade 1996-2006, are consistently lower than best and maximum yearly BFT catch estimations (according to ICCAT-SCRS ratios) for the Tunisian PS fleet (see Figure 042).

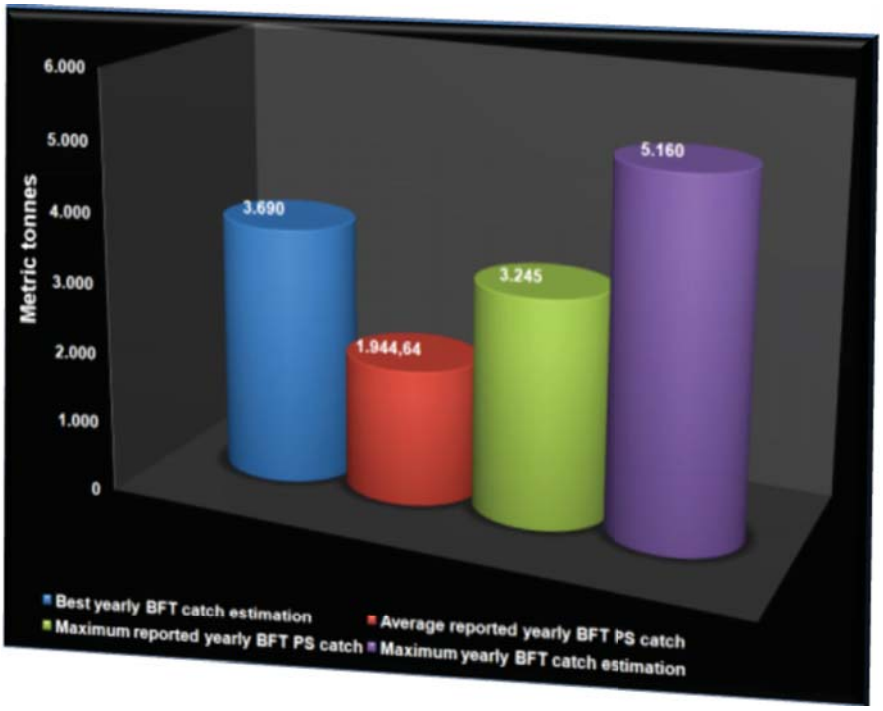

Figure 042: Maximum and average reported total BFT PS catches inside the Mediterranean Sea, by Tunisian fishing vessels during the period 1996-2006 vs. best - maximum yearly BFT catch estimations for such a fleet, according to ICCAT-SCRS catch estimation ratios.

A survey conducted for 6 Tunisian BFT PS vessels operating east of Tunisia, north of Libya and south of Malta during the 2001 summer fishing season, disputes previous average BFT catch estimations.

Total catch for all 6 purse seiners amounted to ≈ 1,545 Mt (see Table 008).

Name of PS Vessel	Date	Position		Catches		Destination
		Latitude	Longitude	Nº of Tunas	W/RW (Kgs)	
EL AMINE	05 June 2001	33°46'N	13°26'E	1.171	164.408	Transferred live
	05 June 2001	33°46'N	13°26'E	117	21.047	Dead & hauled onboard
	24 June 2001	33°59'N	13°31'E	1.743	93.584	Transferred live
	21 June 2001	33°57'N	13°28'E	1.223	179.356	Transferred live
MOHAMED SALLEM	30 May 2001	33°54'N	13°50'E	671	117.035	Transferred live
	16 June 2001	33°59'N	12°35'E	520	91.000	Transferred live
	02 July 2001	33°45'N	14°39'E	579	133.170	Transferred live
RAF-RAF	21 June 2001	33°59'N	13°58'E	1.170	58.500	Transferred live
	21 June 2001	33°59'N	13°58'E	182	28.740	Dead & hauled onboard
	01 July 2001	33°53'N	14°17'E	1.138	78.034	Transferred live
RIADH	17 June 2001	33°50'N	13°40'E	416	65.000	Transferred live
	17 June 2001	33°48'N	13°50'E	471	65.055	Transferred live
	02 July 2001	33°39'N	14°38'E	904	207.920	Transferred live
SALLEM	02 July 2001	33°49'N	14°33'E	486	111.780	Transferred live
ZIED	01 July 2001	33°53'N	14°24'E	1.560	130.000	Transferred live

Table 008: BFT PS catch report for six Tunisian flagged vessels, operative in Tunisian traditional fishing grounds during 2001.

BFT catches by these six BFT PS vessels transferred-live into 10 Ø50m Spanish tuna ranching cages, contemplated in Table 007, were not offloaded at Tunisian ports but directly exported live to Spain.

21.047 Mt caught by FV/ EL AMINE on 05 June 2001 at 33°46'N ; 13°26'E and 28.740 Mt caught by FV/ RAF RAF on 21 June 2001 at 33°59'N ; 13°58'E, also contemplated in Table 007, were loaded onboard Tunisian flagged RSW well vessel WV/ FUTURO I and offloaded at the Port of Sfax (see Figure 043).

Figure 043: Tunisian flagged well-vessel FUTURO I seen in the Central Mediterranean on June 12th 2007. Picture ©® by: Greenpeace/Care.

Since no other Tunisian PS vessel transferred live-BFT into gravity transport and ranching cages during 2001, it is safe to say that the rest of Tunisia's 2001 BFT production was offloaded at Tunisian ports.

According to a FAO-COPEMED survey on landing of bluefin tuna, caught by 45 Tunisian purse seiners, out of a fleet of 69 operative PSs targeting large pelagic fish off Tunisian waters during 2001[44], 2,175.43 Mt of dead BFT were offloaded by such 45 PS vessels, namely at the ports of Sfax and Kelibia (see Table 009).

By extrapolating the dead BFT offloads by 45 Tunisian PS to the entire operative Tunisian PS fleet (69 vessels, see Table 010) it is safe to say that some ≈ 3,335.65 Mt of dead BFT were caught, hauled onboard and offloaded at Tunisian ports by Tunisian PS vessels during 2001.

Total 2001 BFT catches by all 69 operative Tunisian purse seiners would have therefore amounted to some ≈ 4,830 Mt; that is a 74.31 Mt/vessel average yearly catch, thus also confirming and validating ICCAT-SCRS's best and maximum yearly potential MED BFT PS catch estimation for such a fleet.

Tunisia only reported to ICCAT SCRS a total 2001 BFT catch by its national PS fleet amounting to 2,432 Mt, that is, almost 50 % less than a more realistic estimation of ≈ 4,880 Mt.

[44] La Pêche du ton rouge a la senne tournante en Tunisie, Année 2001. Abdallah Hattour. Institut National des Sciences et Technologie de la Mer – Tunisie. Tableau 9- Répartition des débarquements de thon rouge par les senneurs tunisiens au cours des mois de janvier à juillet 2001. SCRS/02-50.

This estimation is supported by Tunisian BFT 2001-2002 catch data published by Italy's Istituto Nazionale per il Commercio Estero[45] according to which total production for 2002 amounted to 3,900 Mt, 30% less than the 2001 figure of ≈ 5,571 Mt!

The extrapolation of previous 2001 catch data to all of the 50 Tunisian operative PS vessels during 2007, would amount to a total catch of some ≈ 3,500 Mt.

Yet and according to Tunisia's 2007 report to ICCAT, total BFT catches by the Tunisian PS fleet during 2007, amounted to only 2,195 Mt.

Weight per fish (Kgs)		Number of dead BFT offloaded at Tunisian Ports							Total N
Min.	Max.	January	February	March	April	May	June	July	
15	19	0	0	0	0	0	170	51	221
20	24	0	0	8	0	97	472	129	706
25	29	4	2	60	57	64	1.321	386	1.894
30	34	32	2	70	231	194	2.850	618	3.997
35	39	116	25	129	571	144	396	103	1.484
40	44	174	40	206	670	125	472	103	1.790
45	49	69	27	73	539	224	566	129	1.627
50	54	12	18	32	234	197	585	154	1.232
55	59	5	13	27	194	122	94	103	558
60	64	8	14	1	137	100	75	51	386
65	69	11	9	1	131	69	75	51	347
70	74	7	16	8	46	42	38	26	183
75	79	11	18	0	40	50	189	51	359
80	84	8	22	5	23	25	0	26	109
85	89	8	27	8	17	17	0	26	103
90	94	5	0	5	6	17	302	0	335
95	99	4	4	14	11	25	0	26	84
100	104	1	11	15	20	11	0	26	84
105	109	4	7	10	9	11	0	77	118
110	114	0	5	10	0	8	38	0	61
115	119	1	4	10	3	11	38	0	67
120	124	0	4	10	0	6	75	26	121
125	129	1	4	8	6	3	94	51	167
130	134	0	0	0	0	3	94	26	123
135	139	0	0	4	0	3	113	51	171
140	144	0	0	3	0	22	283	51	359
145	149	0	0	0	0	22	283	51	356
150	154	0	0	0	0	44	302	77	423
155	159	0	0	1	0	44	283	103	431
160	164	0	0	0	0	55	113	26	194
165	169	0	0	0	0	83	113	0	196
170	174	0	0	1	0	58	113	26	198
175	179	0	0	0	0	33	57	51	141
180	184	1	0	0	0	36	38	51	126
185	189	0	0	0	0	72	75	0	147
190	194	0	0	1	0	75	75	0	151
195	199	0	0	1	0	72	57	0	130
200	350	0	0	0	0	822	2.057	927	3.806
Total Weights (Mt)		**17,04**	**13,85**	**27,14**	**105,13**	**390,42**	**1.172,92**	**448,95**	**2.175,43**

Table 009: Dead PS BFT offloads at Tunisian ports during 2001 by 45 operative Tunisian flagged operative purse seiners.

[45] Source: Italia Internazionale, Sei Regioni per Cinque Continenti, Azioni di Scouting, Fase I. Studio Multiregionale, Tunisia, realizzato da ICE Tunisi con la collaborazione esterna del consulente di mercato Mr. Sami Mabouli nell'ambito del Programma operative di assistenza tecnica a azioni di internazionalizzazione dell'economia della Regioni obiettivo 1, Misura I.2, Azione B2-QCS 2000-2006.

Port	Units	LOA	GRT	IHP
Bizerte	1	24,75m	99,90	500
La Goulette	4	21,50m-22,56m	63,00-71,75	420-720
Nabeul	1	19,50m	64,16	400
Sousse	1	16,60m	28,90	177
Monastir	7	15,05m-26,00m	17,98-119,00	220-260
Mafdia	6	20,00m-25,40m	50,00-130,90	350-630
Sfax	38	16,00m-38,00m	20,00-298,10	110-999
Gabès	9	16,00m-23,00m	22,00-69,00	250-450
Hou Mt Souk	2	22,00m-24,00m	87,00-98,00	430-650
Tunisia Total	69	15,05m-38,00m	17,98-298,10	177-999

Table 010: Tunisian BFT PS fishing fleet configuration (1999-2001) Source: DGPA, 1998

By taking into account ICCAT-SCRS best yearly potential BFT catch ratios for large PS (LOA > 38.5m) being double the ones for medium PS (38.5m > LOA ≥ 28.6m) and 7.5 times the ones for PS multispecies (28.6m ≥ LOA ≥ 20m), it would be safe to say that Tunisia's estimated 2007 annual BFT catches amounting to 3,500 Mt could be broken-down to:

$$\mathbf{3{,}500\ Mt = (n^1.x/4) + (n^2.x) + (n^3.3.75x) + (n\ .7.50x)}$$

Where $\mathbf{n^1}$ (0) is the number of Tunisian operative BFT PS small multispecies boats, $\mathbf{n^2}$ (36) the number of Tunisian operative BFT PS multispecies boats, $\mathbf{n^3}$ (13) the number of Tunisian operative BFT medium PS vessels and **n** (1) the number of Tunisian operative BFT large PS vessels, all in 2007; thus:

$$\mathbf{3{,}500\ Mt = (0\ .\ x/4) + (36\ .\ x) + (13\ .\ 3.75x) + (1\ .\ 7.50x)}$$
$$\mathbf{3{,}500\ Mt = (36x) + (48.75x) + (7.5x)}$$
$$\mathbf{3{,}500\ Mt = (92.25x)}$$
$$\mathbf{x = 3{,}500 / 92.25 = 37.94}$$

That is:

284.55 Mt having been caught by 1 large PS vessel,	**(285 Mt/ship)**
1,849.57 Mt having been caught by 13 medium PS vessels,	**(142 Mt/Ship)**
1,365.84 Mt having been caught by 36 PS multispecies boats,	**(38 Mt/Ship)**

d. The case of the Turkish MED BFT PS Fleet.

Reported Turkish BFT PS catches inside the Mediterranean Sea during the decade 1996-2006, are consistently lower than best and maximum yearly BFT catch estimations (according to ICCAT-SCRS ratios) for the Turkish PS fleet (see Figure 044).

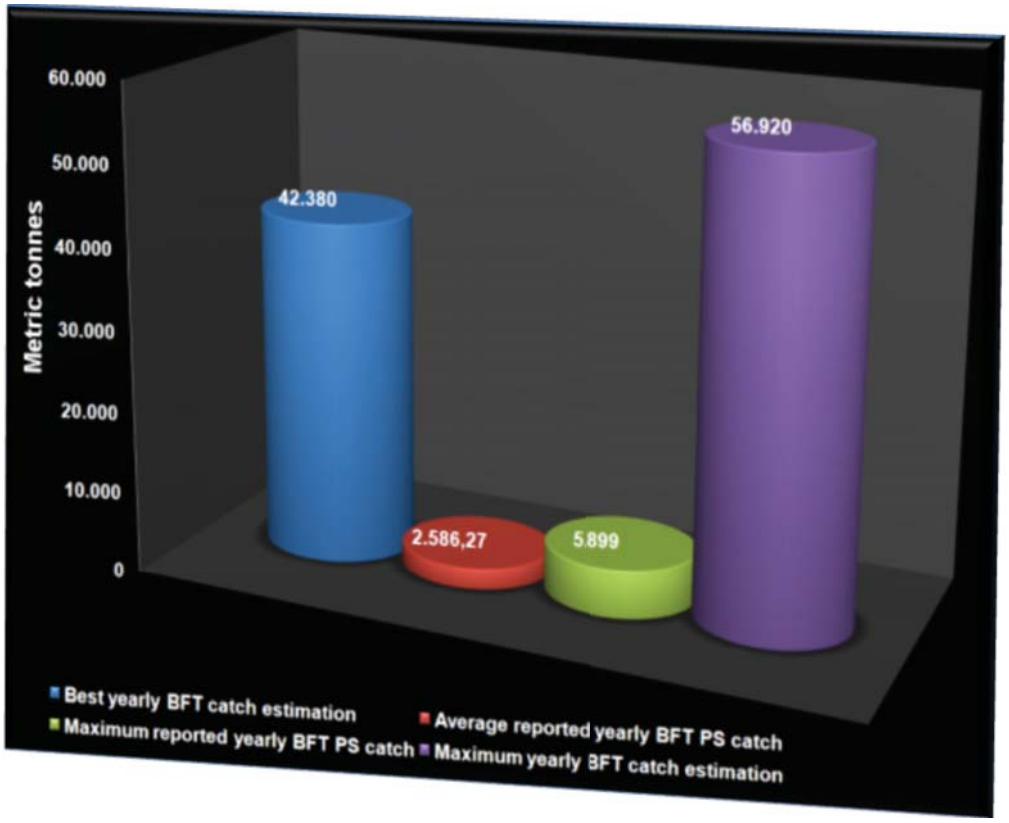

Figure 044: Maximum and average reported total BFT PS catches inside the Mediterranean Sea, by Turkish fishing vessels during the period 1996-2006 vs. best - maximum yearly BFT catch estimations for such fleet, according to ICCAT-SCRS catch estimation ratios.

A survey conducted for 62 licensed and operational Turkish BFT PS vessels operating in the Eastern Mediterranean during 1996, 1997 and 1998, disputes previous average BFT catch estimations.[46]

Total catch for all 62 purse seiners amounted to ≈ 4,616 Mt during 1996, ≈ 5,093 Mt during 1997 and ≈ 5,899 Mt during 1998 (see Table 011 A & B).

Should ICCAT_SCRS best & maximum yearly potential BFT catch estimations be applied to such a fleet[47] (See LOA, GRT and IHP configuration in Tables 011A & B):

- ♣ Total best yearly potential BFT catch estimation would have amounted to: ≈ 13,020 Mt.
- ♣ Total maximum yearly potential BFT catch estimation would have amounted to: ≈ 17,380 Mt.

Instead, the average yearly BFT catch during the years 1996, 1997 and 1998 for these 62 ships was:

PS multispecies (28.6m ≥ LOA ≥ 20m),	≈ 64.66 Mt.
Medium PS (38.5m > LOA ≥ 28.6m)	≈ 78.15 Mt.
Large PS: (LOA > 38.5m)	≈ 92.85 Mt.

[46] Source: Historical review of Turkish Bluefin Tuna Fisheries and their Development, by: I. Mert, I.K.Oray, K. Patrona, F.S. Karakulak, Y. Kayaba, K. Gündoodu & P.M. Miyake. SCRS/1999/023. Col.Vol.Sci.Pap, 51 (3): 813-825 (2000).

[47] 3 PS Multispecies: (28,6m ≥ LOA ≥ 20m), 32 Medium PS: (38,5m > LOA ≥ 28,6m) and 27 Large PS: (LOA > 38,5m)

A survey conducted for a number of licensed and operational Turkish BFT PS vessels operating in the Eastern Mediterranean during 2002, 2003, 2004 and 2005[48] clearly indicates a downturn trend in total tonnages caught per vessel as of 2003.

According to this survey:

28 Turkish PS vessels would have caught ≈ 2,300 Mt (≈ 82.14 Mt/Ship) during 2002,
56 Turkish PS vessels would have caught ≈ 3,300 Mt (≈ 58.92 Mt/Ship) during 2003,
68 Turkish PS vessels would have caught ≈ 1,075 Mt (≈ 15.80 Mt/Ship) during 2004,
62 Turkish PS vessels would have caught ≈ 990 Mt (≈ 15.96 Mt/Ship) during 2005.

By extrapolating previously stated 1996-1998 average yearly BFT catches for all three types of PS vessels to Turkey's (2007-2008) 240 unit PS fishing fleet[49], configured as follows,

62 PS multispecies[50] (28.6m ≥ LOA ≥ 20m)
91 medium PS[51] (38.5m > LOA ≥ 28.6m)
87 large PS[52] (LOA > 38.5m)

it is safe to state that total best average yearly BFT catch potential for the entire Turkish PS fleet could amount to 19,198.52 Mt, the distribution of which by type of vessel can be seen in Figure 045.

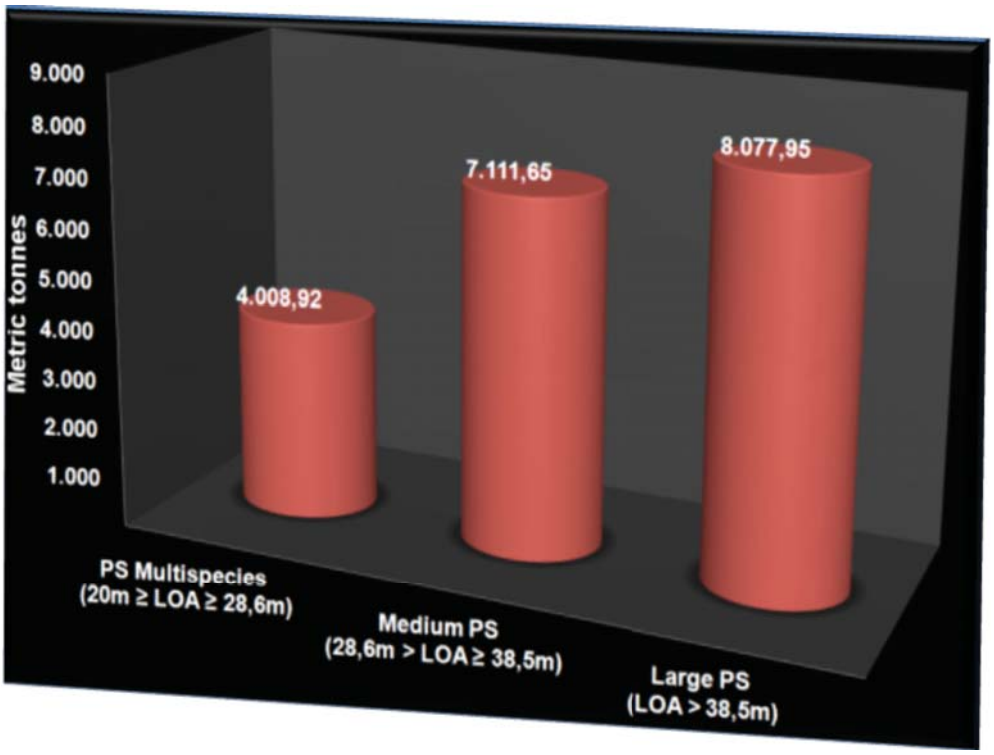

Figure 045: Recalculated total best average yearly BFT catch potential for the entire Turkish PS fleet (2007-2008)

That is:

8,077.95 Mt having been caught by 87 large PS vessel,	**(92.85 Mt/ship)**
7,111.65 Mt having been caught by 91 medium PS vessels,	**(78.15 Mt/Ship)**
4,008.92 Mt having been caught by 62 PS multispecies boats,	**(64.66 Mt/Ship)**

[48] Source: Catch & Effort Data of the Turkish Bluefin Tuna Fishery (2002-2005) *F.S. Karakulak*. SCRS/2006/070 Col. Vol. Sci. Pap. ICCAT, 60(3): 906-912 (2007)

[49] See Annexe 2

[50] 11 PS Multispecies vessels not registered with ICCAT were detected (See Annexe 2) and retained as fully able to target BFT.

[51] 23 PS Medium vessels not registered with ICCAT were detected (See Annexe 2) and retained as fully able to target BFT.

[52] 20 PS Large vessels not registered with ICCAT were detected (See Annexe 2) and retained as fully able to target BFT.

BFT PS Vessel	License Number	GT	Length (m)	Hp	Yearly BFT Catch (Mt)		
					1996	1997	1998
Agaoglu IV	10.08.G.008	280	42	1.600	80	110	120
Agaoglu V	10.08.G.010	200	39	1.300	98	115	125
Agaoglu VI	10.08.G.011	180	38	1.000	120	108	135
Kul Balikçilik	34.10.G.2147	250	46	1.600	98	115	155
H.Mustafa Kuloglu	34.03.GT.1295	600	64	2.000	100	120	162
Nazim Kuloglu	34.10.GT.2060	250	46	1.800	107	115	142
Mamuli Reis	34.22.G.2222	220	41	1.800	122	135	180
Mamuli Reis II	34.01.G.934	195	38	2.500	127	132	187
Hakki Reis	34.02.G.508	170	37	1.600	117	123	131
Rafet Reis II	34.01.GT.381	220	41	1.600	107	112	129
Rafet Reis III	34.01.G.663	300	46	1.600	102	117	130
Geçiciler III	10.03.G.025	150	36	1.000	99	107	113
Türkmenler	34.02.G.494	180	36	1.000	85	97	104
Yasar Reis		355	41	1.500	81	89	115
S. Menekseogullari		140	35	1.000	78	95	103
Toplu III		160	38	1.000	81	89	115
Zamkinoslar		190	40	1.300	115	119	137
Bedevi reis		250	40	1.600	79	83	102
Tokerler	34.02.GT.977	190	37	900	72	81	107
Zütük Reis		170	36	1.000	84	98	105
Kerim Reis		190	37	1.200	91	98	118
Zamkinos Selahattin		220	39	1.000	88	92	108
Köroglu Balikçilik	34.03.GT.0980	175	36	320	100	110	120
Akgün Balikçilik I	61.G. 0295	210	37	1.200	100	87	103
Akgün Balikçilik II	61 G 0293	380	46	1.600	100	100	100
Köroglu Balikçilik I	34.10 G.2029	280	41	1.500	110	110	110
Aktaslar C	34.22.G.0823	290	44	1.600	100	100	110
Aktaslar B					90	95	90
Fatoglu Balikçilik	28.02.G.0008	296	47	2.000	80	80	90
Fatoglu Balikçilik I	28.02.G.0009	496	54	2.300	80	90	100
Mehmetçik		180	36	1.000	70	80	100
Azmi Reis		190	37	1.000	100	120	130

Table 011A: BFT PS catch report for 62 Turkish flagged vessels, operative in Turkish traditional fishing grounds during 1996, 1997 & 1998.

BFT PS Vessel	License Number	GT	Length (m)	Hp	Yearly BFT Catch (Mt)		
					1996	1997	1998
Nihat Baba		75	22	470		80	90
Coskun Kardesler	34.22.TG.1538	230	40	1.000	100	110	120
Nazim Kursun	34.01.TG.1252	280	44	1.200	55	40	60
Azizler I	34.01.TG.0587	190	38	1.000	90	90	100
Azizler II	34.01.TG.0982	220	41	1.200	55	60	65
Dede Lütfü	34.01.TG.1253	175	37	1.600	60	65	70
Sengünler	34.22.G.0935	130	33	1.000	55	60	70
Garipçeli	34.01.TG.0393	120	32	1.000	40	40	50
Hakki Reis	34.02.G.0508	230	39	1.800	50	50	70
Habib Reis		330	43	2.000	40	40	50
Torlak Reis		200	36	1.000	70	70	73
Torlak Kaptan		220	40	800	80	90	90
Zamkinozlar 2		180	38	1.000	70	80	90
Dursun Ali Coskun		128	28	1.000	50	50	50
Turgut Coskun		210	39	1.200	40	40	50
Haci Orhan	34.01.G.1459	320	47	2.000	70	80	90
Ibrahim Reis I	34.01.TG.0430	130	32	1.100	70	80	91
Ibrahim Reis III		280	46	1.500	50	60	70
Hayrullah Reis	34.01.G.0359	170	30	1.200	30	40	40
Baba Saffet	34.01.G.0451	130	30	800	50	50	60
Zamkinoz Selahattin		220	39	1.000	50	60	74
Haci H. Ogullari	34.01.G.0451	110	26	600	70	90	100
Hilmi Reis	34.01.G.1280	180	36	900	40	40	50
Nahi Cemre	31.07.G.358				26	36	38
Yetisen Kardesler	31.07.G.21				48	52	60
Topçu	34.01.TG.507				45	49	56
Ali Reis 6	31.07.G.323				39	43	49
Mikail Yesilkaya	31.07.TG.351				37	41	47
Yusufogulllari	31.07.TG.22				41	44	48
Kocareis 2	31.07.TG.22				34	41	52
TOTAL					**4.616**	**5.093**	**5.899**

Table 011B: BFT PS catch report for 62 Turkish flagged vessels, operative in Turkish traditional fishing grounds during 1996, 1997 & 1998.

e. The case of the Italian MED BFT PS Fleet.

Reported Italian BFT PS catches inside the Mediterranean Sea during the decade 1996-2006, are consistently lower than best and maximum yearly BFT catch estimations (according to ICCAT-SCRS ratios) for the Italian PS fleet (see Figure 046).

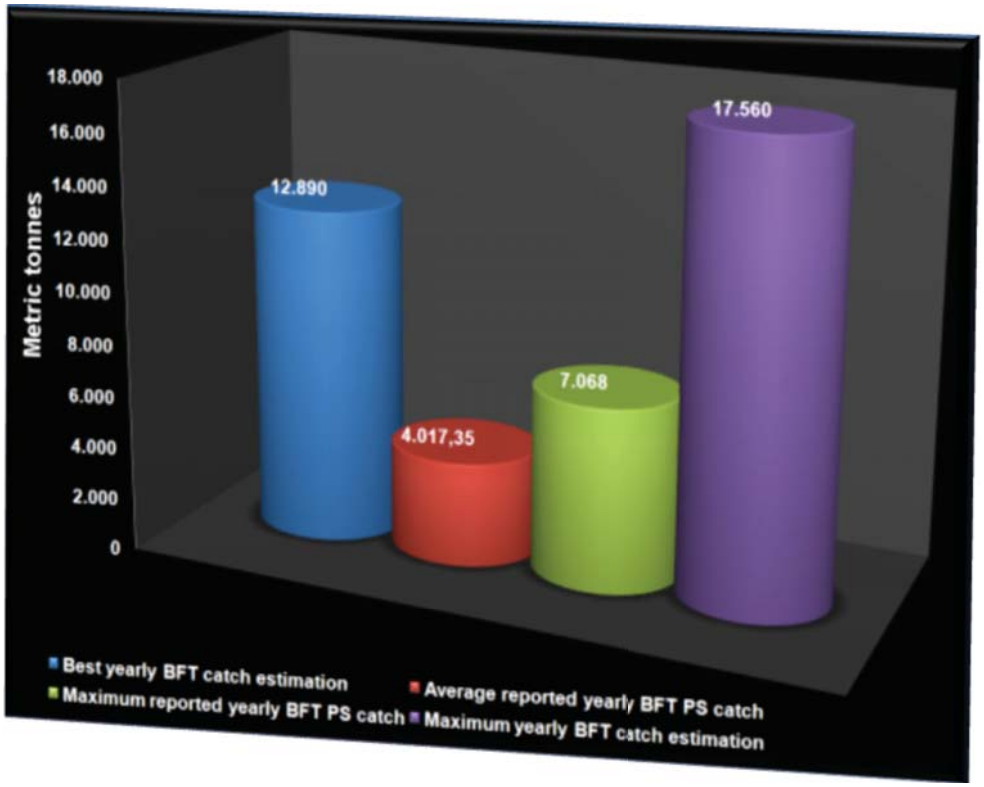

Figure 046: Maximum and average reported total BFT PS catches inside the Mediterranean Sea, by Italian fishing vessels during the period 1996-2006 vs. best - maximum yearly BFT catch estimations for such fleet, according to ICCAT-SCRS catch estimation ratios.

A survey conducted for four Italian BFT PS vessels: 2 PS multispecies (28.6m ≥ LOA ≥ 20m) and 2 medium PS (38.5m > LOA ≥ 28.6m) operating in the Tyrrhenian Sea during the 2001 summer fishing season seems to dispute previous average BFT catch estimations.

Total BFT catch for all 4 purse seiners, just during the 2001 summer season, amounted to ≈ 629 Mt (see Table 012).

Name of PS Vessel	Date	Position		Catches		Destination
		Latitude	Longitude	Nº of Tunas	W/RW (Kgs)	
CRISTOFORO PRIMO	30 May 2001	39°32'N	15°10'E	1.250	91.000,00	Transferred live
	31 May 2001	39°06'N	15°59'E	835	65.000,00	Transferred live
LUIGI PRIMO	10 June 2001	39°30'N	15°43'N	1.100	150.000,00	Transferred live
SANTA MARIA CARMELA MADRE	15 June 2001	39°23'N	15°30'E	450	140.000,00	Transferred live
	15 June 2001	39°23'N	15°30'E	4	417,00	Dead & hauled onboard
MARIA PIA	31 May 2001	39°04'N	15°53'E	640	80.000,00	Transferred live
	28 June 2001	38°43'N	14°58'E	1.100	100.000,00	Transferred live
	28 June 2001	38°43'N	14°58'E	25	2.250,00	Dead & hauled onboard

Table 012: BFT PS catch report for four Italian flagged vessels, operative in Tyrrhenian Sea fishing grounds during 2001.

According to Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007) by ship (see Tables 013 A to E) the consolidated annual BFT quota for 2001 for these four surveyed ships, amounted to 194.72 Mt, of which:

FV/ CRISTOFORO PRIMO	36.94 Mt
FV/ LUIGI PRIMO	59.01 Mt
FV/ MARIA PIA	61.93 Mt
FV/ SANTA MARIA CARMELA MADRE	36.84 Mt

Accordingly, this group of four vessels would have caught ≈ x 3.23 their authorised 2001 individual BFT annual quota during the summer fishing season alone, with an average catch per ship of ≈ 157.17 Mt.

A survey[53] conducted for another four Italian BFT PS vessels[54] (see also Annexe II) belonging to the Cetara (SA)-based De.Mo. Pesca Di Pasquale Della Monica & C. S.a.s[55] fishing group, operating inside the Mediterranean Sea during the years 2003 to 2005, also seems to dispute previous average BFT catch estimations.

According to Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007) by ship (see Tables 013 A to E), the consolidated annual BFT quota for 2003 and 2005 for these four surveyed ships were of 423.59 Mt and 385.44 Mt respectively, the detail of individual annual BFT quotas per ship is as follows:

	2003	**2005**
F/V: SAN RAFFAELE SA56	163.382 Mt	148.16 Mt
F/V: MARIA ANTONIETTA SA57	155.256 Mt	140.79 Mt
F/V: LUIGI PADRE TP762	100.013 Mt	92.79 Mt
F/V: EUROPA SA667	4.938 Mt	3.70 Mt

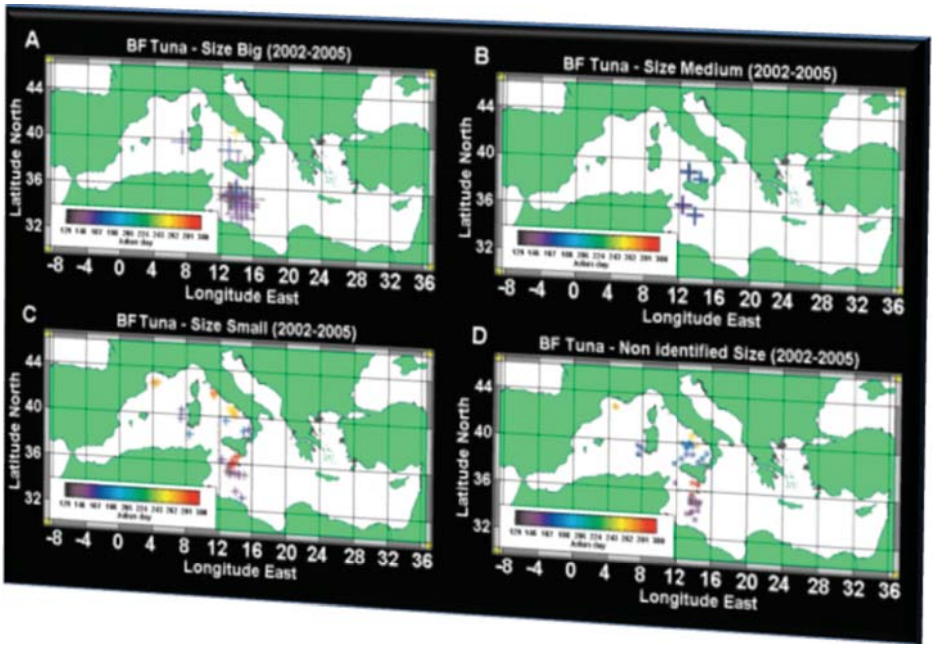

Figure 047: Spatial-temporal distribution of BFT PS catches, by fish size, during the period 2002-2005, by four Italian BFT PS vessels operating inside the Mediterranean Sea for the Cetara (SA)-based De.Mo. Pesca Di Pasquale Della Monica & C. S.a.s fishing group.

[53] INDIVIDUAZIONE DI INDICATORI AMBIENTALI DERIVABILI DA SATELLITE PER LA GESTIONE DEGLI STOCK DI GRANDI PELAGICI. RESPONSABILE DEL PROGETTO: Dr. Rosalia Santoleri ISAC-CNR Sezione di Roma, via Fosso del Cavaliere 100, 00133 Roma. Chiusura dei lavori 30 giugno 2006. Regione Campania. (P.O.R. 2000-2006 fondi SFOP, misura 4.23 sottomisura 6)

[54] F/V: SAN RAFFAELE SA56 (YoB: 1974, GT: 211, GRT: 247,48, LOA: 42,64m, Max. Speed: 15kn, Cruising Speed: 12kn, IHP ≈ 1.128, 736kW)
F/V: MARIA ANTONIETTA SA57 (YoB: 1975, GT: 222, GRT: 243,62, LOA: 43,75m, Max. Speed: 15kn, Cruising Speed: 12,5kn, IHP≈ 1.100, 736kW)
F/V: LUIGI PADRE TP762 (YoB: 2002, GT: 461, GRT: 157, LOA: 50,55m, Max. Speed: 17kn, Cruising Speed: 14,5kn, IHP: 1001, 736kW)
Polivalent Multispecies F/V: EUROPA SA667, refurbished in 2004 at cantieri Di Donato Mattia di Torre del Greco (NA) This ship is not registered on any of ICCAT's ship databases.

[55] http://www.dellamonicagroup.it

Italy's Annual BFT Purse Seine Fishing Quota Allocations by BFT Fishing Associations	2000	2001	2002	2003	2004	2005	2006	2007
Organizzazione produttori tonnieri dell'Adriatico							155,321	145,300
Associazione tonnieri Campana								424,800
Armatori ed operatori della pesca di Cesenatico					51,261	48,630	53,687	50,200
Organizzazione produttori tonnieri siciliani di Messina					355,791	461,610	449,886	472,200
Associazione produttori tonnieri del Tirreno di Salerno					2.809,095	2.958,880	2.885,540	2.566,800
Independent PS Vessels					571,207	363,090	322,065	64,702
Total	3.697,000	3.817,660	3.817,660	4.053,820	3.787,354	3.832,210	3.866,499	3.724,002
Total National PS BFT catches declared to ICCAT-SCRS	2.801,114	3.255,828	3.245,517	3.848,700	3.751,600	3.960,930	4.006,144	n/a

Table 013A: Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007 by BFT Fishing Associations)[50]

[50] Sources: **MINISTERO DELLE POLITICHE AGRICOLE E FORESTALI**.

DECRETO 27 luglio 2000**:** Ripartizione quota integrativa tonno rosso per l'anno 2000**.** Pubblicato su G.U. n. 180 del 03/08/2000.

DECRETO 23 aprile 2001: Misure di gestione della pesca professionale del tonno rosso con il sistema denominato "circuizione per tonni". Pubblicato su G.U. n. 105 del 8/5/2001

DECRETO 24 giugno 2002: Ripartizione della quota nazionale di cattura del tonno rosso, per l'anno 2002, tra sistemi di pesca. Pubblicato su G.U. n. 166 del 17 Luglio 2002.

DECRETO 24 giugno 2003. Ripartizione quota nazionale di cattura del tonno rosso tra sistemi di pesca e quote individuali per la campagna di pesca 2003. Pubblicato su G.U. n. 152 del 3-7-2003.
DECRETO 21 aprile 2004: Ripartizione della quota nazionale di cattura del tonno rosso tra sistemi di pesca e criteri di attribuzione, nonchè ripartizione delle quote individuali per la campagna di pesca 2004. Pubblicato su G.U. n. 102 del 3-5-2004.

DECRETO 7 aprile 2005: Ripartizione della quota nazionale di cattura del tonno rosso tra i sistemi di pesca e criteri di attribuzione e ripartizione delle quote individuali per la campagna di pesca 2005. Pubblicato su G.U. n. 95 del 26-4-2005.

Decreto 5 Aprile 2006: Ripartizione della quota nazionale di cattura del tonno rosso tra i sistemi di pesca e criteri di attribuzione e ripartizione delle quote individuali per la campagna di pesca 2006. Pubblicato su G.U. n. 100 del 2-5-2006.

DECRETO 20 Settembre 2007: Ripartizione della quota nazionale di cattura del tonno rosso tra i sistemi di pesca e criteri di attribuzione e ripartizione delle quote individuali per la campagna di pesca 2007. Pubblicato su G.U. n. 251 del 27-10-2007.

Name of vessel	Operative since and as from 1996	Fishing Association	EU CFR Number	National Matricule	Ext Marking	IRCS	Estimated or indicated LOA	Estimated or indicated GRT	Estimated or indicated Installed Power Main Engine/s (Hp)	Current Home Port	ICCAT Ship's Registration Number	2000	2001	2002	2003	2004	2005	2006	2007
01MZ00780	1996		5747	01MZ00780	MZ780	IQSW	13,38	12,00	169,00	Lipari	Not register with ICCAT		1,740	1,740	1,360	1,576			
01MZ00816	1996		5749	01MZ00816	MZ816		12,50	7,00	84,50	Lipari	Not register with ICCAT		1,780	1,780	1,391	0,921			
01MZ01063	1996		5848	01MZ01063	MZ1063	IFAS	13,56	9,00	117,50	Lipari	Not register with ICCAT		2,020	2,020	1,578	1,042			
01MZ01192	2000		25007	01MZ01192	MZ1192	IIEY2	11,85	5,00	70,00	Lipari	Not register with ICCAT		1,720	1,720	1,344	0,887			
ALBA COSTANZA	1996		9733	01CR00715	CR715	ITAC	26,20	86,10	485,00	Catanzaro Marina	ATEC0ITA00009				21,316				
ALDEBARAN	1996		7069	00ML01115	ML1115	IQAB	25,82	75,22	191,20	Molfetta	ATEC0ITA00016	30,910	31,300	31,300	24,457	28,255			
ALDEBARAN	1996		9708	00PC01007	PC1007	ISQB	20,62	58,00	276,29	Pescara	ATEC0ITA00695								
ALFIERE	1996		18697	01TP01194	TP1194	IODT	18,06	35,26	206,00	Marsala	ATEC0ITA00739								
ALFONSO PADRE	1996	OP CIR SAL	13796	00SA00063M	SA63M	IPCV	41,40	233,24	1.227,20	Salerno	ATEC0ITA00020	145,970	147,800	147,800	153,985		139,630		
ALTO MARE PRIMO	2003	OP CIR CES	26375	00RA00183M	RA183M	IQGM	36,00	179,00	818,13	Ravena	ATEC0ITA00631						23,170		
ANDREA C.	1996		9776	00SA02573	SA2573	IUSL	30,65	76,00	735,40	Salerno	Not register with ICCAT				46,664				
ANDROMEDA	1996		9706	00PC01001	PC1001	IPRA	19,77	58,00	206,00	Pescara	Not register with ICCAT	30,910	31,300	31,300	24,457	16,155	26,710		
ANGELA MADRE	2004	OP CIR SAL	26347	00NA02095M	NA2095M	IPND	40,76	339,00	879,83	Napoli	ATEC0ITA00635						64,240		
ANGELO CATANIA	1996	OP CIR SAL	24580	00PE00130M	PE130M	IKJS	43,18	190,08	749,73	Porto Empedocle	ATEC0ITA00636		120,450	120,450	125,490		113,790		
ANGELO PADRE II	1996	OP CIR SAL	15271	00SV04793	SV4793	IVIE	24,70	77,00	541,85	Savona	ATEC0ITA00030		22,430	22,430	19,863		42,370		
ANTARES	1996		9761	04PC00535	PC535	IRFC	27,20	124,00	464,06	Giulianova	ATEC0ITA00039								
ANTONELLA LUCI	1996		9731	00PC01047	PC1047	IRLK	22,92	95,00	384,92	Pescara	ATEC0ITA00696	52,400	53,050	53,050	41,452	47,948	46,550		
APOLLO 12	1996		3855	02GA00919	GA919	IJFU	26,25	71,00	591,47	Ponza	ATEC0ITA00052								
ARABA FENICE	1996		24549	06VM00207	VM207	IFTV	22,45	88,00	220,66	Cetraro	Not register with ICCAT		17,760	17,760					
ARIES SECONDA	1996	OP CIR MES	17064	00TP00748M	TP748M	ICOQ	30,11	162,47	850,32	Trapani	ATEC0ITA00060						48,630		
ASIA	2002	OP CIR MES	25652	00MV00352M	MV352M	IZMO	27,56	173,00	345,16	Mazara del Vallo	ATEC0ITA00064						25,350		
ASSUNTA MADRE	2004		26582	00NA02139M	NA2139M	IRDX	29,71	122,00	804,72	Cetraro	ATEC0ITA00639						33,190	31,955	
ATLANTE	2002	OP CIR SAL	25543	00CT00253M	CT253M	IZJQ	36,75	264,00	945,55	Catania	ATEC0ITA00065				93,360		84,660		
ATLANTIDE	1996		17345	00VM00569	VM569	IKHC2	10,50	7,19	97,00	Vibo Valentia	ATEC0ITA00697		1,500	1,500	1,563	1,359	1,380	1,330	
AURORA	1996		9048	01CS01082	CS1082	ITCD	26,34	78,58	442,00	Torre Annunziata	ATEC0ITA00069								
AZZURRA	1996	OP CIR MES	16061	00TP02094	TP2094	ITQB	28,52	104,00	394,00	Trapani	ATEC0ITA00073				61,933				
AZZURRA 85	1996		2409	01RO02392	RO2392	IKPB	24,55	68,00	185,00	Anzio	ATEC0ITA00074		1,970	1,970					
BEATRICE	1996	OP CIR SAL	8898	00PA01279M	PA1279M	ILGX	43,78	254,78	985,78	Palermo	ATEC0ITA00085	159,450	161,450	161,450	168,206		152,530		
CARMELO PADRE	1996		15969	01TP01251	TP1251	IIBR2	12,68	10,00	85,00	Marsala	Not register with ICCAT		66,660	66,660		60,250			
COLOMBA II	1996	OP CIR MES	3147	00CT02648	CT2648	IOWS	18,50	34,00	172,00	Catania	Not register with ICCAT		9,410	9,410	7,353		9,000		
COLOMBA III	2006		26995	00CT02848	CT2848	IFSG2	18,54	37,32	172,00	Catania	ATEC0ITA00755								
CONCETTO PADRE	1996		15045	03SR00798	SR798	IVUC	24,10	54,00	502,95	Portopalo di Capo Passero	ATEC0ITA00130								
CONDOR	1996		11156	00PF02084	PF2084	IWVN	24,17	72,13	448,63	Portoferraio	ATEC0ITA00132								
COSTELLAZIONE	1996		15869	00PC01322	PC1322	ITTC	26,73	105,20	830,00	Pescara	ATEC0ITA00138	65,840			52,087		59,000		
CREVALCORE II	1996		12949	04RM00655	RM655	INGQ	21,14	50,00	317,00	Cesenatico	Not register with ICCAT	24,230	24,530	24,530	19,167				
CRISTIAN	1996		3221	00ME02872	ME2872	IUXE	18,08	33,00	144,00	Messina	Not register with ICCAT		6,920	6,920	6,489				
CRISTIAN I	1996		19801	00CA03864	CA3864	IJTA	24,61	75,00	331,00	Cagliari	ATEC0ITA00141								
CRISTIAN PRIMO	1996	OP CIR MES	5167	00CT00251M	CT251M	IWSC	25,13	77,00	442,60	Catania	ATEC0ITA00140		15,430	15,430	48,717		44,710		
CRISTOFARO PRIMO	1997	OP CIR SAL	24907	01CS01061	CS1061	IFVD	32,86	171,00	591,47	Torre Annunziata	ATEC0ITA00143	36,480	36,940	36,940	28,864		34,900		
DANIELA	2000		25002	01MZ01191	MZ1191	IIDL2	11,75	5,00	84,50	Lipari	Not register with ICCAT		1,720	1,720	1,344	0,887			
DANIELE	1996	OP CIR MES	18854	00CT02801	CT2801	IOLI	17,25	29,00	220,60	Catania	ATEC0ITA00699						4,870		
DAVIDE	1997		19860	01TP01211	TP1211	ILTF	26,91	122,00	434,55	Marsala	ATEC0ITA00153								
DOBERMANN	1996		7075	00ML01177	ML1177	IPPG	31,07	149,40	998,93	Molfetta	ATEC0ITA00163								
DOMENICO PAPPALARDO	2004	OP CIR SAL	26339	00NA02093M	NA2093M	IPNE	40,76	328,00	917,38	Napoli	ATEC0ITA00645						50,830		
DORA	1996		6590	00PC01235	PC1235	IKQB	24,98	93,00	294,00	Pescara	Not register with ICCAT	53,130	53,800	53,800	42,039				
EDDA E CESARE	1996		11148	00PF01936	PF1936	IJJD	25,36	99,00	447,96	Portoferraio	ATEC0ITA00169								
EMMANUELE I	1996		5148	09PC00633	PC633	ILNO	26,55	109,50	532,46	Martinsicuro	ATEC0ITA00183								
ENZA MADRE	1996	OP CIR SAL	17891	00SA00058M	SA58M	IQTM	42,30	239,00	1.072,96	Salerno	ATEC0ITA00188	122,660	123,290	123,290	128,449		116,480		
EUGENIO PADRE	2003		26124	00VM00617	VM617	IKHD2	14,54	13,00	110,30	Vibo Valentia	ATEC0ITA00700					5,298	1,770	1,710	
EUREKA	2002	OP CIR MES	25963	00MV00355M	MV355M	IZRV	27,56	173,00	345,16	Mazara del Vallo	ATEC0ITA00192						31,820		
EUROPA	1996		19038	04SA00667	SA667		15,36	27,00	130,00	Cetara	ATEC0ITA00701	6,240	6,320	6,320	4,938	3,261	3,700	5,587	5,100
FALCO	1996		11123	00PT01438	PT1438	ITNF	24,85	75,00	443,94	Porto Torres	ATEC0ITA00200								

Table 013B: Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007)

Name of vessel	Operative since and as from 1996	Fishing Association	EU CFR Number	National Matricule	Ext Marking	IRCS	Estimated or indicated LOA	Estimated or indicated GRT	Estimated or indicated Installed Power Main Engine/s (Hp)	Current Home Port	ICCAT Ship's Registration Number	2000	2001	2002	2003	2004	2005	2006	2007
FRANCESCA	1996		17307	00VM00459	VM459		11,95	11,00	110,30	Vibo Valentia	Not register with ICCAT		1,930	1,930	2,011				
FRANCESCO PADRE	1996		2748	02CR00276	CR276		12,75	7,00	117,00	Ciro' Marina	Not register with ICCAT		2,030	2,030	1,586	1,048			
FRANCESCO PRIMO	1996	OP CIR MES	3246	00PE00131M	PE131M	ITGF	34,00	160,63	1.380,00	Porto Empedocle	ATEC0ITA00219		50,890	50,890	53,020		97,320		
FRANCO PRIMO	1996		2737	02CR00258	CR258		11,58	8,18	110,00	Ciro' Marina	ATEC0ITA00702		1,710	1,710	1,336	0,883	0,670		
FRATELLI FEOLA	1996		3884	02GA00979	GA979	ISAR	25,92	75,69	423,82	Ponza	ATEC0ITA00228								
FRATELLI GAROFALO	1996		15040	06VM00229	VM229	ITUF	22,80	71,00	270,00	Cetraro	Not register with ICCAT	39,650	40,150	40,150	35,556	35,983			
FRATELLO MARINO	1996		9727	00PC01042	PC1042	IJKE	18,90	55,00	324,00	Pescara	Not register with ICCAT	27,340	27,680	27,680	21,629	25,016			
FULVIA	1996	OP CIR SAL	13807	00SA00065M	SA65M	ILZT	41,10	236,93	800,70	Salerno	ATEC0ITA00235	148,280	150,140	150,140	156,423		141,840		
FUTURA PRIMA	2005		26634	00CT00257M	CT257M	IRJV	36,26	144,00	946,89	Catania	ATEC0ITA00651								
GAETANO	1996	OP CIR SAL	13593	00SA00059M	SA59M	ILFD	48,60	275,56	1.578,59	Salerno	ATEC0ITA00237	172,460	174,610	174,610	181,917		164,970		
GAETANO PADRE	2003	OP CIR MES	26066	00MV00359	MV359	IJPM	30,23	122,00	458,56	Mazara del Vallo	ATEC0ITA00693						24,750		
GENEVIEVE PRIMA	2003	OP CIR SAL	26063	00NA02087M	NA2087M	IKAP	40,50	330,00	946,89	Napoli	ATEC0ITA00654						60,720		
GHIBLI DUE	1996		13403	09PC00627	PC627	IWLX	28,40	103,00	690,72	Martinsicuro	ATEC0ITA00255								
GIANNELLA	1996		18615	00CT00259M	CT2810	IPDM	24,16	112,00	650,48	Catania	ATEC0ITA00260								
GIOMADA	1996	OP CIR CES	18123	04RM00686	RM686	IQXG	24,10	59,00	464,06	Cesenatico	ATEC0ITA00268	21,280	21,540	21,540	19,075		20,350		
GIOVANNA	1996		19237	02CR00293	CR293		14,50	11,00	96,00	Ciro' Marina	Not register with ICCAT		1,650	1,650	1,289	0,853			
GIOVANNI GANESIO	1996		16190	00TP02244	TP2244	IJNJ	20,52	53,00	206,00	Trapani	Not register with ICCAT	30,220	30,600	30,600	23,910	15,795			
GIUSEPPE DI MERCURIO	1996		15024	03SR00764	SR764	INJA	23,85	53,67	374,85	Portopalo di Capo Passero	ATEC0ITA00703				33,753	30,738	30.82	30,074	27,700
GIUSEPPE PADRE	1996	OP CIR SAL	18203	00NA02114M	NA284	IQRL	27,47	85,00	552,58	Napoli	ATEC0ITA00288	37,490	37,960	37,960	56,083		35,870		
GIUSEPPE PADRE II°	2002	OP CIR SAL	25551	00OR00114	OR114	IZJZ	33,98	240,00	552,31	Ortona	ATEC0ITA00289				39,548		50,860		
GLADIUS	1996		18289	00AN03994	AN3994	IPOG	14,16	9,86	398,00	Ancona	ATEC0ITA00738								
GRAN MICHELANGELO	1996		10777	01PE00790	PE790	IOBW	23,90	82,00	270,00	Licata	Not register with ICCAT		15,570	15,570	16,222				
ISIDE	2004		26610	08PC00626	PC626	IRMN	25,04	144,00	591,47	Tortoreto	ATEC0ITA00661								
ISIDE PRIMA	1996		9082	09PC00616	PC616	IUVS	28,65	104,00	532,46	Martinsicuro	ATEC0ITA00311								
ITALIA'90	1996		17913	02CR00281	CR281		12,84	9,00	182,00	Ciro' Marina	Not register with ICCAT	6,240	6,320	6,320	4,938	3,261			
LA MARISA	1996	OP CIR MES	13936	07SA00749	SA749	IQGL	17,25	23,00	106,60	Santa Maria di Castellabate	ATEC0ITA00704		4,060	4,060	3,172		3,830		
LA POMPEA-PAOLA E DORIANA	1996		3885	04SB00339	SB339	IZKG	24,41	48,00	670,60	Porto San Giorgio	ATEC0ITA00322								
LIGNY PRIMO	1996	OP CIR SAL	17674	00TP00761M	TP761M	ISWJ	42,13	185,00	975,05	Trapani	ATEC0ITA00331	98,720	99,950	99,950	104,133		94,430		
LORENZO JUNIOR	1996		18427	04CT01108	CT1108	IQTR	26,53	140,00	1.034,07	Aci Castello	ATEC0ITA00333								
LUCIA MADRE	2005		26649	00NA02115M	NA2115M	IRTR	41,98	280,00	1.361,05	Napoli	ATEC0ITA00664								
LUIGI PADRE	2002	OP CIR SAL	25562	00TP00762M	TP762M	IZKA	50,98	461,00	987,12	Trapani	ATEC0ITA00338				100,013		92,790		
LUIGI PRIMO	1996		2908	01CS01054	CS1054	IVHD	26,45	93,13	621,51	Torre Annunziata	ATEC0ITA00337	58,280	59,010	59,010	46,110	53,337		52,186	
MABI	1996		24942	00AN03999	AN3999	ISRS	25,40	59,00	464,06	Ancona	ATEC0ITA00346								
MADONNA DELLE LACRIME	1996		10669	02PE0359	PE359		44,50	190,08	1.000,00	Licata	Not register with ICCAT	118,960							
MADONNA DI FATIMA	1996	OP CIR SAL	13581	00SA00064M	SA64M	IKJW	42,21	199,40	1.072,96	Salerno	ATEC0ITA00348	124,790	126,350	126,350	131,637		119,370		
MAESTRALE	1996		6940	03MF00491	MF491	ILEV	27,80	115,72	540,51	Vieste	ATEC0ITA00350		4,150	4,150	3,243		3,810	3,669	3,400
MAESTRALE	1996		17327	00VM00539	VM539	INHG	15,54	21,00	162,00	Vibo Valentia	ATEC0ITA00705								
MARIA ALFONSO	1996	OP CIR SAL	15476	04SV01779	SV1779	IQFK	24,93	59,87	650,48	Loano	ATEC0ITA00367	37,470	37,940	37,940	8,879		35,840		
MARIA ANTONIETTA	1996	OP CIR SAL	8914	00SA00057M	SA57M	ILSA	43,75	243,62	1.083,69	Salerno	ATEC0ITA00368	147,180	149,020	149,020	155,256		140,790		
MARIA CARMELA C	1996		16025	00TP02046	TP2046	IQDX	22,30	75,00	283,10	Trapani	Not register with ICCAT	29,640							
MARIA GRAZIA	2004	OP CIR SAL	26549	00NA02104M	NA2104M	IPVQ	42,35	220,00	1.161,48	Napoli	ATEC0ITA00694						26,150		
MARIA LUISA	1996		13938	07SA00752	SA752	IWLR	26,22	90,09	454,08	Santa Maria di Castellabate	ATEC0ITA00372	56,380	57,090	57,090	59,479	51,570	48,570	50,483	
MARIA MADRE I	1996		11327	00VG03822	VG3822	IQVI	24,17	77,24	335,00	Viareggio	ATEC0ITA00374								
MARIA MARGHERITA	1996		8552	03CR00345	CR345	IQKM	18,84	29,00	205,90	Cariati	Not register with ICCAT		7,840	7,840	8,168	6,040	5,860		
MARIA PIA	1996		19198	00CS00140M	CS140M	IIYS	37,54	198,00	1.282,19	Castellamare di Stabia	ATEC0ITA00630		61,930	61,930	48,391	55,961	54,380	54,764	
MARIA SS. DELLE GRAZIE	1996		12513	05RC00959	RC959	IVCB	15,93	27,00	302,30	Bagnara Calabra	Not register with ICCAT		5,080	5,080	3,969	2,621	2,390		
MARIANGELA	1996		18054	00CT02832	CT2832	IRPO	25,15	116,00	591,74	Catania	ATEC0ITA00383								
MARIETTA MADRE GUAIANA	1996		16032	00TP02053	TP2053	IQNU	24,85	90,00	195,00	Trapani	Not register with ICCAT	43,840							
MARISA	1996		2745	02CR00272	CR272		12,40	6,00	110,00	Ciro' Marina	Not register with ICCAT		1,950	1,950	1,524	1,007			
MARISTELLA	1996		11117	03PE00552	PE552	I MTM	27,08	112,62	591,74	Sciacca	ATEC0ITA00388								
MASSIMILIANO	1996		17235	04CA00271	CA271	IOFZ	24,90	49,09	185,00	Portoscuro	Not register with ICCAT	18,980							
MERI	1996		8872	00PA01278M	PA1278M	IVUK	40,00	271,36	1.479,61	Palermo	ATEC0ITA00516	176,840	171,950	171,950	179,146				
MICHELANGELO	2003	OP CIR MES	26364	00CT00255M	CT255M	IPNG	37,56	242,00	463,52	Catania	ATEC0ITA00671						44,580		

Table 013C: Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007)

Name of vessel	Operative since and as from 1996	Fishing Association	EU CFR Number	National Matricule	Ext Marking	IRCS	Estimated or indicated LOA	Estimated or indicated GRT	Estimated or indicated Installed Power Main Engine/s (Hp)	Current Home Port	ICCAT Ship's Registration Number	2000	2001	2002	2003	2004	2005	2006	2007
MINUCCIO	2000	OP CIR SAL	26098	00SA00069M	SA69M	IKIN	40,92	252,00	1.161,48	Salerno	ATEC0ITA00673						46,950		
NETTUNO	1996		3447	01CS01072	CS1072	IPNN	23,05	48,00	270,00	Torre Annunziata	Not register with ICCAT	32,790	33,200	33,200					
NICODEMO SESSO	1996		18725	02CR00289	CR289		12,78	10,00	110,00	Ciro' Marina	ATEC0ITA00706		1,650	1,650	1,289	0,853	0,650		
NICOLA PADRE	1996		2935	06VM00219	VM219	IWOK	29,40	107,00	641,09	Cetraro	ATEC0ITA00675								
NICOLANGELA	1996		26205	00ML01166	ML1166	IZMA	28,46	133,00	588,00	Molfetta	Not register with ICCAT								
NINO TESTA	1996	OP CIR MES	3453	00ME00290M	ME290M	ILDQ	33,10	150,00	650,48	Messina	ATEC0ITA00424	88,510	89,610	89,610			26,080		
NONNA ASSUNTA	1996		18494	00SA02569	SA2569	IPNV	25,65	114,00	638,00	Salerno	Not register with ICCAT	67,150	67,990	67,990	70,835				
NUNZIO G.	1996		19248	00VM00634	VM634	IMEX	20,06	41,36	256,17	Vibo Valentia	ATEC0ITA00740								6,500
NUOVO MADONNA DELLE GRAZIE	1996	OP CIR CES	12930	04RM00625	RM625	IKFI	18,88	27,00	350,00	Cesenatico	ATEC0ITA00707		5,410	5,410			5,110		
NUOVO SANT'ANDREA	1996		17610	05RC01049	RC1049	ISPN	21,30	48,00	293,72	Bagnara Calabra	ATEC0ITA00737								10,800
NUVOLA	1998		24602	04ML00796	ML796	IFRR	27,90	103,00	532,46	Bisceglie	ATEC0ITA00455								
ONDA	2002		25548	00PC01365	PC1365	IZKW	24,27	131,00	1.040,00	Tortoreto	ATEC0ITA00459								
ORCA MARINA	1996		5778	01MZ00946	MZ946	IFIV2	11,10	7,00	73,50	Lipari	Not register with ICCAT		2,070	2,070	1,617	1,068			
ORIZZONTE	1996		2744	02CR00270	CR270		10,97	9,05	88,00	Ciro' Marina	ATEC0ITA00708	5,660	5,730	5,730	4,477	2,960	2,260	0,471	
PADRE PIO	1996		15867	00TP02123	TP2123	ILOL	25,51	62,60	394,31	Trapani	ATEC0ITA00469								
PADRE PIO P.	2000	OP CIR SAL	25009	00SA00061M	SA61M	IFFN	38,20	210,00	1.050,16	Salerno	ATEC0ITA00470		55,530	55,530	57,854		26,230		
PADRE PIO SECONDO	1996		11122	00PF01890	PF1890	ISQL	27,12	77,68	592,81	Portoferraio	ATEC0ITA00471								
PANTERA ROSA	1996		3285	05RC01037	RC1037	IJQZ	16,45	29,00	192,00	Bagnara Calabra	Not register with ICCAT		4,900	4,900	3,829	4,432			
PAOLA	1996		17309	00VM00487	VM487	ISBE	20,52	35,13	246,78	Vibo Valentia	ATEC0ITA00736								10,000
PEPPINO I°	2004		26836	00PT01509	PT1509	IVVI	23,56	168,00	804,72	Porto Torres	ATEC0ITA00709								
PESCE AZZURRO	1996		10547	03PE00626	PE626	IJHS	31,24	148,29	804,72	Sciacca	ATEC0ITA00488								
PETRUSKA	1996		17244	07SA00785	SA785	IJPG	26,50	84,00	591,89	Santa Maria di Castellabate	ATEC0ITA00489	48,580	49,190	49,190	38,436	44,460	45,120	43,501	
PUCCIO SECONDO	1996		18888	00CT00246M	CT246	IOQD	24,16	106,00	540,57	Catania	ATEC0ITA00501								
RAFFAELE PADRE	2002		25622	00NA02140M	NA2140M	IZLH	32,73	187,00	578,86	Torre Annunziata	ATEC0ITA00504				25,942	20,563	12,830	29,363	
RAFFAELLO II	1996		9739	00PC01061	PC1061	IKXL	25,04	115,00	485,00	Pescara	Not register with ICCAT	63,480	64,270	64,270	50,220				
RAMBO	1996		3416	00CT00248M	CT248	IWOT	24,50	88,00	482,83	Catania	ATEC0ITA00506		15,310	15,310	11,963				
RIVIERA	1996		4345	01CS01068	CS1068	IWFU	26,90	79,87	591,47	Torre Annunziata	ATEC0ITA00512								
RONDINE	1996		11143	00PF01931	PF1931	ISLO	24,57	63,00	375,54	Portoferraio	ATEC0ITA00515								
ROSA MARIA	1996	OP CIR SAL	9372	03PA00598	PA598		7,10	1,00	19,10	Terrasini	Not register with ICCAT	169,830					162,450		
SACRO CUORE DI GESU'	1996	OP CIR SAL	13595	00SA00068M	SA68M	INLS	33,80	115,00	412,00	Salerno	Not register with ICCAT	74,500	75,430	75,430	78,586		71,260		
SAGITTARIO	1997		19858	01PS00699	PS699		14,98	19,00	350,00	Fano	ATEC0ITA00743								
SAGITTARIO	1999		24840	02CR00305	CR305		16,02	11,00	84,50	Ciro' Marina	Not register with ICCAT		1,280	1,280	1,000	0,658			
SALVATORE PADRE	1996		14650	07AN00732	AN732	IPEL	28,78	109,55	602,20	Civitanova Marche	ATEC0ITA00538								
SALVATORE PRIMO	1996		13546	00NA01886M	NA1886M	IPZP	55,60	695,00	2.466,47	Napoli	ATEC0ITA00539								
SAN FRANCESCO	1996		17335	00VM00550	VM550		10,45	7,27	53,00	Vibo Valentia	ATEC0ITA00710		1,520	1,520	1,584	1,374	1,390	1,344	1,200
SAN GIUSEPPE	1996		2729	02CR00236	CR236		10,03	3,00	63,20	Ciro' Marina	Not register with ICCAT		1,010	1,010	0,789	0,521			
SAN GIUSEPPE	2003		26459	02CR00320	CR320		11,66	5,85	63,00	Ciro' Marina	ATEC0ITA00711						0,400		
SAN PIETRO I	1996	OP CIR SAL	13791	00SA00067M	SA67M	IMUS	38,98	185,00	1.153,43	Salerno	ATEC0ITA00543	123,830	125,070	125,070	125,093		118,160		
SAN PIETRO II	1996	OP CIR MES	3497	05CT00841	CT841	IRVS	22,75	43,21	291,04	Ognina	ATEC0ITA00714	20,390	27,380	27,380	21,394		26,180		
SAN PIETRO III	1996		12927	04RM00622	RM622	IKIH	18,60	26,00	294,00	Cesenatico	Not register with ICCAT		5,230	5,230	4,087				
SAN RAFFAELE	1996	OP CIR SAL	13795	00SA00056M	SA56M	INJU	42,64	247,48	1.127,95	Salerno	ATEC0ITA00528	152,560	156,820	156,820	163,382		148,160		
SAN SALVATORE	1999		24910	02CR00304	CR304		9,95	3,00	35,30	Ciro' Marina	Not register with ICCAT		0,550	0,550	0,430	0,280			
SAN VINCENZO	1996		18107	00VM00573	VM573	IKHE2	13,40	13,00	169,00	Vibo Valentia	ATEC0ITA00713		2,080	2,080	2,167	1,879	1,910	1,838	
SAN VINCENZO II	1996		3493	03PA00630	PA630	IWJL	20,07	31,00	147,00	Terrasini	Not register with ICCAT				11,940	7,889			
SANTA DOMENICA	1999		24656	07CR00182	CR182		13,18	13,00	61,00	Corigliano Calabro	Not register with ICCAT		1,870	1,870	1,461	0,963			
SANTA MARIA A MARE II	1996	OP CIR MES	13889	07SA00635	SA635	ISFN	21,90	40,38	402,36	Santa Maria di Castellabate	ATEC0ITA00712		12,790	12,790	9,994		12,090		
SANTA MARIA CARMELA MADRE	1997	OP CIR SAL	19870	00CS00139M	CS139M	ILLA	34,08	150,00	463,52	Castellamare di Stabia	ATEC0ITA00526	36,560	36,840	36,840	38,382		34,800		
SANTA ROSALIA	1996		18511	00PC01366	PC1366	IPLC	23,35	30,33	289,70	Pescara	ATEC0ITA00715		19,220	19,220	15,018	13,721	10,550		
SANT'ANNA	1996		13686	01CS01078	CS1078	IVDZ	20,34	28,84	276,29	Torre Annunziata	ATEC0ITA00716	15,400	15,590	15,590	12,182	10,447		13,790	
SANTINO	2000		24992	01MZ01190	MZ1190		13,00	10,00	120,00	Lipari	Not register with ICCAT		2,030	2,030	1,586				
SECONDA STELLA MARIS	1996		9566	07PA01892	PA1892	IWIJ	24,59	75,75	296,41	Porticello	ATEC0ITA00554								
SETTEBELLO II	1996		10738	01PE00730	PE730	IRKF	21,13	44,00	206,00	Licata	Not register with ICCAT		13,100	13,100	13,648				
SILVIA MADRE	2003		26822	00VM00630	VM630	IFIS2	23,28	67,00	236,68	Vibo Valentia	ATEC0ITA00753								
SIMONE III	1996		6285	10ME01481	ME1481	INIH	15,59	13,00	176,50	Torre di Faro	Not register with ICCAT	9,300	9,420	9,420	7,361	4,860			

Table 013D: Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007)

Name of vessel	Operative since and as from 1996	Fishing Association	EU CFR Number	National Matricule	Ext Marking	IRCS	Estimated or indicated LOA	Estimated or indicated GRT	Estimated or indicated Installed Power Main Engine/s (Hp)	Current Home Port	ICCAT Ship's Registration Number	2000	2001	2002	2003	2004	2005	2006	2007
SIRIO	1996	OP CIR SAL	15301	00SV04849	SV4849	IOMY	20,07	39,96	394,31	Savona	ATEC0ITA00717		8,360	8,360	6,532		7,890		
SIRIO	1996		7941	00MV00327M	MV327M	IUSS	27,05	116,00	316,00	Mazara del Vallo	ATEC0ITA00562								
SPARVIERO UNO	1996	OP CIR SAL	13794	00SA00066M	SA66M	ISFA	43,93	241,78	800,70	Salerno	ATEC0ITA00565	151,590	153,210	153,210	159,621		144,740		
SQUALO III	1998		24877	00GE08759	GE8759		19,80	50,00	145,50	Genova	Not register with ICCAT		4,510	4,510	3,524	2,327			
STELLA DEL MARE	1996		11569	09PC00617	PC617	ITIL	25,00	97,76	788,63	Martinsicuro	ATEC0ITA00575	61,180							
TARTAN	1996		19388	01PS00677	PS677		14,18	9,34	350,00	Fano	ATEC0ITA00741								
TENACE SECONDO	1996	OP CIR SAL	3449	00CT00249M	CT249M	IPOB	43,78	217,00	1.072,96	Catania	ATEC0ITA00583	124,790	126,350	126,350	131,637		120,810		
TRAMATI JUNIOR	1996			00TP2248	TP2248	IZFE	25,30	111,00	650,48	Trapani	ATEC0ITA00597								
TRILONA	1996		9083	03PA00536	PA536	IUTA	27,10	112,62	453,33	Terrasini	ATEC0ITA00600								
URAGANO	1996		13252	03PA00625	PA625	IPLE	24,50	71,00	394,31	Terrasini	ATEC0ITA00608								
VALERIA	1996	OP CIR SAL	13589	00SA00060M	SA60M	ILFT	49,30	278,00	1.459,23	Salerno	ATEC0ITA00612	168,830	170,940	170,940	178,093		161,500		
VERGINE DEL ROSARIO	1996	OP CIR SAL	13797	00SA00062M	SA62M	INFM	48,05	255,36	1.449,84	Salerno	ATEC0ITA00617	159,810	161,810	161,810	168,581		152,870		
VINCENZO FERRIGNO	1996		13827	04SA00651	SA651	IUPV	24,40	78,00	749,70	Cetara	ATEC0ITA00623								

Table 013E: Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007)[57]

[57] BFT TACs individually allocated per Italian PS fishing vessel, since 2000, has been done in proportion to each ship's GRT. ≈ 437 Kgs per GRT Unit. Source: http://www.provincia.napoli.it/ambiente/capitolo_3/capitolo_3_2_4fino3_2_5_2.pdf.

According to this survey, the total recorded number of effective BFT purse seined catches during 2003, 2004 and 2005 for all four ships were 43 during 2003, 39 during 2004 and 61 during 2005 (see Figure 047).

Should all four PS vessels have respected their individual yearly BFT quota, this would have meant that the average tonnage per catch during those three years would have varied between 6.31 Mt (2005) and 9.85 Mt (2003) per set.

Such values would, however, simply defy common sense and standard business profitability, as in general terms, no PS fishing vessel captain would ever set his net around such meagre schools of tuna and no tuna ranching operator would transfer live into its transport cages such small amounts of fish.

The Cetara (SA)-based De.Mo. Pesca Di Pasquale Della Monica & C. S.a.s fishing group belongs to the Salerno maritime region based BFT PS fishing fleet[58], Associazione produttori tonnieri del Tirreno di Salerno[59], composed in 2005 by:

1 PS small multispecies (20m > LOA)
4 PS multispecies (28.6m ≥ LOA ≥ 20m)
6 medium PS (38.5m > LOA ≥ 28.6m)
21 large PS (LOA > 38.5m)

Such fleet enjoyed a 2005 collective BFT annual catch quota of 2,958.88 Mt, the largest in Italy for a fishing fleet alone[60] and reported maximum annual BFT catches amounting to 3,381.97 Mt[61] in 2003[62] at the time when the fleet only counted 29 operative fishing units (3 large PS vessels less than in 2005).

This would mean that an average yearly BFT catch of ≈ 116.62 Mt per ship, for the entire Associazione produttori tonnieri del Tirreno di Salerno may be considered as plausible, though such figures may seem conservative when compared to previously calculated 2001 average catch per ship of 157.25 Mt.

Yet, by taking into account previously mentioned ICCAT-SCRS best yearly potential BFT catch ratios for large PS (LOA > 38.5m) being double the ones for medium PS (38.5m > LOA ≥ 28.6m) and 7.5 times the ones for PS multispecies (28.6m ≥ LOA ≥ 20m), it would be safe to say that Associazione produttori tonnieri del Tirreno di Salerno's reported 2003 annual BFT catches amounting to 3.381,97 Mt could be broken-down to:

$$\mathbf{3{,}381.97\ Mt = (n^1.x/4) + (n^2.x) + (n^3.3.75x) + (n\ .7.50x)}$$

Where $\mathbf{n^1}$ (1) is the number of operative BFT PS small multispecies boats, $\mathbf{n^2}$ (4) the number of operative BFT PS multispecies boats, $\mathbf{n^3}$ (6) the number of operative BFT medium PS vessels and **n** (18) the number of operative BFT large PS vessels, all in 2003; thus:

$$\mathbf{3{,}381.97\ Mt = (1\ .\ x/4) + (4\ .\ x) + (6\ .\ 3.75x) + (18\ .\ 7.50x)}$$
$$\mathbf{3{,}381.97\ Mt = (x/4) + (4x) + (22.5x) + (135x)}$$
$$\mathbf{3{,}381.97\ Mt = (x/4) + (161.5x)}$$
$$\mathbf{x = 3{,}381.97 / 161.75 = 20.9086}$$

[58] Combined GRT ≈ 6.825,06; IHP ≈ 28.838,28Hp

[59] Source: Ministero delle Politiche Agricole e Forestali, 2005.

[60] 2.809,09 Mt in 2004, 2.885,54 Mt in 2006 and 2.566,80 Mt in 2007.

[61] 572,42 Mt corresponding to offloaded BFT Catches and 2.809,55 Mt corresponding to Live BFT having been transferred to Tuna ranches.

[62] Sources: La filiera del Tonno Rosso Mediterraneo: Problematiche e prospettive del Comparto in Campania (ns elaborazioni su dati del Ministero delle Politiche Agricole e Forestali 2005) by: Debora SCARPATO e Mariarosaria SIMEONE. Working paper N. 4.2005. May 2005.

That is: 2,822.66 Mt having been caught by 18 large PS vessels, 470.44 Mt having been caught by 6 medium PS vessels, 83.63 Mt having been caught by 4 PS multispecies boats and 5.23 Mt having been caught by 1 PS small multispecies.

According to Tables 013 B to E, the actual number of Italian operative BFT PS fishing vessels, whether registered with ICCAT, licensed by the Italian Fisheries Authority and/or both, is made of:

46 PS small multispecies (20m > LOA)
79 PS multispecies (28.6m ≥ LOA ≥ 20m)
22 medium PS (38.5m > LOA ≥ 28.6m)
25 large PS (LOA > 38.5m)

By transposing the previous equation to the entire 2008 foreseeable operative Italian BFT PS Fishing fleet it appears that potential BFT catch capacity for such a fleet would amount to a conservative 7,537.55 Mt distributed as follows:

PS small multispecies (20m > LOA)	240.45 Mt
PS multispecies (28.6m ≥ LOA ≥ 20m)	1,651.78 Mt
Medium PS (38.5m > LOA ≥ 28.6m)	1,724.96 Mt
Large PS (LOA > 38.5m)	3,920.36 Mt

That is:

3,920.36 Mt having been caught by 25 large PS vessel,	**(156.81 Mt/ship)**
1,724.96 Mt having been caught by 22 medium PS vessels,	**(78.40 Mt/Ship)**
1,651.78 Mt having been caught by 79 PS multispecies boats,	**(20.90 Mt/Ship)**
240.45 Mt having been caught by 46 PS small multispecies boats,	**(5.22 Mt/Ship)**

Indeed, such estimate of 7,537.55 Mt almost matches Italy's maximum reported yearly BFT catches[63] in 1996 (7,060 Mt) and in 1997 (7,068 Mt), at a time its BFT PS fishing fleet was made of:

36 PS small multispecies (20m > LOA)
72 PS multispecies (28.6m ≥ LOA ≥ 20m)
13 medium PS (38.5m > LOA ≥ 28.6m)
18 large PS (LOA > 38.5m)

[63] Source: ICCAT-SCRS Task I Database.

f. The case of the Croatian MED BFT PS Fleet.

Croatian bluefin tuna production and exports have been systematically under-reported and/or concealed, during the period of 1998-2006

According to Trade Statistics of Japan's Ministry of Finance (www.customs.go.jp/toukei/srch/), Croatia would have exported to Japan alone, the staggering amount of 21,364.826 Mt of processed bluefin tuna (mostly frozen GG) for the period of October 1st 1998 – July 31st 2007, corresponding to PS BFT catches from 1998's fishing season to 2006's fishing season.

The total value of such BFT exports, according to Japan's Ministry of Finance, amounted to JP¥ 47,553,275,000, that is € 371,509,960.94 at a flat exchange rate of € 1.00 = JP¥ 128.

Though such imports/exports are concealed under statistical reference number 0070101 (albacore & tuna), the fact that Croatia has declared zero albacore tuna catches to ICCAT-SCRS, during the period 1998-2007 and that such exports' seasonality as well as their declared value indisputably correspond to BFT, leaves no room to doubt the real nature of Croatian exports to Japan detailed in Tables 014 A, B & C.

Notwithstanding, yearly processed PS BFT export/import figures for 2005 and 2006 by Japan's Ministry of Finance Trade Statistics are nevertheless corrected by Japan's bi-annual BFT Statistical Document Reports to ICCAT itself:

- ♣ Q3+Q4 2005 (ICCAT Circular: 760/06) (July to December 2005)
- ♣ Q1+Q2 2006 (ICCAT Circular: 1847/06) (January to June 2006)

} Corresponding to PS caught and farmed BFT during 2005 in Croatian tuna ranches.

- ♣ Q3+Q4 2006 (ICCAT Circular: 627/07) (July to December 2006)
- ♣ Q1+Q2 2007 (ICCAT Circular: 1951/07) (January to June 2007)

} Corresponding to PS caught and farmed BFT during 2006 in Croatian tuna ranches.

According to such bi-annual BFT Statistical Document Reports, Croatia would have exported to Japan alone, 5,278.121 Mt and 4,527.655 Mt of processed BFT during 2005 and 2006 respectively.

According to the Croatian Chamber of Economy and to the Croatian Central Bureau of Statistics: CROSTAT[64], total yearly processed farmed PS BFT production figures for 1998 to 2006 amounted to 29,892 Mt, that is 7,184.878 Mt more than total exports to Japan alone, during that same period.

According to INFOSAMAK[65], some 16,886 Mt of processed BFT would have been exported by Croatia during the period 1998-2004 (see Table 015).

During 2003, total PS BFT exports by Croatia amounted to 4,866 Mt according to INFOSAMAK, that is 1,838 Mt more than the reported ranched BFT biomass slaughtered during that same year, according to the Croatian Chamber of Economy, and 1,018.351 Mt than recorded Croatian processed BFT exports to Japan that same year.

[64] Sources: HRVATSKA GOSPODARSKA KOMORA SEKTOR ZA POLJOPRIVREDU, PREHRAMBENU INDUSTRIJU I ŠUMARSTVO www.hgk.hr . CROSTAT: DR AVNI ZAVOD ZA STATISTIKU REPUBLIKE HRVATSKE. www.dzs.hr

[65] INFOSAMAK is an intergovernmental organization of trade in fishery and aquaculture products and for the encouragement and promotion of investments in the sector. INFOSAMAK is an independent information centre. It is an integral part of the FISH INFO network set up by the Food and Agriculture Organization of the United Nations (FAO) and benefits from the technical support of this organization. INFOSAMAK is an institution undertaking research, studies and providing advice in the field for companies, public and private sector. It also provides an environment to promote technical and economic cooperation between member States in the region and between these states and the fishery industry worldwide. INFOSAMAK has reopened its offices in Casablanca, Morocco. This follows an agreement between most of the INFOSAMAK member countries and FAO to move INFOSAMAK offices from Bahrain to Morocco. http://www.infosamak.org/english/about.cfm

	Year & Month	0070101 (Albacore & Tuna)		Average Price per Kg. in JP¥	Total PS BFT Exports to Japan corresponding to Julian yearly catches	Total PS BFT Exports' values to Japan corresponding to Julian yearly catches
		Kgs.	Yen			
1998 PS BFT Exports	1998 10	1.331	¥2.414.000	¥1.813,67	362.809	¥1.056.831.000
	1998 11	10.071	¥25.938.000	¥2.575,51		
	1998 12	81.307	¥283.576.000	¥3.487,72		
	1999 01	27.769	¥88.616.000	¥3.191,18		
	1999 02	223.941	¥603.897.000	¥2.696,68		
	1999 03	10.018	¥29.982.000	¥2.992,81		
	1999 04	7.929	¥21.118.000	¥2.663,39		
	1999 05	443	¥1.290.000	¥2.911,96		
1999 PS BFT Exports	1999 10	542	¥1.084.000	¥2.000,00	707.355	¥1.964.126.000
	1999 11	4.160	¥8.482.000	¥2.038,94		
	1999 12	8.554	¥18.756.000	¥2.192,66		
	2000 01	105.301	¥357.397.000	¥3.394,05		
	2000 02	61.396	¥192.173.000	¥3.130,06		
	2000 03	509.754	¥1.333.430.000	¥2.615,83		
	2000 04	16.958	¥45.692.000	¥2.694,42		
	2000 05	690	¥7.112.000	¥10.307,25		
2000 PS BFT Exports	2000 08	140	¥441.000	¥3.150,00	830.061	¥2.105.484.000
	2000 09	2.611	¥6.025.000	¥2.307,55		
	2000 10	4.819	¥11.733.000	¥2.434,74		
	2000 11	2.899	¥9.578.000	¥3.303,90		
	2000 12	5.327	¥11.427.000	¥2.145,11		
	2001 01	57.714	¥218.739.000	¥3.790,05		
	2001 02	146.365	¥299.963.000	¥2.049,42		
	2001 03	606.400	¥1.539.623.000	¥2.538,96		
	2001 04	2.315	¥5.644.000	¥2.438,01		
	2001 05	1.471	¥2.311.000	¥1.571,04		
2001 PS BFT Exports	2001 08	289	¥243.000	¥840,83	2.349.502	¥6.477.727.000
	2001 09	4.898	¥11.155.000	¥2.277,46		
	2001 10	23.517	¥130.869.000	¥5.564,87		
	2001 11	10.866	¥29.094.000	¥2.677,53		
	2001 12	186.494	¥460.355.000	¥2.468,47		
	2002 01	318.912	¥719.277.000	¥2.255,41		
	2002 02	910.787	¥2.353.458.000	¥2.583,98		
	2002 03	888.430	¥2.758.795.000	¥3.105,25		
	2002 04	5.309	¥14.481.000	¥2.727,63		

Table 014A: Croatia's 1998-2006 processed PS BFT exports to Japan according to Trade Statistics of Japan's Ministry of Finance (www.customs.go.jp).

	Year & Month	0070101 (Albacore & Tuna)		Average Price per Kg. in JP¥	Total PS BFT Exports to Japan corresponding to Julian yearly catches	Total PS BFT Exports' values to Japan corresponding to Julian yearly catches
		Kgs.	Yen			
2002 PS BFT Exports	2002 08	383	¥727.000	¥1.898,17	2.561.102	¥6.290.702.000
	2002 09	4.000	¥7.023.000	¥1.755,75		
	2002 10	20.085	¥50.507.000	¥2.514,66		
	2002 11	22.953	¥70.253.000	¥3.060,73		
	2002 12	67.562	¥135.723.000	¥2.008,87		
	2003 01	1.813	¥3.485.000	¥1.922,23		
	2003 02	265.438	¥522.155.000	¥1.967,14		
	2003 03	1.977.978	¥5.015.619.000	¥2.535,73		
	2003 04	35.299	¥56.184.000	¥1.591,66		
	2003 05	87.447	¥222.517.000	¥2.544,59		
	2003 06	78.144	¥206.509.000	¥2.642,67		
2003 PS BFT Exports	2003 09	9.364	¥13.170.000	¥1.406,45	3.847.649	¥6.556.550.000
	2003 10	43.970	¥84.875.000	¥1.930,29		
	2003 11	33.551	¥59.720.000	¥1.779,98		
	2003 12	132.982	¥430.561.000	¥3.237,74		
	2004 01	47.222	¥72.220.000	¥1.529,37		
	2004 02	721.882	¥1.468.236.000	¥2.033,90		
	2004 03	2.089.340	¥3.328.112.000	¥1.592,90		
	2004 04	148.680	¥207.452.000	¥1.395,29		
	2004 05	402.560	¥608.113.000	¥1.510,61		
	2004 06	118.135	¥153.881.000	¥1.302,59		
	2004 07	99.963	¥130.210.000	¥1.302,58		
2004 PS BFT Exports	2004 10	2.141	¥3.579.000	¥1.671,65	2.242.868	¥3.967.294.000
	2004 11	691	¥1.894.000	¥2.740,96		
	2004 12	1.190	¥3.214.000	¥2.700,84		
	2005 01	71.591	¥99.219.000	¥1.385,91		
	2005 02	691.055	¥1.421.674.000	¥2.057,25		
	2005 03	1.476.200	¥2.437.714.000	¥1.651,34		

Table 014B: Croatia's 1998-2006 processed PS BFT exports to Japan according to Trade Statistics of Japan's Ministry of Finance (www.customs.go.jp).

	Year & Month	0070101 (Albacore & Tuna)		Average Price per Kg. in JP¥	Total PS BFT Exports to Japan corresponding to Julian yearly catches	Total PS BFT Exports' values to Japan corresponding to Julian yearly catches
		Kgs.	Yen			
2005 PS BFT Exports	2005 08	2.502	¥7.506.000	¥3.000,00	4.767.811	¥10.377.217.000
	2005 09	12.802	¥37.067.000	¥2.895,41		
	2005 10	52.608	¥149.803.000	¥2.847,53		
	2005 11	32.759	¥98.277.000	¥3.000,00		
	2005 12	139.528	¥411.267.000	¥2.947,56		
	2006 01	30.311	¥82.096.000	¥2.708,46		
	2006 02	1.172.609	¥2.653.226.000	¥2.262,67		
	2006 03	1.464.499	¥3.311.467.000	¥2.261,16		
	2006 04	1.860.193	¥3.626.508.000	¥1.949,53		
2006 PS BFT Exports	2006 11	39.729	¥123.425.000	¥3.106,67	3.695.669	¥8.757.344.000
	2006 12	119.339	¥378.133.000	¥3.168,56		
	2007 01	49.433	¥157.663.000	¥3.189,43		
	2007 02	333.984	¥713.964.000	¥2.137,72		
	2007 03	2.760.314	¥6.574.080.000	¥2.381,64		
	2007 04	6.270	¥25.016.000	¥3.989,79		
	2007 05	41.990	¥81.061.000	¥1.930,48		
	2007 06	344.460	¥703.552.000	¥2.042,48		
	2007 07	150	¥450.000	¥3.000,00		

Table 014C: Croatia's 1998-2006 processed PS BFT exports to Japan according to Trade Statistics of Japan's Ministry of Finance (www.customs.go.jp).

	BFT biomass slaughtered after fattening season RW [1]	Reported exported processed fresh, chilled and/or frozen PS BFT pertaining to single year to Japan [2]	Reported exported processed fresh/chilled Albacore [3]	Reported exported processed fresh/chilled and/or frozen BFT
1998	906.000	362.809	38.000	644.000
1999	970.000	707.355	55.000	406.000
2000	1.200.000	830.061	291.000	998.000
2001	3.045.000	2.349.502	33.000	2.329.000
2002	3.971.000	2.561.102	8.000	2.919.000
2003	3.028.000	3.847.649	0	4.866.000
2004	4.604.000	2.242.868	580.000	3.719.000
2005	4.446.000	5.278.121	No Info	No Info
2006	7.722.000	4.527.655	No Info	No Info

Table 015: Disparities between yearly total processed farmed PS BFT production figures for 1998 to 2006 (1: Source: Croatian Chamber of Economy & CROSTAT) and reported BFT exports (Sources: 2: Japan's Ministry of Finance Trade Statistics, data for 2005 & 2006: Japan's biannual reports to ICCAT. 3&4: INFOSAMAK.)

Table 016 summarises previously recorded processed PS BFT productions and/or exports, in an effort to estimate Croatia's minimum real yearly PS BFT catches by its PS fishing fleet.

Maximum recorded or reported yearly production or export figures, previously stated in Tables 014 and 015, were retained as verisimilar (Column A).

Estimated equivalent W/RW of recorded ranched and processed BFT production ex-cage (therefore, Round Weight –RD- at slaughter), reported by the Croatian Chamber of Economy and/or CROSTAT (Column A) was calculated by subtracting a 1.2 fattening factor, corresponding to a cross-board 20 % weight increase for all ranch BFT biomass inside Croatian tuna ranches for any given year.

Estimated equivalent W/RW of recorded ranched and processed BFT exports, (highlighted in green in Columns A & B) and therefore the final processed product, reported by Japan's 2005 bi-annual BFT Statistical Document Reports to ICCAT or recorded with INFOSAMAK (year 2003) was calculated by firstly adding a cross-board lowest factor of 1.16, corresponding to the average weight loss for GG (gilled and gutted) BFT presentation, thus obtaining the estimated Round Weight –RD- at slaughter of such BFTs.

A 1.2 fattening factor, corresponding to a cross-board 20 % weight increase for such ranch BFT biomass was subsequently subtracted, thus obtaining an estimate W/RW of such biomass prior to fattening.

Estimated minimum real yearly PS BFT catches by Croatia's PS fishing fleet is then calculated by subtracting reported yearly live-BFT inputs into tuna ranches by foreign PS vessels of the estimated equivalent W/RW of recorded yearly ranched and processed BFT.

Reported Croatian BFT PS catches inside the Mediterranean Sea during the decade 1996-2006, are consistently lower than best and maximum yearly BFT catch estimations (according to ICCAT-SCRS ratios) for the Croatian PS fleet (see Figure 048). The same can be said about maximum and average yearly estimated BFT catches for such fleet, calculated previously (see Figure 049).

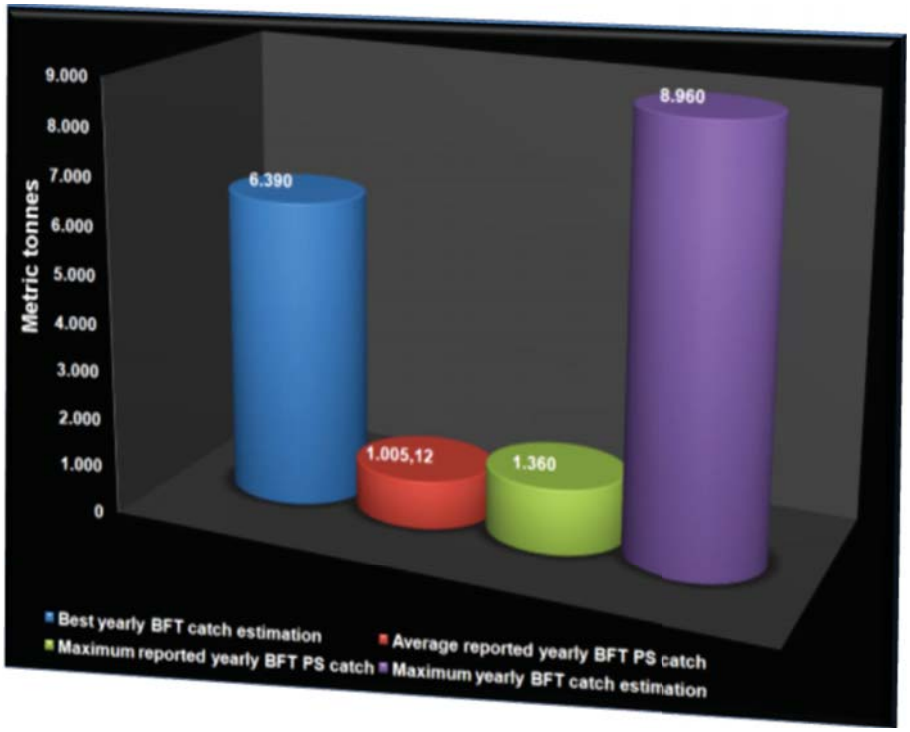

Figure 048: Maximum and average reported total BFT PS catches inside the Mediterranean Sea, by Croatian fishing vessels during the period 1996-2006 vs. best - maximum yearly BFT catch estimations for such fleet, according to ICCAT-SCRS catch estimation ratios.

Year	A	B	C	D	E	F	G	H	I
	Recorded ranched and processed BFT production ex-cage (Green: values correspond to recorded exports)	Estimated equivalent W/RW of recorded ranched and processed BFT production ex-cage (Green: values correspond to recorded exports)	Reported yearly live-BFT inputs into Tuna Ranches by Croatian PS vessels (Source: ICCAT-SCRS)	Reported yearly live-BFT inputs into Tuna Ranches by foreign PS vessels (Source: ICCAT-SCRS)	Reported yearly live-BFT inputs into Tuna Ranches (Source: ICCAT-SCRS)	Estimated previous year live BFT carryover	Total live BFT live biomass inside Croatian Tuna ranches	Estimated live BFT carryover to next year	Estimated minimum real yearly PS BFT catches by Croatia's PS fishing fleet
					E = C+D	F = H (Previous year)	G = E + F	H = G - B (Only when G≥B)	As of 2003: I = B-D-F
1998	906.000	755.000	889.000	0	889.000	0	889.000	134.000	889.000
1999	970.000	808.333	921.000	0	921.000	134.000	1.055.000	246.667	921.000
2000	1.200.000	1.000.000	914.000	1.100.000	2.014.000	246.667	2.260.667	1.260.667	914.000
2001	3.045.000	2.537.500	890.000	1.100.000	1.990.000	1.260.667	3.250.667	713.167	890.000
2002	3.971.000	3.309.167	975.000	1.683.000	2.658.000	713.167	3.371.167	62.000	975.000
2003	4.866.000	4.703.800	1.137.000	1.123.000	2.260.000	62.000	2.322.000	0	3.518.800
2004	4.604.000	3.836.667	826.550	636.000	1.462.550	0	1.462.550	0	3.200.667
2005	5.278.121	5.102.184	1.011.424	1.930.000	2.941.424	0	2.941.424	0	3.172.184
2006	7.722.000	6.435.000	1.022.000	1.642.150	2.664.150	0	2.664.150	0	4.792.850

Table 016: Estimated minimum real yearly PS BFT catches by Croatia's PS fishing fleet based on yearly total processed farmed PS BFT production figures according to the Croatian Chamber of Economy and CROSTAT, total exports to Japan during that same period, and exports according to INFOSAMAK.

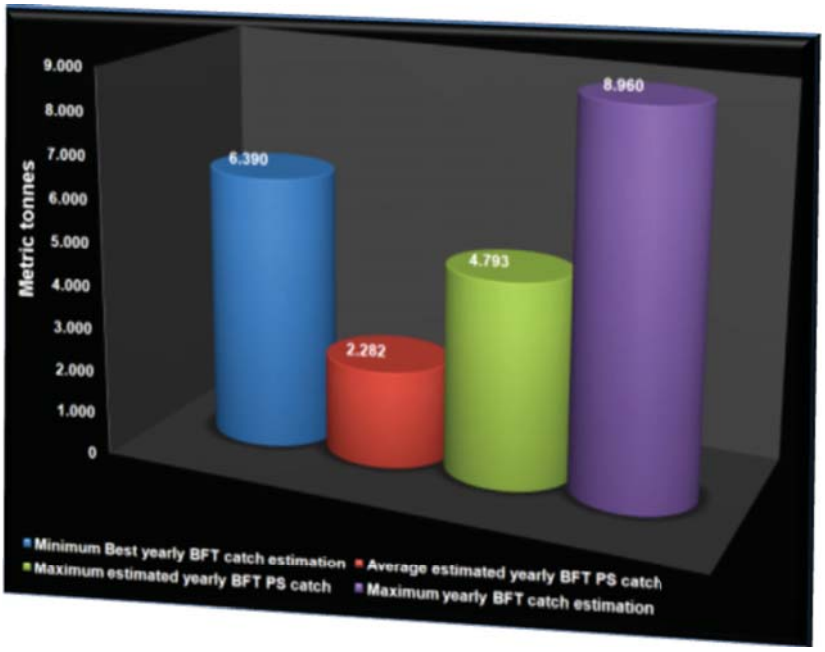

Figure 049: Maximum and average estimated total BFT PS catches inside the Mediterranean Sea, by Croatian fishing vessels during the period 1996-2006 vs. best - maximum yearly BFT catch estimations for such fleet, according to ICCAT-SCRS catch estimation ratios.

Maximum yearly estimated total BFT PS catches inside the Mediterranean Sea, by Croatian fishing vessels during the period 1996-2006, amounting to ≈ 4,793 Mt, corresponds to BFT catches having taken place during 2006, at a time when the Croatian PS fishing fleet (LOA ≥ 20m) operated 79 PS fishing vessels:

66 PS multispecies:	(28.6m ≥ LOA ≥ 20m)
12 medium PS:	(38.5m > LOA ≥ 28.6m)
1 large PS:	(LOA > 38.5m)

An average yearly BFT catch of ≈ 60.67 Mt per Croatian PS fishing vessel may therefore be comfortably retained as a verisimilar conservative approach to Croatian BFT PS vessels' yearly average fishing capacity.

Since 2004, Croatia has nevertheless embarked on an ambitious €45 million shipbuilding program and will operate a foreseeable 85 PS fishing unit fleet in 2008-2009:

66 PS multispecies[66]:	(28.6m ≥ LOA ≥ 20m)
13 medium PS[67]:	(38.5m > LOA ≥ 28.6m)
6 large PS[68]:	(LOA > 38.5m) (see Figures 050 & 051)

By applying previously calculated average yearly BFT catch of ≈ 60.67 Mt /ship to such a fleet, this would mean that Croatia may well be in a position to catch an average of ≈ 5,157 Mt of BFT per year, as of 2008.

Our estimation, though conservative, not to say underestimated, is furthermore supported by the fact that Impact Studies by Croatian OIKON Ltd., Institute for applied ecology are fully in progress for the enlargement of a 1,500 Mt actual capacity tuna ranch, located near the Island of Gira in Zadar County[69] as well as for the mooring of a new tuna ranch located in the Srednji Channel, Lavdara, Zadar County.[70]

[66] 13 PS Multispecies vessels not registered with ICCAT were detected (See Annexe 2) and retained as fully able to target BFT.

[67] 4 PS Medium vessels not registered with ICCAT were detected (See Annexe 2) and retained as fully able to target BFT.

[68] 5 PS Large vessels not registered with ICCAT were detected (See Annexe 2) and retained as fully able to target BFT.

[69] Financier: Jadran Tuna, Ltd.

[70] Financier: Dalmacija ribolov Ltd., Dalmacija tuna Ltd., Mardeši Ltd., Riba Kali Ltd., Teši tunolov Ltd., Zadar-tuna Ltd.

Figure 050: Croatian BFT purse seiners NEPTUNE I and NEPTUNE II under construction, seen at Pula Croatia on September 20th 2007. They are two from a series of four BFT PS fishing vessels (LOA: 40.15 m, breadth: 8.65m, height: 4.20m, engine: 1600hp, speed: 14.5kn. builder: Tehnomont Pula shipyard) for Solin-Croatia-based BFT fishing operator Conex-Trade. Pictures ©®: Courtesy by: Siniša Jakši

Figure 051: Croatian BFT purse seiner SARDINA I not registered with ICCAT. Picture ©®: Courtesy by: ATRT, SL.

Our assessment is furthermore supported by the detected unprecedented presence of Australian/Croatian operated BFT fishing vessels, tuna spotting aircrafts, tuna-divers' transport vessels, tugboats and trawlers towing ranching cages, inside and outside the Libyan 60nm fishing zone and around Maltese waters during the 2007 summer fishing season. Photographic evidence of such presence is given in Figures 052 to 058.

Figure 052: Australian registered (VH-UJX) Aero Commander Div 500 (500-S) aircraft, operated by General Aviation Maintenance, Pty, Ltd. (Essendon Airport, Victoria-Australia) seen at Malta Luqa Airport on May 20th 2007. This aircraft, is suspected of operating as a tuna spotter working for the Australian Croatian tuna ranches off Zadar, possibly Kali Tuna and/or Mari Tuna (Atlantis Group) It departed from Malta Luqa at 11:00am local time. Malta Air Traffic Control unsuccessfully tried to get hold of pilot for over one hour but VH-UJX would not even answer to repeated calls. According to our same sources, Malta Air Traffic Control reported heavy tuna spotting aircraft activity (≈ 11 units) about 20 nm South of Lampedusa as well as from Pantelleria. Picture ©® Courtesy by: RB.

Figure 053: Australian flagged tuna-divers' transport fast-boat MINSTREL seen at the Port of La Valletta, Malta, on June 29th 2007, upon arrival from fishing grounds. Picture ©®: by: M.S.P.A.P.

Figure 054: Croatian flagged BFT reefer LEDENIK (Ex- QUEEN FROST) seen at the Port of La Valletta, Malta, on June 24th 2007, departing for fishing grounds. LEDENIK was not registered with ICCAT at the time, as an authorised BFT carrying reefer vessel. Picture ©®: by: M.S.P.A.P.

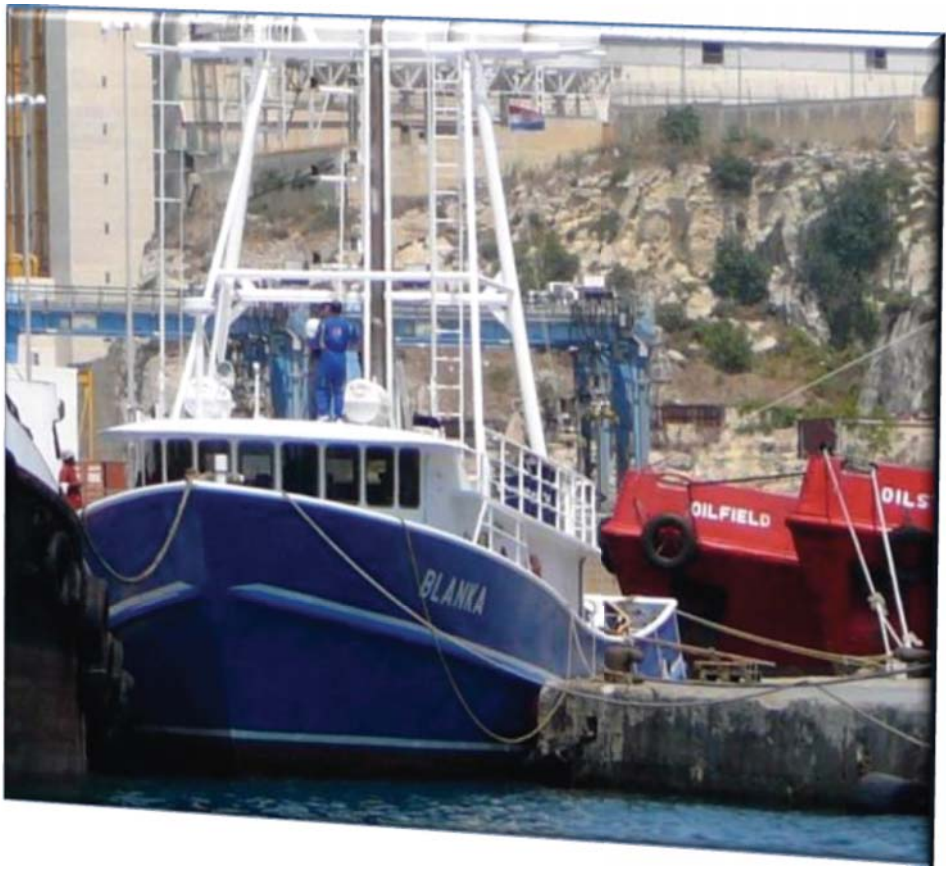

Figure 055: Croatian flagged BFT PS BLANKA seen at the Port of La Valletta, Malta, on May 31st 2007. Picture ©®: by: M.S.P.A.P.

Figure 056: Croatian flagged BFT PS CICILO seen at the Port of La Valletta, Malta, on May 27th 2007. Picture ©®: by: M.S.P.A.P.

Figure 057: Croatian flagged BFT PS IVOŠ seen at the Port of La Valletta, Malta, on July 10th 2006. Picture ©®: by: M.S.P.A.P.

Figure 058: Croatian flagged BFT PS OŠLJAK II seen at the Port of La Valletta, Malta, on May 17th 2005. Picture ©®: by: M.S.P.A.P.

g. The case of the Algerian MED BFT PS Fleet.

Reported Algerian BFT PS catches inside the Mediterranean Sea during the decade 1996-2006, are consistently lower than best and maximum yearly BFT catch estimations (according to ICCAT-SCRS ratios) for the Algerian PS fleet (see Figure 059).

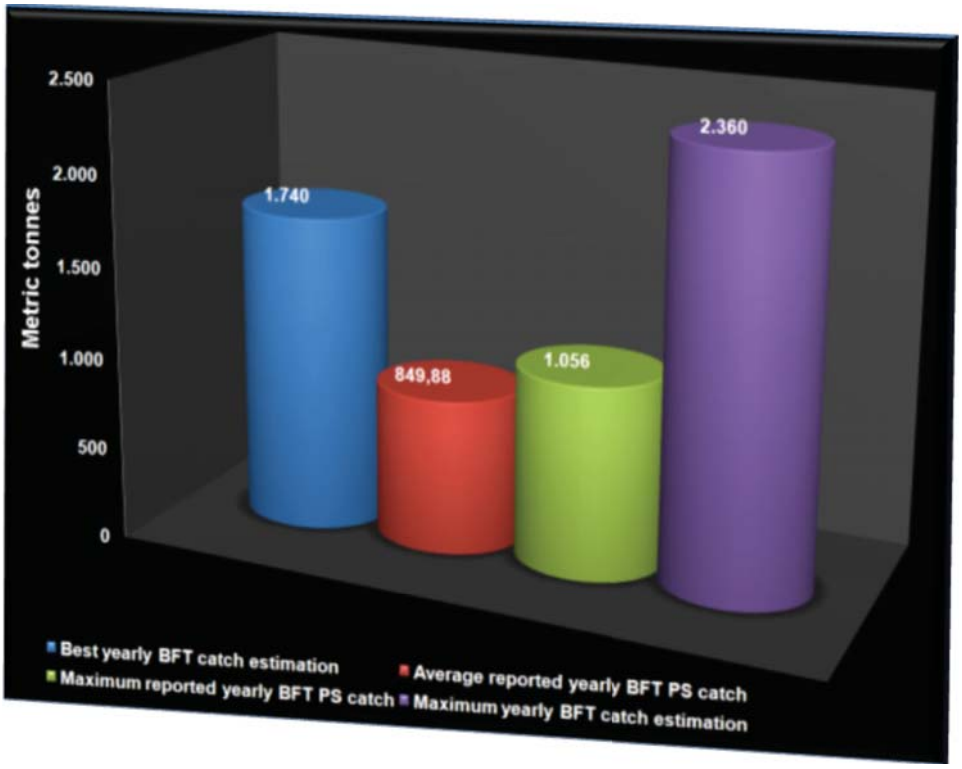

Figure 059: Maximum and average reported total BFT PS catches inside the Mediterranean Sea, by Algerian fishing vessels during the period 1996-2006 vs. best - maximum yearly BFT catch estimations for such fleet, according to ICCAT-SCRS catch estimation ratios.

Strangely enough, reported maximum Algerian BFT PS catches inside the Mediterranean Sea during the decade 1996-2006, took place during the years 1999, 2001 and 2002, at a time when this country did not operate a single medium to large purse seine type of fishing vessels, thus such catches having to be full attributable to chartered foreign vessels.

It is only as from 2005 that Algeria has embarked on the acquisition of medium size PS vessels, all of them built or to be built in Spain[71] and Turkey[72], some of them under French technical assistance[73].

According to Mr. Smail Mimoune, Algerian Minister of Fisheries, Algerian operators had purchased by 2007, 6 BFT PS vessels, 2 of which[74] started fishing back in 2004 and 4 that are thought to be fully operative in 2008.[75]

As part of the Algerian Dinars, 308 Million-funded 2005-2025 Algerian National Fisheries and Aquaculture Development Plan[76], 4 additional PS vessels have been recently purchased and 4 more are to be built during 2008 (see Figure 060),

[71] Drassanes Dalmau (Tarragona) & Astilleros La Parilla (Aviles)

[72] Argonot Shipyard, Kocatepe Shipyard, and Seft, GEM N AA SANAYI MÜHEND SL K VE TIC.LTD. T .

[73] COPREXMA SARL, CONSEILS PROJETS EXPERTISES MARITIMES

[74] Only two registered Algerian PS vessels under Reg. Num: AT000ALG00001 & AT000ALG00003.

[75] Source: Le Maghreb-Le cotidien de l'économie January 21st 2008, La Nouvelle République and El Moudjahid, October 16th & 17th 2007.

[76] Adopted by the Algerian Government Council on October 16th 2007.

bringing Algeria's BFT PS fishing fleet to 14 operative units in 2008 with a best estimated annual potential catch of 1,740 Mt:

2 large PS: (LOA > 38.5m):	600 Mt
6 medium PS: (38.5m > LOA ≥ 28.6m):	900 Mt
6 PS multispecies: (28.6m ≥ LOA ≥ 20m):	240 Mt

Figure 060: Algerian (LOA 45m) BFT PS vessel being built at Turkish Shipyard Argonot, for Algerian fishing operator KBB. Picture©®: Courtesy by COPREXMA Sarl, Conseils Projets Expertises Maritimes.

h. The case of the Libyan MED BFT PS Fleet.

Reported Libyan BFT PS catches inside the Mediterranean Sea during the decade 1996-2006, are consistently lower than best and maximum yearly BFT catch estimations (according to ICCAT-SCRS ratios) for the Libyan PS fleet (see Figure 061).

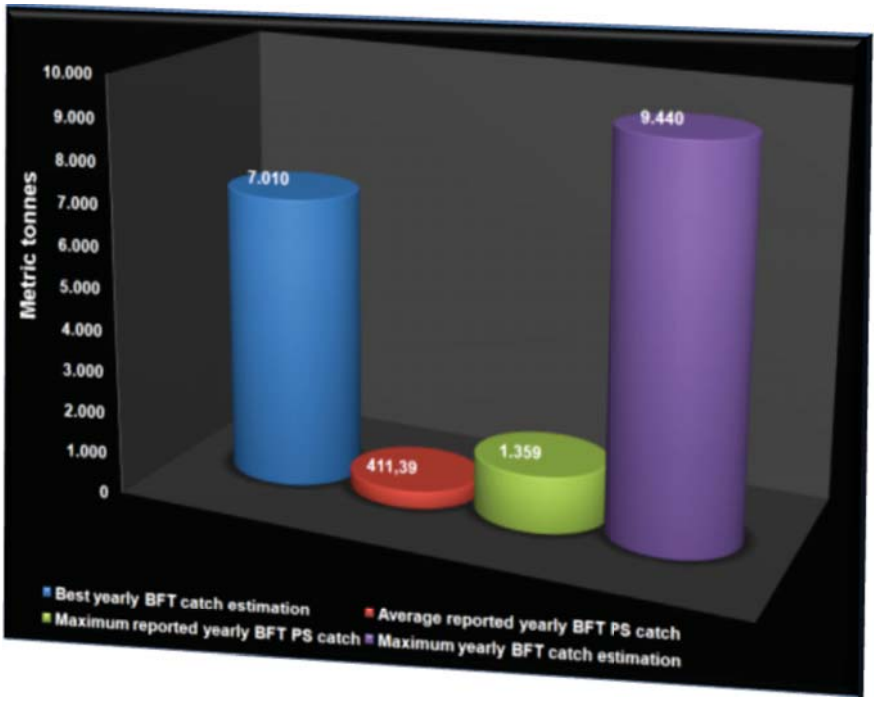

Figure 061: Maximum and average reported total BFT PS catches inside the Mediterranean Sea, by Libyan fishing vessels during the period 1996-2006 vs. best - maximum yearly BFT catch estimations for this fleet, according to ICCAT-SCRS catch estimation ratios.

In 2001, Libya declared zero Mt catches of BFT having been purse seined. The reason for this is obvious: Libya did not operate a single BFT PS vessel though 5 of such vessels[77] (see Figure 062) were sitting rotting at the Port of Tripoli, due to lack of maintenance, financial back-up and national trained tuna fishing crews.

Figure 062: Libyan BFT PS vessels TAGREFT, ARRABTA, EL AGHILA and KHALEEJ ELTAHADI. Pictures ©® by: M.S.P.A.P.

[77] FVs/ TAGREFT, ARRABTA, EL AGHILA, KHALEEJ ELTAHADI and OZU 2, all built at Damen Shipyard, Holland, and operated before the embargo on Libya, by Spanish-Libyan fishing joint-venture: Libspa.

In 2002. Libya declared 200 Mt catches of BFT having been purse seined by the only operative BFT PS vessel at the time: FV/ NAWRAS[78].

Figure 063: Libyan ICCAT registered BFT purse seiner NAWRAS, (Ex-French flagged CISBERLANDE III) seen at the Port of Valletta, Malta. Picture ©® by: M.S.P.A.P.

In 2003. Libya declared 512 Mt catches of BFT having been purse seined by the only two operative BFT PS vessels at the time: FV/ NAWRAS and FV/ TAGREFT, thus confirming an annual best catch estimation for each one of these two medium PS vessels (38.5m > LOA ≥ 28.6m) of 256 Mt/ship/year.

Figure 064: Libyan ICCAT registered BFT Purse Seiner TAGREFT seen April 2003 at Piriou shipyard (Concarneau France) after having undergone complete refurbishing. Picture ©® courtesy by ATRT, SL.

[78] Though still registered with ICCAT as a Libyan flagged PS vessel, FV/ NAWRAS has also been registered with ICCAT since 2005, as a fully operative Maltese flagged BFT PS vessel (FV/ TA'MATTEW) thus a clear case of vessel double-registration.

In 2004. Libya declared 872.5 Mt catches of BFT having been purse seined by 5 PS multispecies (28.6m ≥ LOA ≥ 20m), 12 medium PS vessels (38.5m > LOA ≥ 28.6m) and 2 large PS (LOA > 38.5m).

Indeed, the Libyan BFT PS vessel fleet experienced a drastic increase in its operative fishing units between 2003 and 2004, as a direct consequence of the Libyanisation of EU and Tunisian flagged decommissioned PS units[79].

Such upward trend continued in 2006 and 2007, as can be seen in Table 017.

Yet, and in total contradiction with the exponential development of Libya's fishing fleet (see Figure 065), the average yearly BFT PS catch per vessel, according to Libya's official reporting to ICCAT, would have fallen by a staggering 88.43% between 2003 and 2007 (see Figure 066).

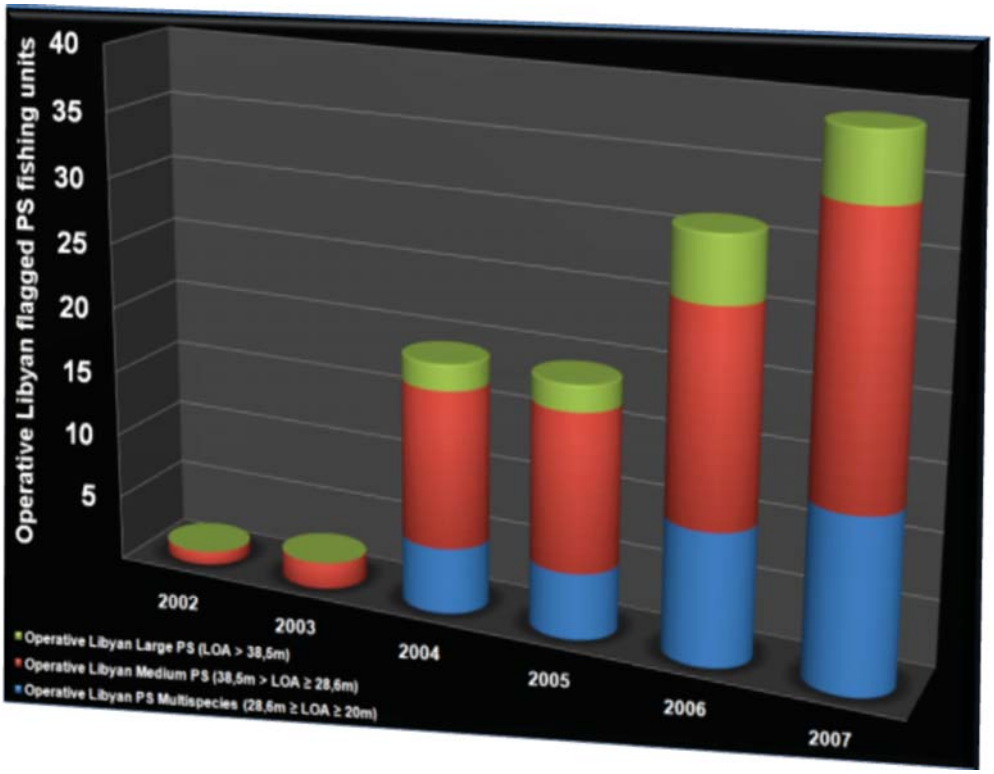

Figure 065: The exponential development of Libya's fishing fleet between 2002 and 2007, year in which such fleet counted 39 operative units of which 13 PS multispecies (28.6m ≥ LOA ≥ 20m), 21 medium PS (38.5m > LOA ≥ 28.6m) and 5 Large PS (LOA > 38.5m).

[79] According to a January 2004 report on the Libyan fisheries sector and impact analysis on a potential fisheries partnership agreement, Libya and the European Community, after exploratory talks back in 2003, agreed to explore the possibility of entering into a fisheries partnership agreement. Source: Evaluation du Secteur de la pêche en Libye et Analyse d'impact d'un potentiel accord de partenariat dans le domaine de la pêche. FISH/2003/03. Rapport Final. Janvier 2004. by: Oceanic Developpement.

The Economic and Financial Affairs Committee of EU Ministers (ECOFIN), October 21st 2004, authorised EC to open negotiations with Libya for such Fisheries Partnership Agreement. Such agreement nevertheless failed to materialise.

July 2005, Tunisia joined Libya in creating its own exclusive fishing zone. The decision was set to pave the way for a stronger alliance than ever between the two North African countries.

The decision to declare a so-called exclusive economic zone was adopted by the Tunisian parliament on June 21st 2005 and widely publicised in the Arabic press in the wake of Libya's previous unilateral declaration of a 62-mile fishing conservation zone.

Furthermore, a bilateral fisheries agreement between Libya and Tunisia signed in May 2005 already settled the backdrop for private partnerships in the BFT fisheries and ranching industries. Couched between the fishing conservation rhetoric of the two countries' declarations lied the reality of over 9.000 Mt of Bluefin Tuna having being caught inside Libyan and Tunisian waters during 2005.

The failed fisheries partnership agreement between Libya and the European Community nevertheless, ended up creating a semi-monopolistic environment controlled by influential Tunisian and Libyan individuals through BFT fishing, ranching and trading direct partnerships and/or joint ventures, all of which are directly tied to major Tuna ranching groups and Japanese BFT importers & traders.

Name of Vessel	Ship's Previous Name/s	Ship's Previous Flag	IMO	National Matricule	Ext Marking	IRCS	Estimated or indicated LOA	Estimated or indicated GRT	Estimated or indicated Installed Power Main Engine/s (Hp)	Operative Since	Current Home Port	ICCAT Ship's Registration Number	Registered Libyan Owner	Reported BFT 2007 PS Catches by the Libyan Government	
														May 2007	June 2007
ABR ALBIHAR I	ACQUARIO - ZENIDA	Italy		TP1408	ST 1407		34,80	159,72	449,30	2007	Tripoli	AT000LIB00048	Amaq Elbehar Fishing Company		34,00
ABR ALBIHAR II	MARIA MADRE I - SIRINA	Italy		TP1407	ST 1408		36,59	159,18	1.000,00	2007	Tripoli	AT000LIB00049	Amaq Elbehar Fishing Company		34,00
AL AMEEN	EL AMINE	Tunisia		SZ1169	SZ1169		39,23	275,00	1.200,00	2006	Tripoli	AT000LIB00031	Al Mahri Holding Company	30,00	36,00
AL BARAKA II	ZIED	Tunisia		ST1410	ST 1410		29,50	126,63	450,00	2007	Tripoli	AT000LIB00044	Al Baraka Fishing Company		25,00
AL BARAKA III	RIAD	Tunisia		ST1411	ST 1411		26,98	88,52	400,00	2007	Tripoli	AT000LIB00045	Al Baraka Fishing Company		20,00
AL HADER	CISBERLANDE IV	France		SM11	SM11	FIRM	39,72	139,29	1.200,00	2004	Sète	AT000LIB00015	Al Hader Fishing Company	34,00	
AL HADER II	SAINTE SOPHIE FRANCOIS	France		SM43	SM43	FTZD	34,22	140,36	450,00	2006	Sète	AT000LIB00037	Al Hader Fishing Company		34,00
AL HILAL	RAYMOND ELISE	France		TR1024	ST1024	SAVQ	32,36	111,23	1.000,00	2004	Sète	AT000LIB00016	Ras Alhilal Marine Services Company		36,00
AL MADINA	AZZURRA	Italy		TP1121	ST1121		29,50	104,24	450,00	2004	Tripoli	AT000LIB00027	Nour Al Haiat Fishery Co.		
AL MAHARI I	AZZURA	France		SZ1272	SZ 1272	FQVQ	24,10	105,86	316,00	2007	Tripoli	AT000LIB00046	Al Mahri Holding Company		
AL SAFA II	ROGER CHRISTIAN II	France		TR1223	ST1223	FUSE	25,51	97,52	400,00	2004	Sète	AT000LIB00018	Al Saffa Fishing Company		55,00
AL SAFA III	AURORA	Italy		TR1227	ST1227	ITCD	26,92	78,58	592,81	2006	Sète	AT000LIB00033	Al Saffa Fishing Company		47,00
AL SAFA IV	KARAKAYA KARDESLER I	Turkey					42,00	200,00	1.100,00	2006	Sète	Not Registered	Al Saffa Fishing Company		
AL WAHAT	CHAFFAR	Tunisia		SZ1168	SZ1168		27,55	95,19	400,00	2006	Tripoli	AT000LIB00030	Al Mahri Holding Company		
AOEA	JEAN MARIE CHRISTIAN II	France		TR1116	ST1116	5AVU	32,10	134,57	789,97	2004	Sète	AT000LIB00026	Ras Alhilal Marine Services Company	43,00	
ARRABTA	ARRABTA	Libya	8918875	TR550	ST 550	5ARX	32,00	246,47	1.011,00	2004	Tripoli	AT000LIB00012	Nour Al Haiat Fishery Co.		
BSES	SEA QUEEN	Panama		TR1117	ST1117	5AVY	28,50	121,00	400,00	2004	Tripoli	AT000LIB00021	Ras Alhilal Marine Services Company		
DILA	NONNA ASSUNTA	Italy		TR1114	ST1114	5AVT	25,65	107,30	400,00	2004	Sète	AT000LIB00024	Ras Alhilal Marine Services Company		46,00
EL AGHILA	EL AGHILA	Libya	8918916	TR751	ST 751	5ASB	32,00	246,47	1.011,00	2004	Tripoli	AT000LIB00011	Nour Al Haiat Fishery Co.		
ESSAHM ELFIDHI I	ABDELWAHEB II	Tunisia		TR1238	ST1238		24,55	99,86	350,00	2006	Sfax	AT000LIB00034	Al Ssahm Elfdhi Fishing Company		34,00
ESSAHM ELFIDHI II	JANNET V	Tunisia		TR1239	ST1239		27,54	115,25	400,00	2006	Sfax	AT000LIB00035	Al Ssahm Elfdhi Fishing Company		34,00
ESSAHM ELFIDHI III	MERIEM	Tunisia		TR1240	ST1240		30,45	128,63	450,00	2006	Sfax	AT000LIB00036	Al Ssahm Elfdhi Fishing Company		34,00
GRNADA	HACI SARIOGLU	Turkey		TR1406	ST1406		30,90	207,00	450,00	2007	Sète	AT000LIB00043	Ras Alhilal Marine Services Company		
HANEEN	SHAKER	Tunisia		SZ1167	SZ1167		39,23	275,00	1.100,00	2006	Tripoli	AT000LIB00032	Al Mahri Holding Company	34,00	
HANIBAL	HANIBAL	Libya		ST586	ST 586		30,00	173,33	450,00	2007	Tripoli	AT000LIB00047	Al Mikhtaf Al Dhahabg Fishing Company	18,00	20,00
JARJAROMA	ROSINE ARTHUR	France		TR1106	ST1106	5AVW	32,45	117,94	1.000,00	2004	Sète	AT000LIB00023	Ras Alhilal Marine Services Company	10,00	24,00
KHALEEJ ELTAHADI	KHALEEJ ELTAHADI	Libya	8918904	TR747	ST 747	5ARY	32,00	246,47	1.011,00	2004	Tripoli	AT000LIB00010	Nour Al Haiat Fishery Co.	83,00	
KHANDEEL I	GERALD JEAN	France		TP1122	ST1122	FUTN	22,93	58,00	350,00	2004	Tripoli	AT000LIB00019	Tasharukiat Khanadel Al Bahar Fishing Co.		
KHANDEEL II	SACRO CUORE DI GESU	Italy		TP1126	ST1126		34,50	119,04	800,00	2006	Tripoli	AT000LIB00038	Tasharukiat Khanadel Al Bahar Fishing Co.		68,77
LATHRON	KADIR KAPTAN I	Turkey	7328762	TR1114	ST1114	5AVX	31,00	111,29	800,00	2004	Khoms	AT000LIB00025	Ras Alhilal Marine Services Company		
MANARA I	POSEIDON	Holland UK		TR1220	ST1220		28,78	143,00	400,00	2006	Tripoli	AT000LIB00039	Manarat Assahel Fishing Company	30,00	
MANARA II	ROAGAN	Ile of Man GB	8133839	ST1221	ST1221		23,95	104,44	350,00	2006	Tripoli	AT000LIB00041	Manarat Assahel Fishing Company		38,00
MORINA	VILLE D'AGDE III	France		TR1214	ST1214	FUTT	36,80	167,03	1.000,00	2004	Grau d'Agde	AT000LIB00028	Nour Al Haiat Fishery Co.		
OZU 2	OZU 2	Libya	8918887	TR587	ST 587	5ARZ	32,00	267,47	1.011,00	2004	Tripoli	AT000LIB00009	Ozu-2 Fishing & Investment Co.	29,00	
RAS ETIN	MARCAL II	France		TR1107	ST1107	5AVV	27,10	97,47	788,63	2004	Sète	AT000LIB00022	Ras Alhilal Marine Services Company	11,00	23,00
REGATTA	JEAN MARIE CHRISTIAN I	France		TR1387	ST1387	FZDK	24,90	69,00	350,00	2007	Sète	AT000LIB00042	Ras Alhilal Marine Services Company		45,00
TAGREFT	TAGREFT	Libya	8918899	TP639	ST 639	5ASA	32,00	276,00	1.011,00	2003	Tripoli	AT000LIB00013	Nour Al Haiat Fishery Co.		75,00
TUNA LIBYA	PROVENCE COTE D'AZUR	France		TR1115	ST1115	5AVS	40,45	188,00	1.200,00	2004	Marseille	AT000LIB00020	Tuna Libya Fishing Co.	34,00	
YOUMAN	MOEZ II	Tunisia		SZ1170	SZ1170		27,88	161,11	400,00	2006	Tripoli	AT000LIB00029	Al Mahri Holding Company		36,00

Table 017: The Libyan BFT PS fishing fleet, operative during 2007 and reported catches per ship according to the Libyan Government (Ref. ICCAT Circular 1509/07.

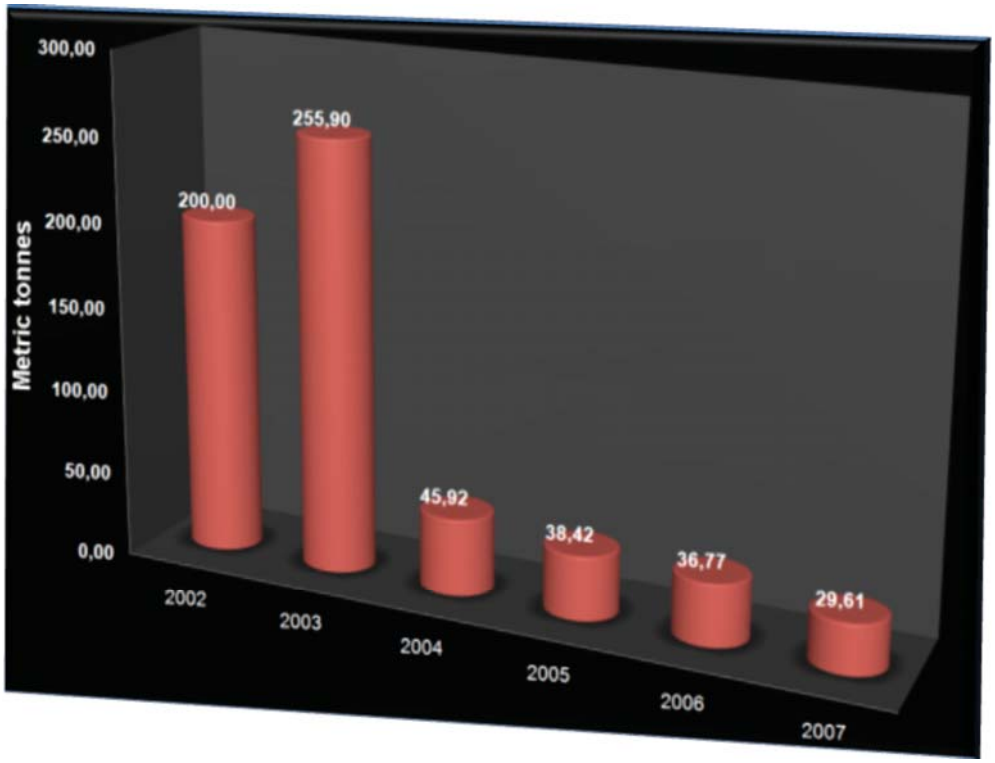

Figure 066: Average yearly BFT catch per operative Libyan PS fishing unit downward trend between 2002 and 2007, according to Libya's official annual PS BFT catch reports to ICCAT.

Should Libya's official yearly BFT PS catch reporting to ICCAT since 2002 be believed and retained as valid, this would in turn raise the legitimate question as to the improbable business profitability of such a nonsensical fishing fleet.

Such an unlikely scenario is highly improbable for a fleet operative within the most abundant fishing ground in the entire Mediterranean Sea: The Libyan 60nm Fishing Protection Zone.

Since the 2007 Libyan fleet was composed by formerly foreign flagged PS vessels, it is therefore safe to apply to such vessels, previously calculated best average yearly potential catches per type of vessel and flag, as showed in Table 018, noting that in the case of those countries for which no catch data is available, the lowest best average yearly potential catch per type of vessel and flag, is applied.

It appears that Libya's best average yearly BFT PS potential catch, could amount to some 4,251.42 Mt, thus according to its 2007 fishing fleet configuration.

Should unconfirmed Industry reports according to which, six large BFT PS vessels (LOA = 38m) and six medium BFT PS vessels (LOA = 31m) are to be built for Libya, delivery 2008/2009, Libya's 2007 best average yearly BFT PS potential catch, could be almost doubled.

Libya's 2007 operative BFT PS Fishing Fleet	Number of Libyan flagged units in 2007	Best average yearly potential catch per Unit	Total best average yearly potential catch per type of vessel	
			By former flag	Yearly Total
Former French flagged PS Multispecies (28.6m ≥ LOA ≥ 20m)	6	50,67	304,02	577,62
Former Tunisian flagged PS Multispecies (28.6m ≥ LOA ≥ 20m)	5	38,00	190,00	
Former Italian flagged PS Multispecies (28.6m ≥ LOA ≥ 20m)	2	20,90	41,80	
Former British and Panama flagged PS Multispecies (28.6m ≥ LOA ≥ 20m)	2	20,90	41,80	
Former French flagged Medium PS vessels (38.5m > LOA ≥ 28.6m)	5	190,00	950,00	2.250,95
Former Tunisian flagged Medium PS vessels (38.5m > LOA ≥ 28.6m)	2	142,00	284,00	
Former Italian flagged Medium PS vessels (38.5m > LOA ≥ 28.6m)	4	78,40	313,60	
Former Turkish flagged Medium PS vessels (38.5m > LOA ≥ 28.6m)	2	78,15	156,30	
Former Dutch Medium PS vessels (38.5m > LOA ≥ 28.6m)	1	78,15	78,15	
All-Libyan flagged Medium PS vessels (38.5m > LOA ≥ 28.6m)	6	78,15	468,90	
Former French flagged Large PS (LOA > 38.5m)	2	380,00	760,00	1.422,85
Former Tunisian flagged Large PS (LOA > 38.5m)	2	285,00	570,00	
Former Turkish flagged Large PS (LOA > 38.5m)	1	92,85	92,85	

Table 018: Best average yearly potential BFT catch by 2007 operative Libyan BFT PS fishing vessels.

i. The cases of the Greek, Maltese and Moroccan MED BFT PS Fleet.

Greece, Malta and Morocco are minor players in Mediterranean BFT PS fishing, as can be seen in Table 019.

	Maximum reported yearly BFT PS catch
Greece	200
Malta	276
Morocco	500

Table 019: Maximum reported yearly BFT catches by 2007 operative Greek, Maltese and Moroccan BFT PS fishing vessels.

Reported maximum BFT PS catches inside the Mediterranean Sea during the period 1996-200, correspond to catches reported as having taken place during 2006 and 2007 by three operative BFT PS vessels alone: FV/ APOLLON I (Greece 2006 – see Figure 067), FV/ TA'MATTEW[80] (Malta 2007 – see Figure 068) and FV/ LE MARSOUIN (Morocco 2007 – see Figure 069)

Figure 067: Greek-flagged BFT PS vessel APOLLON I: seen at the Port of Valletta, Malta, during the 2006 summer fishing season. Picture ©® by: M.S.P.A.P.

[80] FV/ TA'MATTEW was chartered to Korea during the 2007 Mediterranean BFT fishing season. Catches were declared by Korea (ICCAT Circular 1799/07. The fish was transferred live into Malta Base Tuna Ranch: Ta'Mattew.

Figure 068: Maltese-flagged ICCAT registered BFT purse seiner TA'MATTEW, also registered with ICCAT as Libyan-flagged NAWRAS[81]., (Ex-French flagged CISBERLANDE III) seen at the Port of Valletta, Malta, during the 2007 summer fishing season. Picture ©® by: M.S.P.A.P.

Figure 069: Moroccan-flagged BFT PS vessel LE MARSOUIN seen at the Port of Valletta, Malta, during the 2007 summer fishing season. Picture ©® by: M.S.P.A.P.

[81] Though still registered with ICCAT as a Libyan flagged PS vessel, FV/ NAWRAS has also been registered with ICCAT since 2005, as a fully operative Maltese flagged BFT PS vessel (FV/ TA'MATTEW) thus a clear case of vessel double-registration.

j. Initial conclusions.

It thus appears that the 2007 estimated best yearly BFT catch potential for the entire current Mediterranean Sea operative BFT PS fleet, would amount to 54,782.69 Mt, that is 29,217 Mt less than previously calculated best yearly BFT catch estimation according to ICCAT-SCRS ratios per type of vessel (see Figure 070).

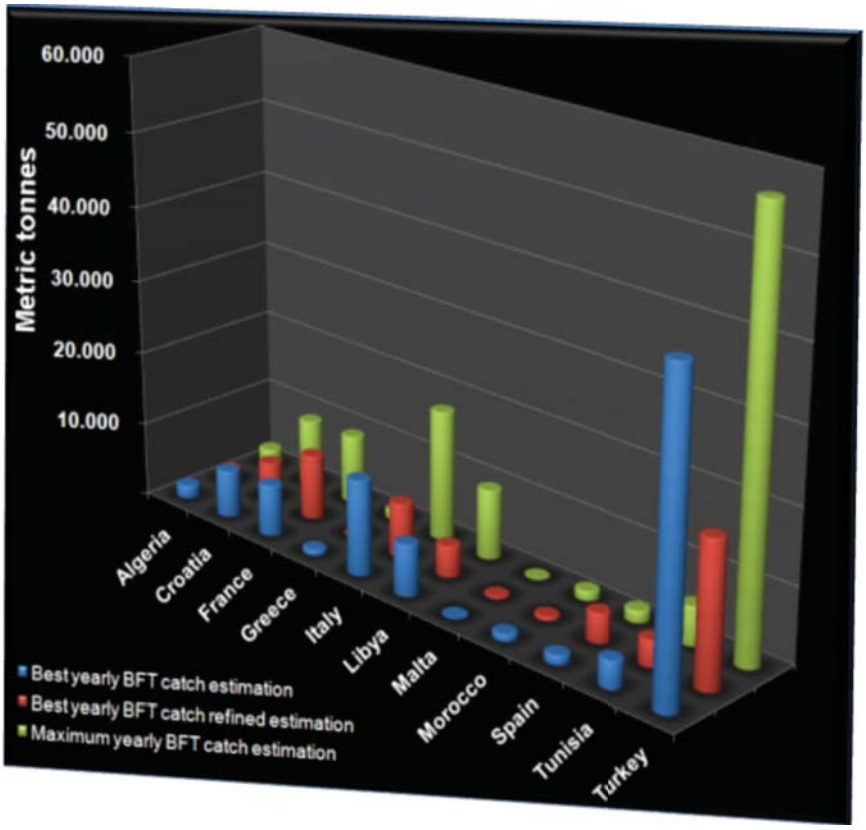

Figure 070: Best and maximum BFT catch estimation comparisons, based on 2007 operative BFT PS national fleets.

Current estimated best yearly BFT catch potential for Mediterranean Sea operative BFT PS national fleets amounting to 54,782.69 Mt is broken down to:

Algeria	1,740.00 Mt,
Croatia	5,157.00 Mt,
France	8,714.69 Mt,
Greece	200.00 Mt,
Italy	7,537.55 Mt,
Libya	4,251.42 Mt,
Malta	276.00 Mt,
Morocco	500.00 Mt,
Spain	3,498.00 Mt,
Tunisia	3,499.96 Mt,
Turkey	19,198.52 Mt.

In the case of Greece, Malta and Morocco, the differences between obtained results and BFT catch estimations according to ICCAT-SCRS ratios, correspond to the fact that, though such countries have registered several PS fishing units, only one vessel per country was retained as effectively being fully operative inside the Mediterranean Sea during 2007 and truly capable of purse seining BFT.

Greece has registered 19 PS multispecies (28.6m ≥ LOA ≥ 20m) with ICCAT, though only one of such boats is fully equipped and able to catch BFT: FV/ APOLLON I.

Malta has registered 3 PS multispecies (28.6m ≥ LOA ≥ 20m) with ICCAT, though we only one of such boats is fully equipped and able to catch BFT: FV/ TA'MATTEW.

Morocco has registered 1 PS multispecies (28.6m ≥ LOA ≥ 20m) and 3 large PS (LOA > 38.5m) with ICCAT, though only one of such vessels is fully operational inside the Mediterranean Sea: FV/ LE MARSOUIN.

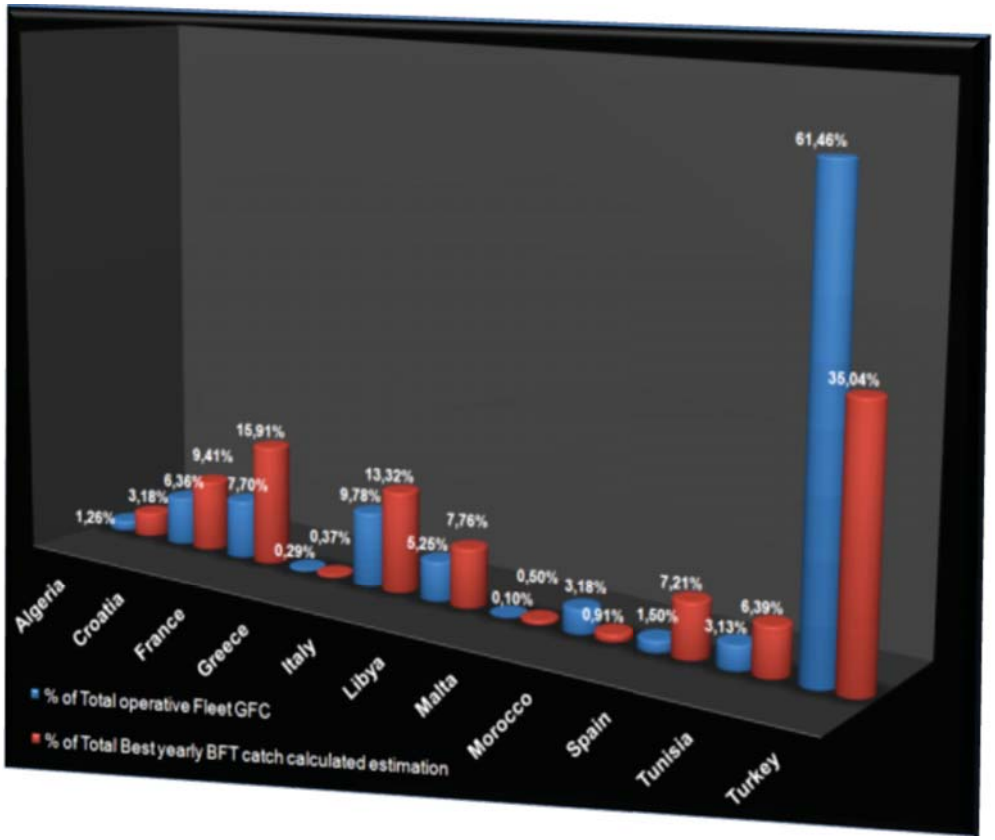

Figure 071: Comparison between operative national BFT PS fleets' Gross Fishing Capacities and best yearly BFT catch estimations, based on 2007 operative BFT PS national fleets.

BFT PS fishing efficiency by operative national fleet inside the Mediterranean Sea may be measured by relating Gross Fishing Capacities indicators (GFCi) as defined in Chapter 3, and best yearly BFT catch estimations (BYBFTCe), based on 2007 operative BFT PS national fleets.

$$\text{Fishing Efficiency coefficient (FEc)} = \frac{\text{BYBFTCe}}{\text{GFCi}}$$

It thus appears (see Figure 071) that the most efficient BFT PS fishing fleets inside the Mediterranean Sea would be the Spanish one with a fishing efficiency coefficient (FEc) of 4.81, followed by Algeria with an FEc of 2.52 and France and Tunisia with FEcs of 2.07 and 2.04 respectively.

Most inefficient BFT PS fleets would be Turkey[82] with a FEc of 0.57, followed by Italy with an FEc of 1.36 and both Libya and Croatia with FEcs of 1.48 respectively.

Malta, Greece and Morocco's FEcs are not retained as valid indicators of fishing efficiency because based on single ship reported catches suggesting that some catch over-reporting, due to BFT-quota hopping, occurred during 2006 and 2007.

[82] As will be discussed in Chapter 5, in the case of Turkey's Fishing Efficiency coefficient, FEc is to be understood as a lesser degree of its PS fishing fleet being captive of a single target specie (BFT) therefore Medium PS and Large PS vessels having to be considered as also multispecies fishing vessels. This is also the case, though in a much lower degree for Croatian, Algerian and Italian PS vessels)

5. Minimum economic "break-even[83]" necessary catch capacity for the latest generation BFT PS fishing fleets.

a. Introduction.

As seen in previous chapters, the BFT PS fleet operative inside the Mediterranean Sea, appears as an heterogeneous fleet, characterised by multiple types of ship configurations, rendering a general "business break-even" analysis of the entire fleet as a whole, a complicated if not impossible assignment.

It is nevertheless possible to identify a highly specialised segment of this fleet, corresponding to PS vessels, built in and after 1997, thus having been technically and financially conceived for the single purpose of targeting bluefin tuna as their only or main production species, in a growing competitive international "*BFT-rush*" environment.

Regardless of their nationality, such ships compete against each other, during increasingly limited fishing seasons and have had to widen their geographical areas of influence within the Mediterranean Basin, as explained in Chapter 2, namely due to the almost total collapse of regional sub-stocks such as those in the Marmara, Balearic and northern Cypriot regions.

Turkish, Moroccan, Croatian, French, Italian and Spanish BFT PS are operative almost all over the Mediterranean Sea, whether fishing under their national ICCAT and/or EU BFT TAC or serving as BFT quota decoys in what is known as the *BFT quota hopping* phenomena:

> A vessel of nationality X will claim having caught X amount of BFT to be attributed to its national quota, whereas such fish were in fact caught by a

---

[83] According to E. Lindebo (Measuring capacity in fisheries: Analytical tools and data aggregation - FAO Fisheries Circular No. 994, FIPP/C994(En), Rome 2004) "*In cases where economic data are available, an analysis based on the principle of break-even revenues can be applied (Frost 2003, personal communication). Under open access equilibrium, where all rents are dissipated, total revenue equals total cost.*

The gross cash flow (GCF), which is gross output (revenue) less all variable (operation) costs, is central in the sense that the fisher will stay in the fishery in the short run if the GCF is positive, but in the long run he will stay only if the fixed costs are covered by the GCF. The revenue at which the GCF exactly equals the fixed costs can be defined as the "Break Even" revenue. It rests on the assumption that GCF per unit revenue is known, and the Break Even revenue is then calculated by use of the following expression:

Break Even revenue = Fixed costs / (GCF/Revenue)

The economic sustainability and over-/under-capacity of a fleet segment can be calculated by taking the relation between the Actual (observed) revenue and the Break Even revenue. A simple example can be viewed below.

Gross output/revenue: € 150 million
Cash flow: € 20 million
Invested capital (IC): € 170 million
Fixed costs (at 11% of IC): € 18.7 million

From Equation (14) and assuming that average and marginal variable costs are equal and constant, we can hence calculate the following:

Break Even Revenue: 18.7/(20/150) = 140.25
Economic sustainability: 140.25/150 = 0.935

An economic sustainability of 0.935 represents a level of under-capacity where more revenue is being achieved than required to be economically sustainable in the long run. That is, more capacity could be introduced whilst still upholding the balance between observed revenues and the Break Even revenue.

From the example above we can thus maintain that fixed costs could increase by seven percent, since:

Break Even score: 1/0.935 = 1.07

Conversely, an overcapacity would relate to a situation where a fleet is unable to achieve high enough revenues to cover fixed costs (i.e. disinvestment in capacity is needed) and would be represented by a Break Even (BE) score of less than 1.

This approach is directly linked to business-economics principles of the firm. If the revenue of a fleet segment, given a certain stock level, species composition, set of daily catch rates, and cost structure, is below Break Even revenue then a non-economic sustainable fishery can be defined, and vice versa.

The definitions of economic sustainability and fixed costs (percentage of investment cost) in this analysis hinge on the strict assumption of constant returns to scale, and some caution should thus be taken given the variable returns to scale often observed in fisheries. Further, it is prudent to take an average of time series data to even out variations caused by changes in catch composition, fish prices, cost changes, etc."

vessel of nationality Y, not having reported such catch to its national fisheries authorities.

Such segment of the entire Mediterranean BFT PS, corresponding to the latest generation of operative vessels (See Annex I & II of this report), is characterised by high initial and revolving capital investment, stringent amortisation and financial costs, as well as ever-growing operational overheads (fuel, fishing licences, tuna spotting airplanes, labour, maintenance and repairs, insurances, etc…)

Such segment of the entire Mediterranean BFT PS is therefore faced with a minimal yearly BFT catch, necessary to at least cover for expenses and amortisation of such ships.

In fact, it is safe to state that all of such vessels were inherently financially conceived and put into service with a best yearly BFT catch estimated capacity, by far superior to their minimum economic break-even catch capacity, as every single one of these fishing units is operated, either as an autonomous business profit-centre or as forming part of an operative fishing fleet operated the same business parameters.

b. Identification of the latest generation BFT PS fishing fleets.

As specified in previous chapters, the number of detected and identified operational Mediterranean BFT purse seine fishing vessels (LOA > 20m) for the purpose of this report, amounted to 617 fishing units. Out of these 617 BFT PS fishing units, 229 were commissioned, built and/or purchased and put into service during or after 1997.

25 of such vessels are either currently on the drawing-boards or being constructed, their delivery and service entry date not yet known.

Algeria would count 14 new fully operative units all of which entered service during or after 2006, except for 4 units, currently on the drawing-boards or being constructed, their delivery and service entry date not yet known. Only two of such ships were registered with ICCAT at the time this report was being produced.

Croatia would count 20 new fully operative units all of which entered service as of 1997, except for 2 units, currently on the drawing-boards or being constructed, their delivery and service entry date not yet known. Their inclusion for calculation purposes has been disregarded because of lack of official confirmation by Croatian concerned authorities. Only eleven of such ships were registered with ICCAT at the time this report was being produced.

France would count 20 new fully operative units all of which entered service as of 1998. All of such ships are registered with ICCAT

Greece would count 8 new units all of which entered service as of 1997, though all indications point to the fact that none of these ships are fit to be fully operative as BFT PS vessels. The only Greek BFT PS vessel worthy of being included in this section was commissioned prior to 1997, and is currently registered with ICCAT.

Italy would count 27 new fully operative units all of which entered service between 1997 and 2005. 3 extra new units are thought to be on the drawing-boards or being built. Their inclusion for calculation purposes has been disregarded because of lack of official confirmation by Italian concerned authorities. Only two of these ships were not registered with ICCAT at the time this report was being produced.

Libya would count 34 new fully operative units all of which entered service between 2004 and 2007. 13 extra new units are thought to be on the drawing-boards or being built. Their inclusion for calculation purposes has been disregarded because of lack of official confirmation by Libyan concerned authorities. Only one of these ships was not registered with ICCAT at the time this report was being produced.

Malta would count 3 new units, all of which entered service as of 2005, though all indications point to the fact that only one of such ships is fit to be fully operative as a BFT PS vessel. This vessel is currently registered with ICCAT.

Morocco would count 4 new units all of which entered service as of 2003, though all indications point to the fact that only one of such ships is fully operative as a BFT PS vessel inside the Mediterranean Sea. The rest are thought to be exclusively operative in the Atlantic Ocean and in other seas such as the Indian Ocean.

Spain would count 6 new fully operative units all of which entered service between 1999 and 2002.

Tunisia would count 6 new fully operative units all of which entered service between 2006 and 2007.

Turkey would count 71 new fully operative units all of which entered service between 1997 and 2007. 3 extra new units are thought to be on the drawing-boards or being built. Their inclusion for calculation purposes has been disregarded because of lack of official confirmation by Turkish concerned authorities. It is unclear whether one of such new units will be flagged to Turkey or Morocco.

Once all non-operational BFT PS units have been discarded, the break-down of such fully operative fleet of 194 fishing units is: (see also Figure 072)

68 Large PS: (LOA > 38.5m):
75 Medium PS: (38.5m > LOA ≥ 28.6m)
51 PS Multispecies: (28.6m ≥ LOA ≥ 20m)

The average LOA of such a fleet is: 34.76m. Average GRT/ship is: 245.19 and average IHP/ship is: 1,080.45Hp.

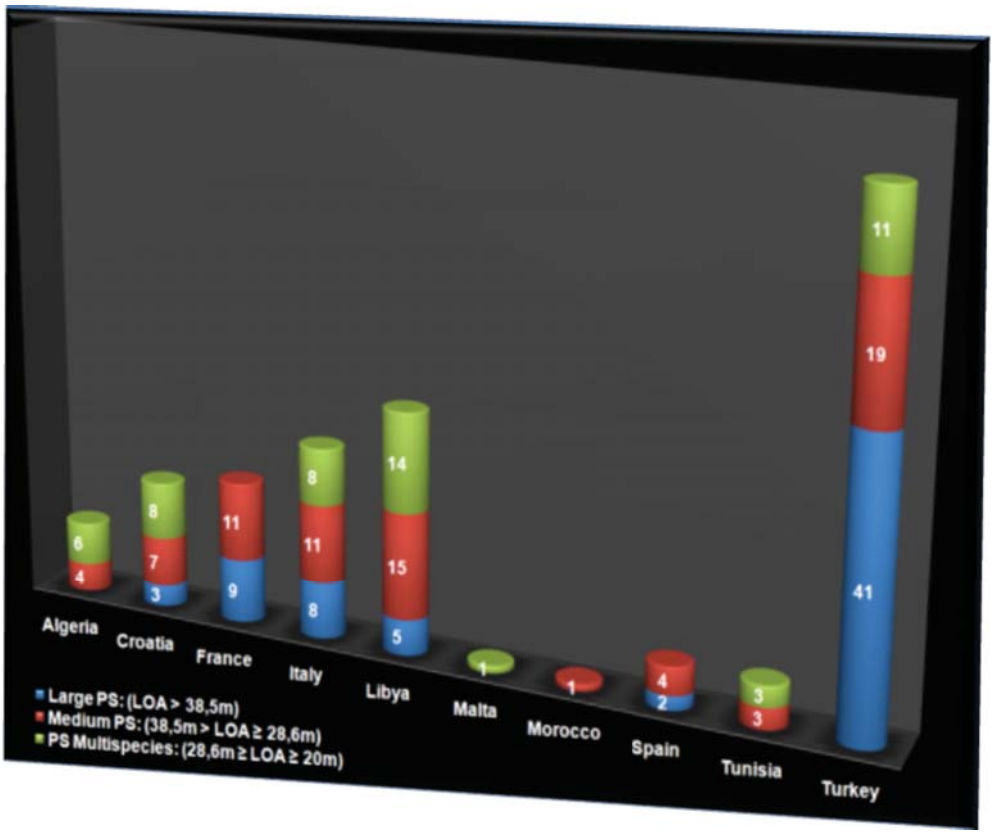

Figure 072: Latest generation of operative BFT PS vessel fleets per Mediterranean fishing nation and type of vessel according to ICCAT-SCRS LOA type.

The standard amortisation period for a BFT PS vessel varies from 10 to 15 years, thus coinciding with its expected competitive live-span. Most of BFT PS operators

contacted during the course of production of this report, confirmed that both the amortisation period of their operational vessels as well as contracted credit reimbursement periods per fishing unit, vary between 10 and 15 years.

In the case of previously identified new generation BFT PS vessel fleet, the full amortisation flow by operative units and 10 to 15 years periods, can be seen in Figure 073, the indicated number of fishing units per five year period corresponding to those vessels that will have been fully amortised during such periods.

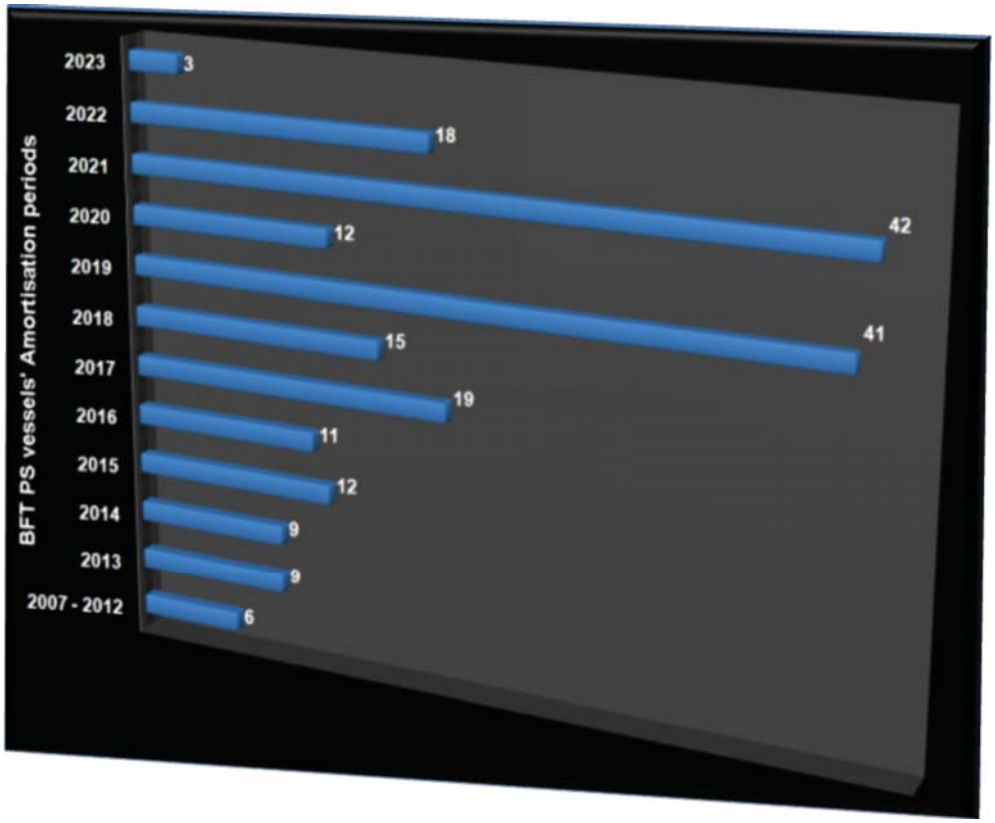

Figure 073: Full amortisation flow by new generation operative units and 10 to 15 years periods.

In order to value the equivalent capital investment mass such fleet represents, a conservative cross-board € 90,000.00/LOA metre ratio was applied to every vessel conforming such a fishing fleet, thus delivering a total estimated Gross Fleet Capital Investment value (GFKiv) of ≈ € 616,265,100.00, invested during the period January 1997 – December 2007, the full amortisation flow of which as of 2007, on a 10 years and on a 15 years periods basis, is shown in Tables 020 & 021 and Figures 074 & 075, respectively.

The full amortisation flow of such a fleet by country and as of 2007, on a 10 years period basis, is shown in following Table 022 and Figure 076, respectively.

Total full amortisation volume as of 2007, on a 10 years period basis, amounts to €391,475,970.00.

Total full amortisation volume as of 2007, on a 15 years period basis, amounts to €466,405,680.00.

The reason for such €74,929,710.00 difference is due to capital investment amortisation for 1997-2006 built ships up until 2006, having been partially rescheduled over to the 2007-2022 period (see Figure 076).

Previous amortisation values do not take into account either onboard purse seine net/s or direct/indirect state new shipbuilding subsidies.

Year	1998 built PS total annual amortisation	1999 built PS total annual amortisation	2000 built PS total annual amortisation	2001 built PS total annual amortisation	2002 built PS total annual amortisation	2003 built PS total annual amortisation	2004 built PS total annual amortisation	2005 built PS total annual amortisation	2006 built PS total annual amortisation	2007 built PS total annual amortisation	2008 built PS total annual amortisation
2007	2.839.680,00 €	2.945.880,00 €	4.086.450,00 €	3.432.330,00 €	6.063.930,00 €	5.110.020,00 €	12.513.690,00 €	3.895.110,00 €	12.588.120,00 €	5.275.530,00 €	
2008		2.945.880,00 €	4.086.450,00 €	3.432.330,00 €	6.063.930,00 €	5.110.020,00 €	12.513.690,00 €	3.895.110,00 €	12.588.120,00 €	5.275.530,00 €	1.097.100,00 €
2009			4.086.450,00 €	3.432.330,00 €	6.063.930,00 €	5.110.020,00 €	12.513.690,00 €	3.895.110,00 €	12.588.120,00 €	5.275.530,00 €	1.097.100,00 €
2010				3.432.330,00 €	6.063.930,00 €	5.110.020,00 €	12.513.690,00 €	3.895.110,00 €	12.588.120,00 €	5.275.530,00 €	1.097.100,00 €
2011					6.063.930,00 €	5.110.020,00 €	12.513.690,00 €	3.895.110,00 €	12.588.120,00 €	5.275.530,00 €	1.097.100,00 €
2012						5.110.020,00 €	12.513.690,00 €	3.895.110,00 €	12.588.120,00 €	5.275.530,00 €	1.097.100,00 €
2013							12.513.690,00 €	3.895.110,00 €	12.588.120,00 €	5.275.530,00 €	1.097.100,00 €
2014								3.895.110,00 €	12.588.120,00 €	5.275.530,00 €	1.097.100,00 €
2015									12.588.120,00 €	5.275.530,00 €	1.097.100,00 €
2016										5.275.530,00 €	1.097.100,00 €
2017											1.097.100,00 €

Table 020: Gross Fleet Capital Investment value full amortisation flow as of 2007, on a 10 years amortisation period basis. Vessels built in 1997 are all acknowledged as being fully amortised by January 2007.

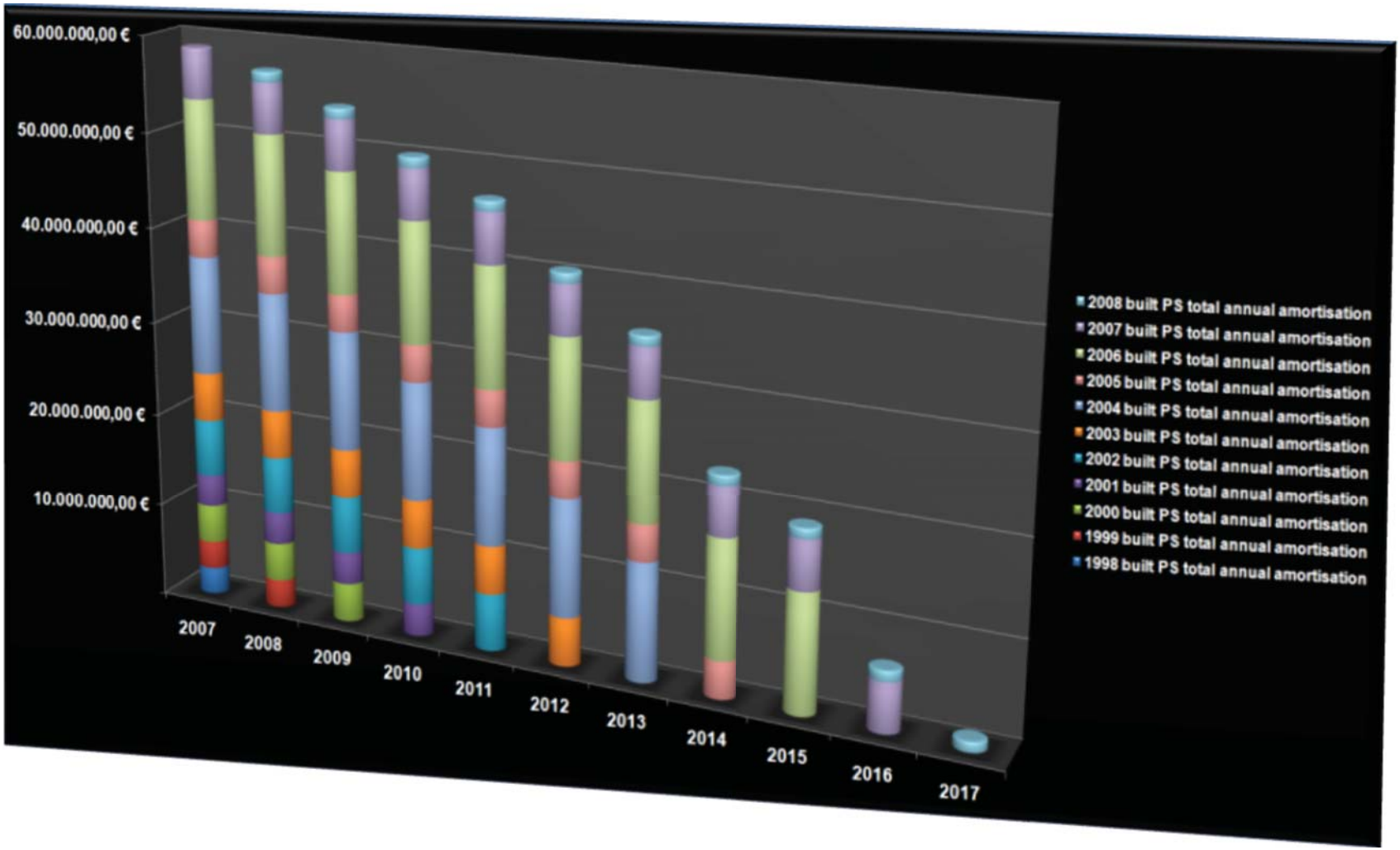

Figure 074: Gross Fleet Capital Investment value full amortisation flow as of 2007, on a 10 years amortisation period basis. Vessels built in 1997 are all acknowledged as being fully amortised by January 2007.

	1997 built PS total annual amortisation	1998 built PS total annual amortisation	1999 built PS total annual amortisation	2000 built PS total annual amortisation	2001 built PS total annual amortisation	2002 built PS total annual amortisation	2003 built PS total annual amortisation	2004 built PS total annual amortisation	2005 built PS total annual amortisation	2006 built PS total annual amortisation	2007 built PS total annual amortisation	2008 built PS total annual amortisation
2007	1.185.780,00 €	1.893.120,00 €	1.963.920,00 €	2.724.300,00 €	2.288.220,00 €	4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	
2008	1.185.780,00 €	1.893.120,00 €	1.963.920,00 €	2.724.300,00 €	2.288.220,00 €	4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2009	1.185.780,00 €	1.893.120,00 €	1.963.920,00 €	2.724.300,00 €	2.288.220,00 €	4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2010	1.185.780,00 €	1.893.120,00 €	1.963.920,00 €	2.724.300,00 €	2.288.220,00 €	4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2011	1.185.780,00 €	1.893.120,00 €	1.963.920,00 €	2.724.300,00 €	2.288.220,00 €	4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2012		1.893.120,00 €	1.963.920,00 €	2.724.300,00 €	2.288.220,00 €	4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2013			1.963.920,00 €	2.724.300,00 €	2.288.220,00 €	4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2014				2.724.300,00 €	2.288.220,00 €	4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2015					2.288.220,00 €	4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2016						4.042.620,00 €	3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2017							3.406.680,00 €	8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2018								8.342.460,00 €	2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2019									2.596.740,00 €	8.392.080,00 €	3.517.020,00 €	731.400,00 €
2020										8.392.080,00 €	3.517.020,00 €	731.400,00 €
2021											3.517.020,00 €	731.400,00 €
2022												731.400,00 €

Table 021: Gross Fleet Capital Investment value full amortisation flow as of 2007, on a 15 years amortisation period basis. Vessels built in 1997 are all acknowledged as being fully amortised by January 2012.

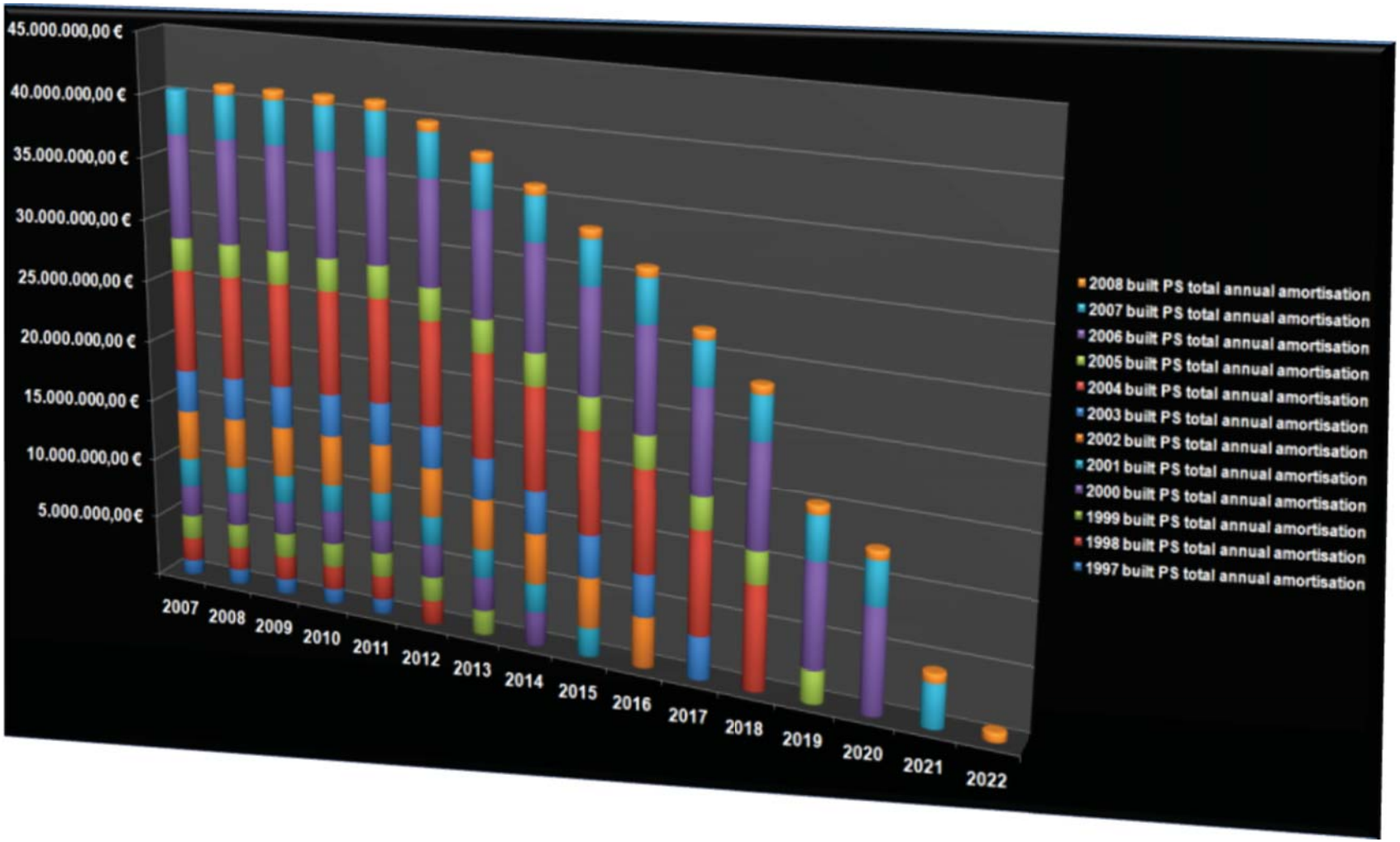

Figure 075: Gross Fleet Capital Investment value full amortisation flow as of 2007, on a 15 years amortisation period basis. Vessels built in 1997 are all acknowledged as being fully amortised by January 2012.

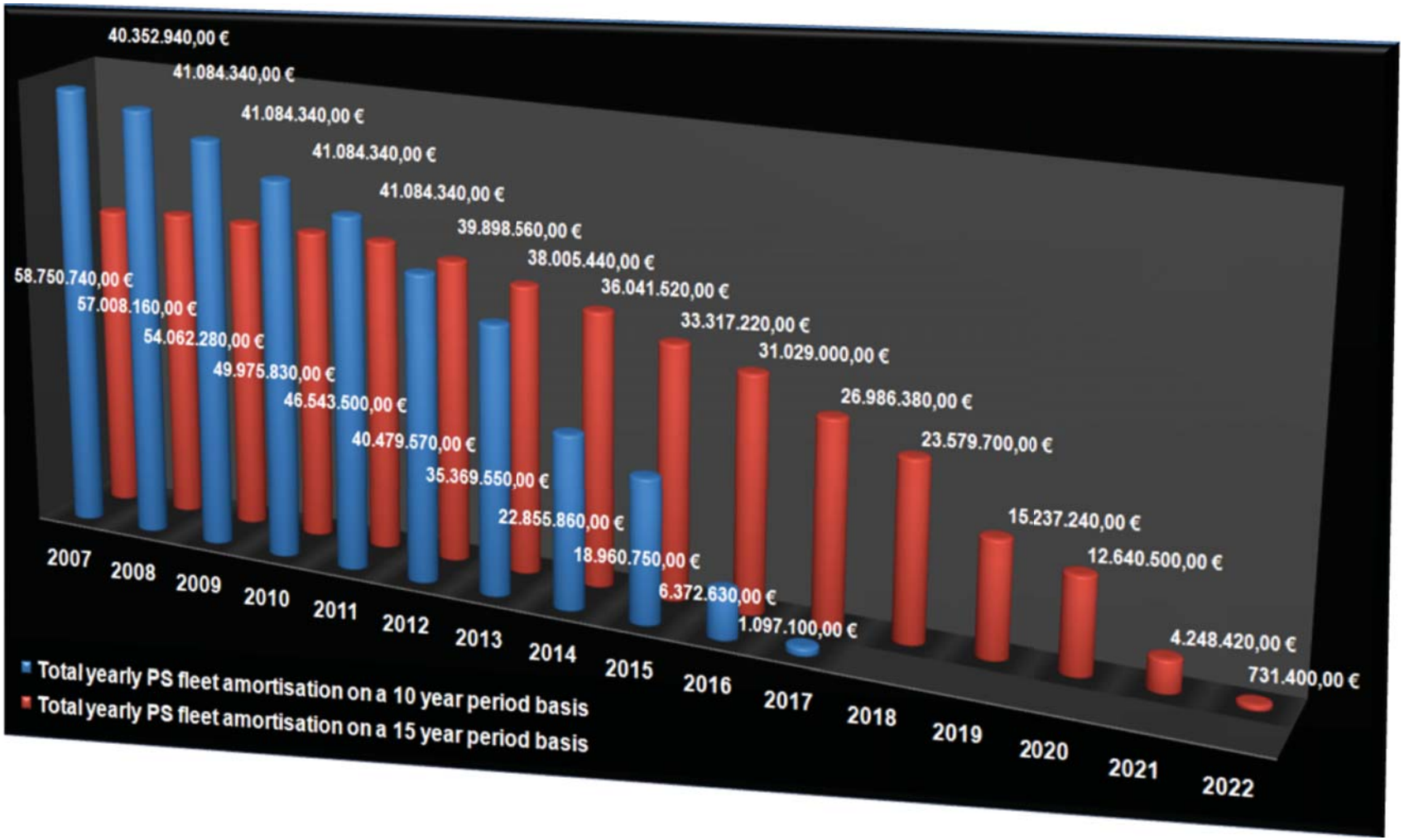

Figure 076: Comparative Gross Fleet Capital Investment value full amortisation flow as of 2007, on a 10 and 15 years amortisation period basis.

	Algeria	Croatia	France	Italy	Libya	Malta	Morocco	Spain	Tunisia	Turkey
2007	2.452.500,00 €	3.393.630,00 €	6.687.810,00 €	7.500.060,00 €	9.399.330,00 €	243.000,00 €	353.700,00 €	1.697.850,00 €	1.529.100,00 €	23.916.420,00 €
2008	2.452.500,00 €	4.262.490,00 €	6.021.270,00 €	7.248.960,00 €	9.399.330,00 €	243.000,00 €	353.700,00 €	1.697.850,00 €	1.529.100,00 €	22.222.620,00 €
2009	2.452.500,00 €	4.262.490,00 €	5.654.070,00 €	7.248.960,00 €	9.399.330,00 €	243.000,00 €	353.700,00 €	1.374.300,00 €	1.529.100,00 €	19.967.490,00 €
2010	2.452.500,00 €	3.836.610,00 €	5.654.070,00 €	6.536.880,00 €	9.399.330,00 €	243.000,00 €	353.700,00 €	1.062.900,00 €	1.529.100,00 €	17.330.400,00 €
2011	2.452.500,00 €	3.144.510,00 €	5.366.070,00 €	6.536.880,00 €	9.399.330,00 €	243.000,00 €	353.700,00 €	732.690,00 €	1.529.100,00 €	15.208.380,00 €
2012	2.452.500,00 €	2.612.610,00 €	4.123.800,00 €	4.031.910,00 €	9.399.330,00 €	243.000,00 €	353.700,00 €		1.529.100,00 €	14.547.330,00 €
2013	2.452.500,00 €	2.612.610,00 €	3.403.530,00 €	2.523.780,00 €	9.399.330,00 €	243.000,00 €	353.700,00 €		1.529.100,00 €	11.885.400,00 €
2014	1.998.000,00 €	2.159.010,00 €	2.445.840,00 €	704.160,00 €	5.762.700,00 €	243.000,00 €	353.700,00 €		1.529.100,00 €	6.736.950,00 €
2015	1.998.000,00 €	2.159.010,00 €	1.131.840,00 €		5.762.700,00 €		353.700,00 €		1.529.100,00 €	5.103.000,00 €
2016	1.017.000,00 €	1.367.100,00 €			2.139.930,00 €				333.000,00 €	1.515.600,00 €
2017		1.097.100,00 €								

Table 022: Gross Fleet Capital Investment value full amortisation flow by country, as of 2007, on a 10 years amortisation period basis. Vessels built in 1997 are all acknowledged as being fully amortised by January 2007.

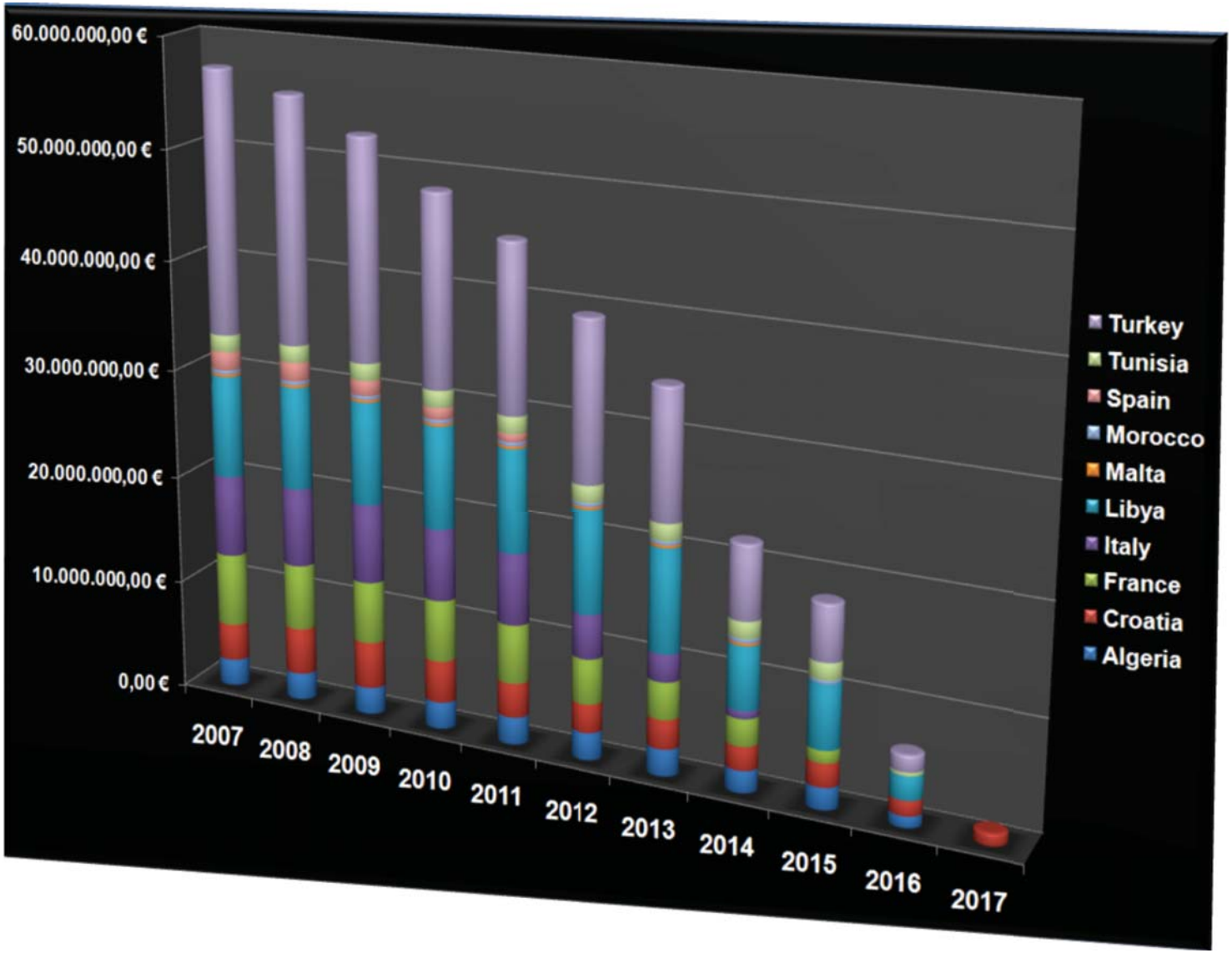

Figure 077: Gross Fleet Capital Investment value full amortisation flow by country as of 2007, on a 10 years amortisation period basis. Vessels built in 1997 are all acknowledged as being fully amortised by January 2007.

c. Annual fuel cost of the latest generation BFT PS fishing fleets [84].

It is widely acknowledged that fuel costs account for some ≈ 15% of operating costs of most of EU operative fishing fleets.

According to Prof. Massimo Spagnolo, current 2006-2007 average fuel costs account for some ≈ 15.3% of the operating costs of the operative Italian-flagged BFT PS fishing fleet inside the Mediterranean Sea.[85]

Fuel cost percentages nevertheless vary from one flag-state to another. Important price disparities for fisheries subsidised diesel-fuel, are found across the Mediterranean Basin, therefore challenging the cross-board figure of ≈ 15%.

According to various Industry sources:

French BFT PS vessel operators currently spend ≈ €0.27/litre.

Italian BFT PS vessel operators spend ≈ €0.30/litre.

Spanish BFT PS vessel operators spend ≈ €0.47/litre.

Turkish BFT PS vessel operators spend ≈ $1.10/litre, that is ≈ €0.73 to €0.80/litre, for a lowest (Sept 4th 07) and highest (Jan 14th 08) $/€ exchange rates, respectively.

According to Profs. Hendrik Stouten, Kris Van Craeynest, Aimé Heene, Xavier Gellynck and Hans Polet[86], three different scenarios related to diesel fuel price increases during the next years, may be retained, as shown in Figure 078. We choose to retain the linear increase scenario, for further calculation purposes

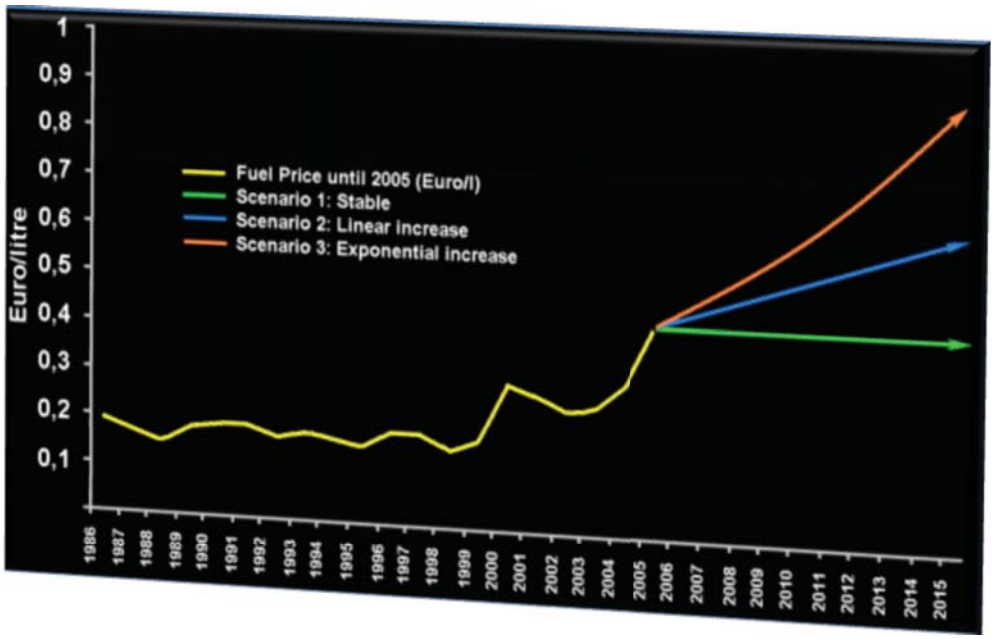

Figure 078: Different scenarios related to diesel fuel price increases during the next years.

[84] *"The huge increase in fuel prices — about doubling since 2004 — represents a major economic shock to European fishing fleets. Before the latest price hike, fuel accounted for 15% of the operating costs of most fleet segments. Thus, in spite of various fuel saving measures, this fuel price increase has probably reduced the profitability of European fishing fleets by well over 5% of revenues on average". Source:* The Economics of Rising Fuel Costs and European Fisheries, Ragnar Arnason. Professor, University of Iceland. EuroChoices 6 (1) , 22–29 doi:10.1111/j.1746-692X.2007.00048.x.

[85] Source: Valutazione dell'impatto degli allevamenti di tonno rosso sulla filiera: implicazioni normative, gestionali, operative. Progetto di ricerca L. 41/82. VI Piano triennale della pesca e dell'acquacoltura. Responsabile scientifico: Rosaria Sabatella. Rapporto Finale. Dicembre 2006. MIPAAF. Direzione Generale della Pesca Marittima e dell'Acquacoltura. IREPA ONLUS.

[86] Source: The effect of fuel price scenarios on Belgian fishing fleet dynamics. The 2007 ICES Annual Science Conference The 2007 ICES Annual Science Conference. September 17, 2007, Helsinki, Finland. ILVO-Oostende, Belgium.

As stated previously, the average IHP/ship, for the fully operative fleet of 197 fishing units being analysed in this chapter, amounts to: 1,080.45Hp = 805.36kW.

Item Description	Units	Value
LOA = Length Overall	metres	40,00
B = Overall Beam	metres	9,50
LWL = Waterline Length when the boat is at rest (= 0,92 x Lht)	metres	36,80
BWL = Beam Waterline (0,975 x B)	metres	9,26
D = Draft	metres	4,00
Displacement (If unknown = 0)	m^3	0
Hull shape	V = -10 ; U = +10 ; Norm = 0	0
Blue	Yes = 1 ; No = 0	1
Hull	Not Clean = 0 ; Clean = 1	1
Propeller Pitch	Fix = 0 ; variable = 1	0
Gear Box Split shaft	Yes = 1 ; No = 0	0
Generator Power 380/400V	kW	250,00
Hydraulics Reference Power (Ptp)	kW	132,40
Bilge pump	Electrical = 0 ; mechanical = 1	0
Distance from Port to Fishing Ground	Nautical Miles	100,00
Average Cruising Speed to Fishing Ground	Knots	11,00
Froude Nº		0,30
Effective BFT prospecting and fishing time span	Hours	200,00
Effective BFT prospecting time span	Hours	24,00
Effective BFT fishing time span	Hours	2,00
Average Cruising Speed during BFT prospecting time span	Knots	1,50
Average Cruising Speed during BFT fishing time span	Knots	14,00
Main Engine piston displacement	Litres	80,00
Main Engine number of pistons	Units	12
Main Engine electronic injection	Yes = 1 ; No = 0	0
Main Engine Maximum Power	kW	805,36
Main Engine Maximum Power Rate	Rev/mn	1.000,00
Main Engine regime regulation (yes = Ntr/mn ; no = 0)	Rev/mn	0
Main Engine slow running regime	Rev/mn	600,00
Main Engine fuel flow at Pmax	Litres / hour	270,00
Main Engine cruising regime	Rev/mn	950,00
Main Engine fishing prospecting regime	Rev/mn	950,00
Main Engine catch regime	Rev/mn	750,00
Hourly Fuel Consumption during trip to fishing ground and back	Litres / hour	182,80
Hourly Fuel Consumption during fish finding	Litres / hour	66,90
Hourly Fuel Consumption during catch	Litres / hour	529,00
Average Hourly Fuel Consumption	Litres / hour	109,70
Total Fuel Consumption during entire Fishing Trip	**Litres**	**21.949,00**

Table 023: Theoretical diesel fuel consumption for a single 100Nm standard fishing trip by a 1,080.45Hp = 805.36kW powered theoretical LOA=40m BFT PS vessel, by using available fishing-vessel's fuel consumption software.

By inputting such average main engine Installed Hp/kW for a theoretical LOA=40m BFT PS vessel, into available fishing-vessel's fuel consumption software[87], it appears that average diesel-fuel consumption for a standard fishing trip with the following characteristics:

Distance to fishing ground:	100Nm,
Total duration:	200 hours,
Average cruising speed:	11 knots,
Fish finding duration:	24 hours,
Average vessel's speed during fish finding duration:	1.50 knots,
Catch duration:	2 hours,
Maximum vessel's speed during catch:	14 knots,

would amounts to ≈ 21,949 litres. (See Table 023)

Should a conservative average 10 round-fishing trips per year, be retained for each of the previously identified 197 BFT PS fishing units, it would thus appear that some ≈ 43,239,530 litres of diesel-fuel would be burned by such fleet on a yearly basis.

The estimated distribution of such volume of diesel–fuel by country depending on total consolidated IHp/kW per national fishing fleet is shown in Table 024.

	Estimated or indicated Installed Power Main Engine/s (Hp)	Estimated or indicated Installed Power Main Engine/s (kW)	%	Estimated yearly Diesel Fuel Consumption (Litres)
Algeria	**4.829,00**	**3.551,72**	**2,30**	**994.509,19**
Croatia	**16.094,14**	**11.837,22**	**7,66**	**3.312.148,00**
France	**25.490,39**	**18.748,15**	**12,14**	**5.249.278,94**
Italy	**20.419,12**	**15.018,24**	**9,72**	**4.202.882,32**
Libya	**21.670,71**	**15.938,78**	**10,32**	**4.462.319,50**
Malta	**900,48**	**662,30**	**0,43**	**185.929,98**
Morocco	**2.000,00**	**1.471,00**	**0,95**	**410.775,54**
Spain	**9.629,02**	**7.082,13**	**4,58**	**1.980.370,47**
Tunisia	**5.300,00**	**3.898,14**	**2,52**	**1.089.636,16**
Turkey	**103.715,00**	**76.282,26**	**49,38**	**21.351.679,91**

Table 024: Estimated yearly diesel-fuel by country for identified 197 BFT PS fishing unit fleet.

As stated previously, current 2007 diesel-fuel prices per country vary from ≈€0.27/litre (France) to ≈ €0.73 to €0.80/litre (Turkey). We choose to apply a cross board diesel-fuel equivalent price per litre of ≈ €0.35/litre for Algerian, Croatian, Libyan, Maltese, Moroccan and Tunisian BFT PS fleets.

As stated previously, diesel fuel prices have been constantly on the rise.

In order to estimate what fuel costs would look like during the period 2007 to 2017 for previously identified 197 BFT PS fishing units, we choose to calculate estimated fuel cost inflation according to Scenario 2: Linear increase, as shown in previous Figure 073.

Total estimated 2005-2015 linear inflation rate would amount to 66.15%, thus an annual decreasing inflation rate from 5.12% during 2006, down to 3.50% during 2015.

[87] costkiller.net/tribune/Tribu-PDF/simulat-peche.xls

By applying such inflation linear trend to 2007 average equivalent cost of Diesel Fuel for previously identified 197 BFT PS fishing units, it would be safe to state that total annual fuel cost for such fleet, could rise from an estimated ≈ € 23,602,340.67 up to an estimated ≈ € 34,553,098.74, the detail of which by flag-states, can be seen in following Figure 079.

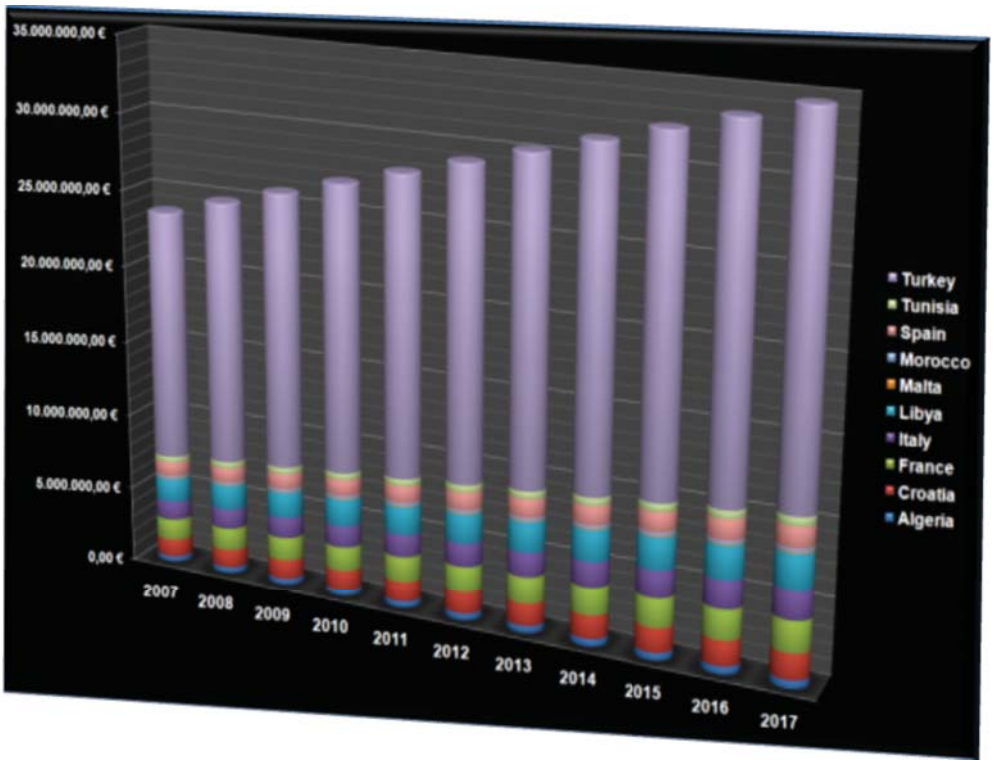

Figure 079: Estimated average annual equivalent linear cost increase of Diesel Fuel (Euros) per flag-state, for previously identified 197 BFT PS fishing units.

We note that we have purposely omitted computing estimated annual costs for lubricants.

Such calculation would require a complex case by case analysis, due to an important number of propulsion and mechanical onboard configurations by flag-state fleets.

Lubricants should nevertheless not exceed 0.5% of fuel costs, thus rendering such calculation, for the time being, irrelevant.

d. Calculation of estimated annual "break-even" necessary catch of the latest generation BFT PS fishing fleets.

Main annual Fixed and Variable costs (Amortisation and Fuel) for previously identified 197 BFT PS fishing units, have been quantified per flag-state.

Other annual costs must be quantified in order to be able to calculate an estimated necessary annual "break-even" catch per flag-state BFT PS fishing fleet.

For ease of understanding, such average annual costs per ship can be broken-down as follows:

- ♣ Other Variable Costs
  - Marketing costs
  - Food and provisions
  - Labour costs (Share costs & Crew salary)
  - Various variable costs
    - Hired Tuna-spotting airplanes
    - Hired Tuna divers
    - Ice
    - Bait
  - Vessel repairs and maintenance
- ♣ Other Fixed costs
  - Credit Interest

As in the case of annual fuel cost, notable differences between EU-flagged and non-EU-flagged vessel can be observed in terms of annual costs related to food and provisions, labour as well as vessel repairs and maintenance.

We choose to quantify such annual costs for non-EU-flagged vessels, at 50% of those which are averagely budgeted per EU-flagged vessels, that is:

- ♣ Other Variable Costs
  - Marketing costs: € 5,000.00
  - Food and provisions € 13,000.00
  - Labour costs (Share costs & Crew salary) € 128,000.00
  - Various variable costs € 95,000.00
    - Hired Tuna-spotting airplanes
    - Hired Tuna divers
    - Ice
    - Bait
  - Vessel repairs and maintenance € 75,000.00
- ♣ Other Fixed costs
  - Credit Interest € 50,000.00

A cross-board 2% annual inflation rate is applied to such costs as of 2008.

Finally, total annual estimated Fixed and Variable Costs per flag-state and therefore "Break-even" necessary catch, are calculated on a 10 year vessel amortisation period. The detail of such calculations can be seen in Tables 025 and Figure 080.

Yearly variation of average production prices (In €/Kgs.) paid to operative MED BFT PS vessel for live-dead and big-medium-small BFT, can be seen in Figure 081.

	Algeria	Croatia	France	Italy	Libya	Malta	Morocco	Spain	Tunisia	Turkey
2007	5.750.578,22 €	11.788.881,80 €	16.145.115,31 €	19.614.924,69 €	20.991.141,82 €	710.075,49 €	792.471,44 €	5.040.624,12 €	3.680.472,65 €	61.195.455,13 €
2008	5.825.729,05 €	12.856.251,08 €	15.705.138,28 €	19.639.408,81 €	21.264.209,89 €	721.134,99 €	805.042,43 €	5.132.052,04 €	3.733.568,34 €	60.678.454,36 €
2009	5.902.080,82 €	13.057.724,51 €	15.567.802,51 €	19.919.410,39 €	21.541.383,92 €	732.359,21 €	817.740,08 €	4.900.950,75 €	3.787.394,98 €	59.609.484,25 €
2010	5.979.631,45 €	12.836.254,45 €	15.800.927,78 €	19.491.743,24 €	21.822.628,94 €	743.746,56 €	830.556,13 €	4.682.970,90 €	3.841.938,58 €	58.166.877,50 €
2011	6.058.383,04 €	12.351.486,73 €	15.749.290,17 €	19.780.576,30 €	22.107.928,14 €	755.296,21 €	843.483,91 €	4.447.113,37 €	3.897.189,51 €	57.246.803,20 €
2012	6.138.383,42 €	12.029.979,17 €	14.746.781,46 €	17.569.034,30 €	22.397.469,55 €	767.015,86 €	856.535,49 €	3.809.790,54 €	3.953.188,03 €	57.796.429,10 €
2013	6.219.691,65 €	12.243.606,41 €	14.269.878,33 €	16.359.142,52 €	22.691.490,84 €	778.915,28 €	869.727,43 €	3.906.283,79 €	4.009.986,40 €	56.355.678,12 €
2014	5.847.789,19 €	12.006.784,32 €	13.559.050,94 €	14.842.505,29 €	19.353.251,11 €	790.989,71 €	883.044,08 €	4.003.806,14 €	4.067.551,66 €	52.437.023,43 €
2015	5.931.702,47 €	12.226.778,08 €	12.495.481,83 €	14.446.169,87 €	19.656.100,64 €	560.242,78 €	896.488,18 €	4.102.379,90 €	4.125.899,87 €	52.041.687,68 €
2016	5.035.963,36 €	11.658.160,48 €	11.617.734,97 €	14.758.953,17 €	16.340.753,52 €	572.679,09 €	556.364,60 €	4.202.040,96 €	2.988.952,75 €	49.702.157,72 €
2017	4.105.609,32 €	11.614.852,50 €	11.875.606,39 €	15.076.832,45 €	14.512.958,36 €	585.304,27 €	570.080,31 €	4.302.839,14 €	2.715.937,92 €	49.444.361,75 €

Table 025: Estimated total annual Fixed and Variable Costs per flag-state, calculated on a 10 year vessel amortisation period.

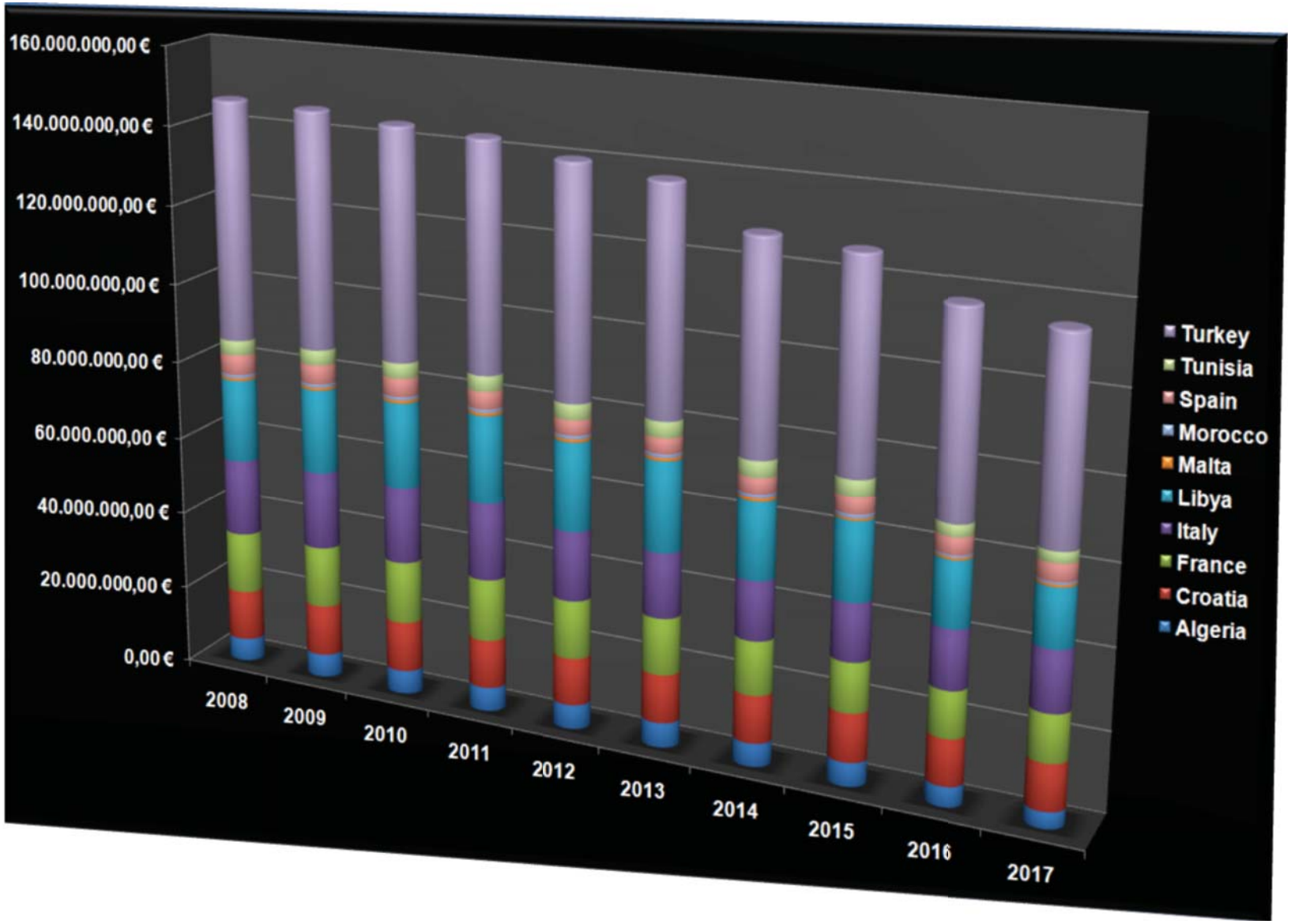

Figure 080: Estimated total annual Fixed and Variable Costs per flag-state, calculated on a 10 year vessel amortisation period.

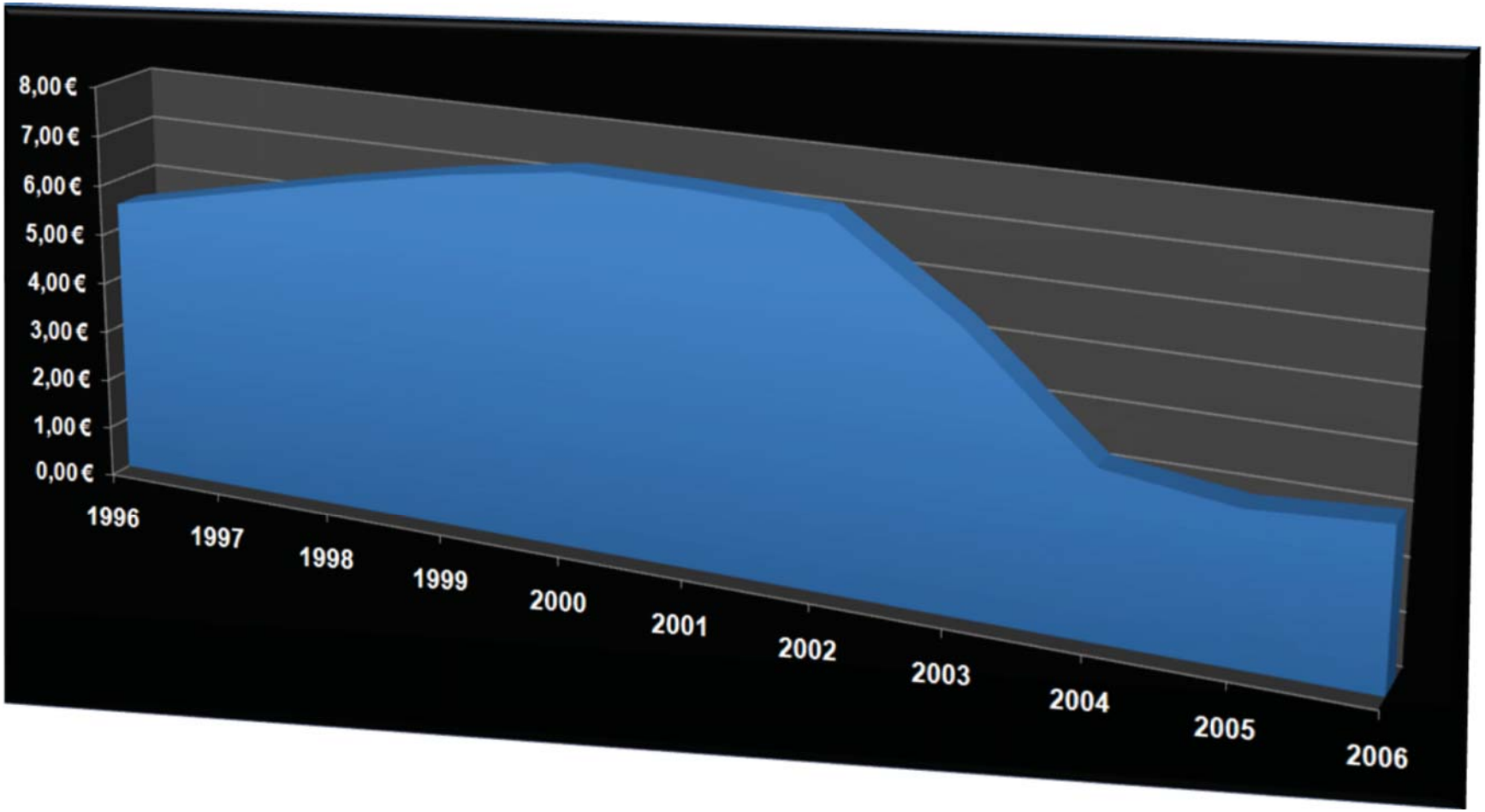

Figure 081: Yearly variation of average cross-board production prices (In €/Kgs.) paid to operative MED BFT PS vessel for BFT. Source: Industry reports.

e. Second set of conclusions

Average 2007 production prices (In €/Kgs.) paid to operative MED BFT PS vessels for live-dead and big-medium-small BFT, were set around ≈ € 3.50/Kg.

This would theoretically imply that in order to "break-even" previously identified 197 BFT PS fishing units, would have had to catch and market a total BFT biomass of some ≈ 41,631.35 Mt, in order to just cover for total 2007 costs estimated at ≈ €145,709,740.67.

The break-down of such theoretical figures by flag-state vs. 2007 national ICCAT or EU TACs, can be seen in Figure 082.

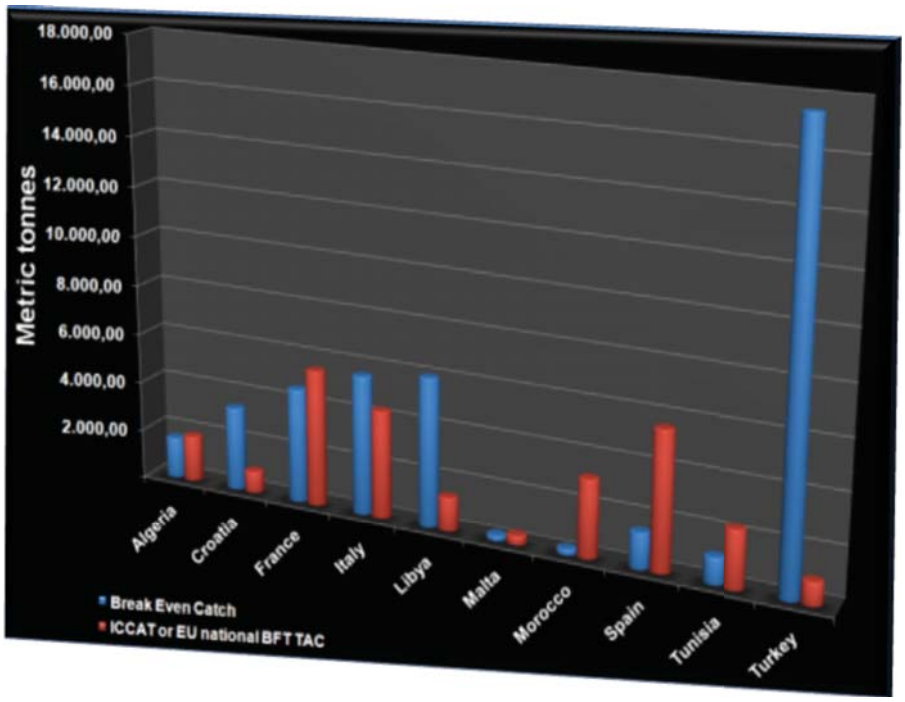

Figure 082: Estimated 2007 theoretical "break-even" necessary catch per flag-state and for previously identified 197 BFT PS fishing units Vs. 2007 CPCs' national ICCAT or EU TACs, at production prices (In €/Kgs.) paid to operative MED BFT PS vessel for live-dead and big-medium-small, of €3,5/Kg.

Should average production prices (In €/Kgs.) paid to operative MED BFT PS vessel for live-dead and big-medium-small BFT remain at 2005-2007 levels of €3.5/Kg. during the 2008-2017 period, the expected theoretical annual "break-even" necessary catch for the previously identified 197 BFT PS fishing units, would vary between 41,817.42 Mt and 32,801.25 Mt of bluefin tuna.

The break-down of such theoretical figures by flag-state, can be seen at Figure 084.

In the cases of Croatia, Italy, Libya and especially Turkey, e*stimated annual* "break-even" necessary catches per flag-state fleet (previously identified 197 BFT PS fishing units) for the period 2008-2017 and at a cross-board BFT production price of ≈ €3.5/Kg, largely surpass those *CPCs'* total national annual ICCAT or EU TACs; thus defining a clear scenario of fleets' overcapitalisation.

In the case of highly specialised mono-species targeting fishing fleets such as the Croatian, Italian and Libyan flagged fleets, such overcapitalisation is furthermore accentuated by poor or non-existing ICCAT reported annual catches of other tuna-like species.

Italy has only reported such PS catches for 2006 (2.589 Mt of ALB, 32 Mt of SWO and 833 Mt of TUN) According to Task I, no other such catches were reported by Italy to ICCAT-SCRS for the period 1996-2006.

Croatia has only reported total PS catches amounting to 145 Mt of BON and 104 Mt of FRI for the entire period 1996-2006.

Libya has not reported a single metric tonne of tuna-like species PS catch since 1996.

In the case of Turkey's PS fishing fleet, overcapitalisation is reduced due to its more versatile target-species fishing capacity and geographical flexibility. Such fleet is operative both in the Black, Marmara and Agean Seas, depending on fisheries seasonality.

Turkey has reported record BON (*Sarda sarda*) yearly catches by its national PS fishing fleet amounting to 70,797Mt and 29,690 Mt, during 2005 and 2006 respectively (see Figure 083).

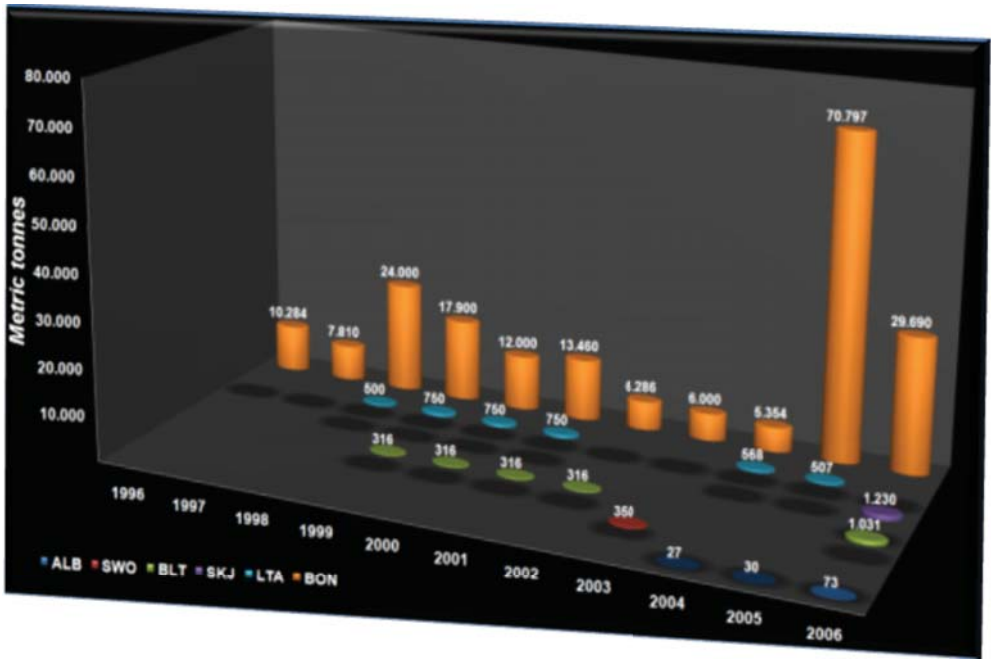

Figure 083: Turkey's reported MED PS yearly catches of other tuna-like species. Source: ICCAT-SCRS Task I.

In the cases of Algeria, France and Tunisia, a milder fleet overcapitalisation scenario is detected, as annual "break-even" necessary catches for just a part of such flag-state operative BFT PS vessels and at production prices of ≈ €3.5/Kg, almost match their entire total national annual ICCAT or EU TACs.

In the case of Algeria, such PS fleet overcapitalisation is almost non-existent due to its more versatile target-species fishing capacity.

Indeed, according to ICCAT-SCRS Task I, Algeria has reported total MED tuna-like species PS catches since 1996, amounting to 3,222 Mt of BON, 2.228 Mt of FRI, 2.134 Mt of LTA and 148 Mt of SWO.

Malta, Morocco and Spain are the only Mediterranean ICCAT CPCs not to suffer from BFT PS fleet overcapitalisation: Their annual "break-even" necessary catch consuming adequate percentages of their total national annual ICCAT or EU TACs.

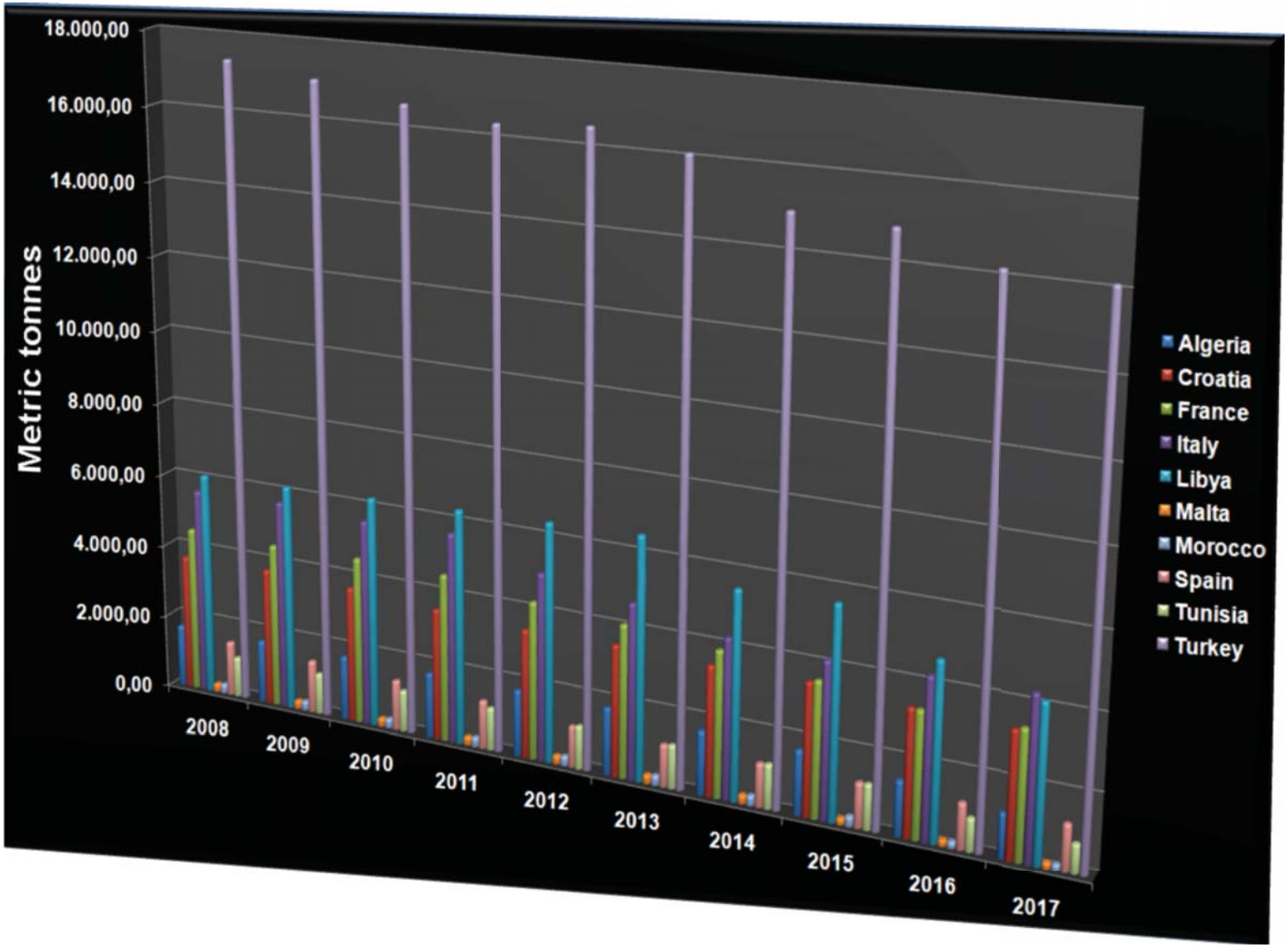

Figure 084: Estimated 2008-2017 theoretical "break-even" necessary catches per flag-state and for previously identified 197 BFT PS fishing units average, at production prices (In €/Kgs.) paid to operative MED BFT PS vessel for live-dead and big-medium-small, of €3,5/Kg.

6. List of Tables and Figures.

a. Figures

b. Tables

Table 013B: Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007)

Table 013C: Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007)

Table 013D: Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007)

Table 013E: Italy's Annual BFT Purse Seine Fishing Quota Allocations (2000-2007)

Table 014A: Croatia's 1998-2006 processed PS BFT exports to Japan according to Trade Statistics of Japan's Ministry of Finance (www.customs.go.jp).

Table 014B: Croatia's 1998-2006 processed PS BFT exports to Japan according to Trade Statistics of Japan's Ministry of Finance (www.customs.go.jp).

Table 014C: Croatia's 1998-2006 processed PS BFT exports to Japan according to Trade Statistics of Japan's Ministry of Finance (www.customs.go.jp).

Table 015: Disparities between yearly total processed farmed PS BFT production figures for 1998 to 2006 (1: Source: Croatian Chamber of Economy & CROSTAT) and reported BFT exports (Sources: 2: Japan's Ministry of Finance Trade Statistics, data for 2005 & 2006: Japan's biannual reports to ICCAT. 3&4: INFOSAMAK.)

Table 016: Estimated minimum real yearly PS BFT catches by Croatia's PS fishing fleet based on yearly total processed farmed PS BFT production figures according to the Croatian Chamber of Economy and CROSTAT, total exports to Japan during that same period, and exports according to INFOSAMAK.

Table 017: The Libyan BFT PS Fishing Fleet, operative during 2007 and reported catches per ship according to the Libyan Government (Ref. ICCAT Circular 1509/07.

Table 018: Best average yearly potential BFT catch by 2007 operative Libyan BFT PS fishing vessels.

Table 019: Maximum reported yearly BFT catches by 2007 operative Greek, Maltese and Moroccan BFT PS fishing vessels.

Table 020: Gross Fleet Capital Investment value full amortisation flow as of 2007, on a 10 years amortisation period basis. Vessels built in 1997 are all acknowledged as being fully amortised by January 2007.

Table 021: Gross Fleet Capital Investment value full amortisation flow as of 2007, on a 15 years amortisation period basis. Vessels built in 1997 are all acknowledged as being fully amortised by January 2012.

Table 022: Gross Fleet Capital Investment value full amortisation flow by country, as of 2007, on a 10 years amortisation period basis. Vessels built in 1997 are all acknowledged as being fully amortised by January 2007.

Table 023: Theoretical Diesel Fuel consumption for a single 100Nm standard fishing trip by a 1,080.45Hp = 805.36kW powered theoretical LOA=40m BFT PS vessel, by using available fishing-vessel's fuel consumption software.

Table 024: Estimated yearly diesel-fuel by country for identified 197 BFT PS fishing unit fleet.

Table 025: Estimated total annual Fixed and Variable Costs per flag-state, calculated on a 10 year vessel amortisation period.

7. List of acronyms

AIS:	Automated Information System
ALB:	Albacore
ATRT, SL:	Advanced Tuna Ranching Technologies, SL.
BAF:	Bunker adjustment factor
BIMCO:	Baltic and International Maritime Council
BET:	BigEye Tuna
BFT:	Bluefin Tuna
BM:	Belly meat
BYBFTCe:	Best yearly BFT catch estimations
CAF:	Cost and freight
C&F:	Cost and freight
CPC:	Contracting Party to the Convention
CPUE:	Catch per vessel and day at sea
DR:	Dressed
EA:	East Atlantic
EC:	European Community
EIS:	Environmental Impact Study
EU:	European Union
EU DG SANCO:	EU General Directorate of Health and Consumer Protection
EEZ:	Economic Exclusive Zone
F:	Fresh
FEc:	Fishing Efficiency coefficient
FIFG:	Financial Instrument for Fisheries Guidance
FL:	Fillet
FoB:	Free on board
FOC:	Flagg of Convenience
FR:	Frozen
FV:	Freezer Vessel
FVR:	Freezer Reefer Vessel
GFCi:	Gross Fishing Capacities indicator
GFKv	Gross Fleet Capital value
GG:	Gilled & Gutted
ICCAT:	International Commission for the Conservation of Atlantic Tunas
IMO:	International Maritime Organisation
IRCS:	International Radio Call Sign
I/U/U:	Illegal, Unregulated and/or Unreported
JPY or ¥:	Japanese Yen
LL:	Long-line
LOA:	Length overall
LSLLFV:	Large-Scale Long Line Fishing Vessel
MED:	Mediterranean Sea
MSY:	Maximum Sustainable Yield
Mt:	Metric Tonne
NEA:	North East Atlantic
Nm:	Nautical Mile
PS:	Purse-seine
USD:	US. Dollar

RD:	Round Weight
RFMO:	Regional Fisheries Management Organisation
RSW:	Refrigerated Sea Water
SCRS:	Standing Committee on Research and Statistics
SWO:	SwordFish
TAC:	Total Allowable Catch
TARIC:	Integrated Tariff of the Community
VMS:	Vessel Monitoring System
WR/W:	Wild Round Weight
YFT:	YellowFin Tuna
YoB:	Year of built

ANNEXES

Annex I

Bluefin tuna purse seine fishing vessels (LOA ≥ 20 m) – Technical specifications of selected operative and projected ships by nationality

Annexe II

Bluefin tuna purse seine fishing vessels (LOA ≥ 20 m) – Photographic database

For electronic access to these documents, please go to: www.panda.org/tuna

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