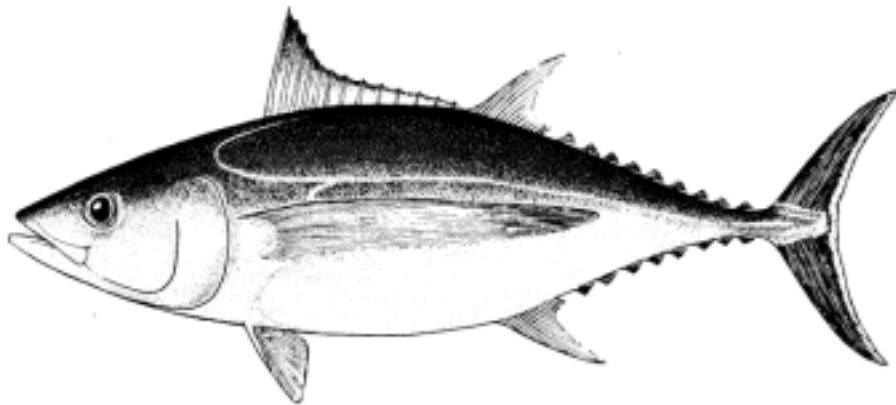




SCTB16 Working Paper

## **NFR-8**

### **Tuna fisheries in French Polynesia in 2002**



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### Artisanal coastal fishery

#### *Brief description*

The coastal fishery comprises two types of boat (Table 1): the *poti marara*, (literally ‘flying-fish boats’) 237-strong in 2002, which are small boats, 6-8 m in length, made from wood or FRP and suitable for many different fishing techniques (trolling, vertical longlining or harpooning, in both the lagoon and reef environments) and the *bonitiers* (‘skipjack boats’), a 55-strong fleet in 2002, which are 10-to-12 m long boats made from wood or FRP, most of which target skipjack using pole-and-line gear (they are much less versatile than the *poti marara*).

#### *Trends in total yields*

Total landings by *poti marara* are constantly increasing. They accounted for 444 t in 1991 and rose to 1,590 t in 2002. Mean production per boat is also on the increase, because the 4.3-t-per-boat figure of 1991 rose to 6.7 t in 2002.

The production trends of the *bonitiers* are more varied. A clear decrease is the main feature, however, because this fleet produced 1,604 t in 1990 with 106 boats, as against 711 t in 2002 with only 55 boats.

Total production by the combined fleet has increased over the past 12 years, rising from 2,067 t in 1990 to 2,301 t in 2002.

#### *The difficulties met by this fishery*

A study carried out in 2002 highlighted this sector’s weak points (Biodax Consulting 2002, a study on certain specific aspects of the fishing industry, developments and interactions between fishing methods). Coastal fishers’ greatest concern is to find outlets for catches while making their activity viable. Today, markets overlap, competition is fierce and prices are falling; the longline fishery has pulled down the local ex-vessel fish prices. The boats need to change their marketing strategies and spend more time at sea than trying to sell fish.

#### *Action by the Fisheries Department*

- Maintenance of a network of FADs.

In order to support the coastal fishery, the Fisheries Department maintains a permanent network of 30 FADs around the Windward Group (Tahiti, Moorea, Tetiaroa and Maiao) and approximately 10 FADs in the Leeward Group. Some devices are also scheduled to be set in the more distant island groups. In 2002, 40.5% of landings from *poti marara* came from FAD fishing, thus confirming the importance of this fishing aid. It should be noted that 70% of the *bonitiers* do not fish around FADs.

- Development of fish market complexes in islands distant from Tahiti

Two fish marketing centre construction projects are under preparation. A first centre, which has already been built in the Leeward Islands, should be contracted out for management over the next few months. A second centre, in the Marquesas Islands, is scheduled for construction in 2005-2006. These marketing centres have a twofold objective: firstly, they will make it possible to organise the collection of catches from the coastal fishing boats and to organize marketing on the island concerned and throughout the group. Also, they will give certain fishing boat owners a chance to base their fresh tuna boats in these outlying island

groups, because each centre will have an ice production unit and cold storage facilities for bait and will be able to absorb production and possibly export to Tahiti. These centres will be used as forward bases for some tuna boats.

- Fish auctions at Papeete fishing base

In terms of marketing, incentives are and being introduced to encourage coastal fishers to sell their catch at the Papeete fishing port and in this way enter the wholesale marketing system. Ice machines have been installed in the main communes around the island; training on fish handling and quality is offered to these fishers; an experimental marketing operation with the fishing cooperative of a target commune, to try and find an outlet on the auction market at the Papeete fishing port, is scheduled to take place in the weeks to come.

- Strict control over fishing licensing

With regard to small-scale coastal fishing, increased control over fishing licence issuing is being carried out in the field. This has made it possible to withdraw some licences from fishers who have other activities and for whom this is not the main activity. This work will make it possible to understandably the activity more fully.

## **Longline fishery situation**

### *Brief description*

The offshore longline fleet is formed of 4 kinds of vessel:

- Longlining *bonitiers*, 6 strong in 2002, which are skipjack boats converted to longlining;
- fresh fish longliners, 30 strong in 2002, which comprises boats 13-to-20 m in length made of steel or FRP;
- mixed longliners, 2 strong in 2002, which are 21 m steel boats;
- freezer longliners, 16 strong in 2002: 25-26 m steel vessels.

### *Development policy*

The Government of French Polynesia has set itself a tuna fishery development goal of achieving an annual production of 30,000 t by the end of the forthcoming five-year period, for approximately 150 active longliners and 300 smaller artisanal coastal fishing boats. These estimates forecast that coastal production will level off at around 2,500 t annually. Of the 30,000 t production target to be achieved five years hence, 8,000 t should be consumed by the local market and 22,000 t exported.

### *Port infrastructure*

The whole of the longline fleet is based at the fishing base of Papeete on the island of Tahiti. This fishing port has the infrastructure required to service approximately 100 tuna boats:

- 450 linear m of dock (with floating pontoons);
- 2 ice towers with a total capacity of 50 t every 24 hours;
- 2 fresh fish marketing buildings, one for the local market and one for the export market, with the latter being able to process up to 8,000 t of fish per year and also comprising 2 auction rooms;
- 1 frozen tuna loin packaging plant with a capacity of up to 5,000 t of loins (10,000 t of fish) annually;

After the completion of the development process determined by the Government, these infrastructures will be insufficient to service 150 tuna boats and their production. A second port should be developed in the medium term in the southern part of Tahiti Island, in the Faratea area. This location would be able to service part of the fishing fleet and would also be able to service foreign fleets.

### *Action taken by the Fisheries Department*

- Establishment of a monitoring unit

The Fisheries Department is currently setting up a monitoring unit whose role will be to monitor a range of biological, economic and social indicators in the offshore and coastal fisheries sectors, the lagoon fishing area and the aquaculture sphere. The purpose of this unit is to provide information about the state of the industry to decision-makers on a timely basis.

- Increased control over production

Closer checking of landings at the Papeete fishing port is under way. With the introduction of the new export trade complex, which will house the 6 main local fresh fish marketing ventures, we will introduce obligatory weighing of all products passing through the facilities.

The observer programme introduced in September 2002 also allows us to keep a closer eye on production trends and in particular those concerning by-catch. These observer posts will be taken over in 2005 by the Fisheries Department who will thus give the programme continuity.

### **Fishing effort by the two fleets in 2002**

#### *Coastal fleet*

##### *Poti marara*

- 237 boats in 2002;
- a total of 27,030 days at sea, an average of a 114 days at sea per year;
- average distance of 15.7 nm offshore;
- 40.5% of fish caught from around FADs.

##### *Bonitiers*

- 55 boats in 2002;
- a total of 5,495 days at sea, an average of 100 days at sea per year;
- average distance of 30 nm offshore and up to 55 nm;
- 70% do not fish around FADs.

#### *The offshore fleet (Table 2)*

##### *Longline bonitiers*

The number of longlining *bonitiers* has constantly declined in recent years (by 50% over 12 years). Their low profitability is partly explained by the number of days spent at sea (3 days) just to set 1 line and the low number of hooks set. It should be noted that these boats have limited range and low yields. These boats have no lineshooter and set their lines in the top 100 m of the water column.

##### *Fresh tuna boats*

The average number of days fished per boat is low, demonstrating the technical difficulties encountered by part of the fleet, forcing them to spend long periods tied up at the dock. Also, the number of days at sea for one set characterises the difficulties encountered by this fleet in hunting fish because it often operates in the same areas as the freezer vessels. These boats basically operated north of Tahiti in a belt of latitude between 14° S and 17° S. Lines are generally set between 6 am and 10 am and hauled between 4 pm and midnight.

## Mixed tuna boats

We have classified these two boats in the mixed category because they are intermediate between freezer vessels and fresh-fish tuna boats; they can stay at sea for one month and are capable of filleting and freezing their catch and/or icing it. They were among the most active in 2002, being built less than a year ago. They have operated in the same maritime areas as the freezer ships for one-month trips or in the areas that the fresh tuna boats use for 15-day trips. The line is generally set between 6 and 10 am and hauled between 4 pm and midnight.

## Freezer tuna boats

In 2002, 16 boats were classified as freezer tuna boats because they could remain at sea for 1 1/2 to 2 months and had freezer capacity; however, many sets targeted fresh-fish landings. One advantage of this greater time at sea is the gain in the number of days at sea over the number of fishing days. Some of these boats are equipped with a surface temperature satellite reception system (distance of 1 km). They basically operated in the northern Tuamotu islands between 12°S and 15°S. The line is generally set between six and 10 am in the morning and hauled between 4 pm and midnight.

*Table 2: Fishing effort by the offshore fleet*

	Longline bonitiers	Fresh tuna boats	Mixed tuna boats	Freezer tuna boats
<b>No. of boats</b>	6	30	2	16
<b>No. of trips</b>	381	776	27	125
<b>No. of days at sea</b>	1,251	5,606	470	3,216
<b>No. of days fishing</b>	425	3,484	358	2,440
<b>Total no. of hooks</b>	277,000	6,302,274	921,149	6,463,866
<b>Mean no. of days fishing per boat</b>	71	116	179	153
<b>Mean no. of hooks per day of fishing</b>	652	1,809	2,573	2,649
<b>No. of days at sea /no. of days fishing</b>	2.9	1.6	1.3	1.3

## Total catches in 2002

Total catches in the Exclusive Economic Zone of French Polynesia fell by 6% to 9,702 t in 2002. White flesh tuna catches reached record levels for the longline fleet in rising over the 4,500 t level (Table 3).

## By type of boat

### Coastal fleet

*Table 4: production (in t) of the coastal fleet  
(NB: (%) = % of total production)*

PRODUCTION (in t)	Total	Main species			
		Skipjack	Mahi mahi	Yellowfin	Albacore
<i>Poti marara</i>	1,590	515 (32%)	396 (25%)	307 (19%)	99 (6%)
<i>Bonitiers</i>	711	513 (72%)	36 (5%)	99 (14%)	7 (1%)
<b>TOTAL</b>	<b>2,301</b>	<b>1,028</b>	<b>432</b>	<b>409</b>	<b>106</b>

The production figures clearly show how more versatile the *poti marara* are as compared to the *bonitiers* (Table 4). Skipjack was however the main target species for both types of boats in 2002.

The *poti marara* returned the best yellowfin tuna yields in 2002 (1.3 t per boat per year) than in 2001 (1.06 t per boats per year). The skipjack yields (2.2 t per boat per year in 2002; 1.9 t per boat per year in 2001) rose, no doubt to offset a fall in the albacore yields (0.42 t of albacore per boat per year in 2002; 0.58 t of albacore per boat per year in 2001). Dolphin fish (*mahi mahi*) catches dropped 10% as compared to 2001 with almost equivalent yields (1.8 t per boat in 2001 as against 1.7 t in 2002).

For the *bonitiers*, skipjack yields fell, from 11.5 t per boat per year in 2001 to 9.3 t per boat per year in 2002; on the other hand, they increased for yellowfin, from 1.4 t per boat per year in 2001 to 1.8 t per boat per year in 2002.

The offshore fleet

*Table 5: Production (in t) of the offshore fleet in 2002*  
(NB: % = % of total production; yields are expressed in kilograms per 100 hooks)

PRODUCTION (in t)	Total	Main species							
		Albacore		Bigeye tuna		Yellowfin		Billfish	
		Tons (%)	yield	Tons (%)	yield	Tons (%)	yield	Tons (%)	yield
Longline bonitiers	102	53.4 (53%)	19.3	7.5 (7%)	2.7	9.1 (9%)	3,3	7.5 (7%)	2.7
Fresh tuna boats	3,409	1,940 (57%)	30.8	356 (10%)	5.5	263 (8%)	4,2	197 (6%)	3.1
Mixed tuna boats	533	389 (73%)	42.2	27 (5%)	2.9	26 (5%)	2,8	25 (5%)	2.8
Freezer tuna boats	3,357	2,175 (65%)	33.6	259 (8%)	4.0	209 (6%)	3,2	188 (6%)	2.9
<b>TOTAL</b>	<b>7,401</b>	<b>4,557 (62%)</b>	<b>32.6</b>	<b>649 (9%)</b>	<b>4.6</b>	<b>507 (7%)</b>	<b>3,6</b>	<b>440 (6%)</b>	<b>3.0</b>

The best albacore yields were returned by the mixed tuna boats that no doubt targeted that species more accurately than the other boats and also were equipped with relatively recent fishing gear (Table 5). As compared to 2001, overall albacore yields increased by 1.7 kilograms per 100 hooks; similarly, the targeting of this species was 7% better. Yellowfin and bigeye tuna yields both fell by 3.4 kilograms per 100 hooks and 0.8 kilograms per 100 hooks respectively. Yields varied little for other species.

*Catches per species (tables 6 and 7)*

White tuna

- target species of the French Polynesian fleet (62%);
- total white tuna catches for all fleets are 4,663 t, 98% of which was accounted for by the longliners;
- higher yields around 145°W, 15°S.

Bigeye tuna

- By-catch not targeted by longliners;
- total catches 14% down on 2001;
- often caught around seamounts;
- the highest yields are observed between 12 and 14°S; at this latitude, the bigeye tuna habitat would appear more accessible to longline fishing depths;
- this species seems more abundant in the Marquesas area between May and August.

Yellowfin tuna

- very poor year in terms of yellowfin tuna, with total catches for all fleets falling 48%, especially for the longliners (57% of landings) with yields (kilograms per 100 hooks) 49% down on 2001;
- yellowfin tuna under 12 kilograms form the main catch of the Marquesas Islands coastal fishery all

year round.

### Marketing: export and the local market

*Table 8: export volumes (in t 'whole-weight equivalent')*

<b>Year</b>	<b>Fresh</b>	<b>Frozen</b>	<b>TOTAL</b>
<b>1997</b>	346	956	<b>1,302</b>
<b>1998</b>	186	1,101	<b>1,287</b>
<b>1999</b>	52	1,256	<b>1,308</b>
<b>2000</b>	296	2,197	<b>2,493</b>
<b>2001</b>	803	2,625	<b>3,428</b>
<b>2002</b>	944	1,881	<b>2,825</b>

In 2002, exports amounted to 2,825 t or an 18% drop over 2001 (Table 8). Whole frozen tuna exports (mostly albacore) were very low in 2002, with a 95% fall in volume. Frozen fillet exports also fell in 2002, 11% in terms of volume in comparison with 2001, because some freezer tuna boats undertook fresh fish activities. On the other hand, fresh fish exports rose: +11% in volume in 2002 as regards whole tuna and +560% in volume in 2002 with regard to fresh tuna fillets.

## Annexes

*Table 1: Composition of tuna fleets since 1997*

Year	Bonitiers	Poti marara	Longliners				Total
			Longline bonitiers	Fresh tuna boats	Mixed tuna boats	Freezer tuna boats	
1997	70	166	15	30	0	15	60
1998	72	207	14	28	0	12	54
1999	74	242	14	24	0	19	57
2000	63	280	11	30	0	16	57
2001	60	250	10	34	2	13	57
2002	55	237	6	30	2	16	54

*Table 3: Nominal total catches (in t), for all species, in the EEZ of French Polynesia since 1997  
(NB: No fishing access agreements since 2001)*

Year	Bonitiers	Poti marara	Longliners	40°S	Korean	TOTAL
1997	934	678	4 636	24	1 737	8 009
1998	992	1 200	5 282	0	2 307	9 781
1999	826	1 206	5 304	0	2 688	10 024
2000	633	1 397	6 891	0	2 044	10 965
2001	891	1 615	7 811	0	0	10 317
2002	711	1 590	7 401	0	0	9 702

Table 6 : Details of landings (in t) by offshore and coastal fleets for 2002

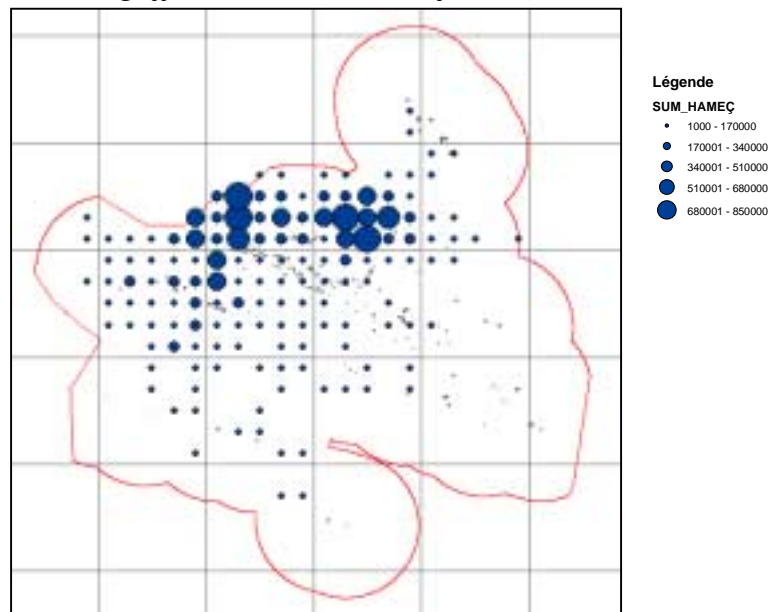
	Poti marara	Conventional bonitiers	Longline bonitiers	Fresh tuna boats	Mixed tuna boats	Freezer tuna boats	Total	%
<i>Number</i>	237	55	6	30	2	16	343	
<i>Trips</i>			381	764		197	1,342	
<i>Days at sea</i>			1,251	4,578		3,488	9,317	
<i>Days fishing</i>	27,030	5,495	425	3,484	358	2,440	39,232	
<i>Hooks ('000)</i>			277	6,302	921	6,464	13,965	
Albacore	99	7	53	1,940	389	2,175	4,663	48%
Skipjack	515	513	1	19	4	69	1,120	12%
Yellowfin	307	99	9	263	26	209	913	9%
Bigeye	2	0	7	356	27	259	651	7%
Mahimahi	396	36	5	73	11	28	550	6%
Billfish	94	21	7	197	25	188	532	5%
Spanish mackerel	46	17	2	87	12	67	232	2%
Deep sea fish	25	5	0	31	3	35	99	1%
Other commercial species	105	14	4	115	10	52	300	3%
Sharks	0	0	9	289	20	207	525	5%
Other non-commercial	0	0	3	41	6	69	118	1%
<b>Total fleets</b>	<b>1,590</b>	<b>711</b>	<b>102</b>	<b>3,409</b>	<b>533</b>	<b>3,357</b>	<b>9,702</b>	
<b>%</b>	<b>16%</b>	<b>7%</b>	<b>1%</b>	<b>35%</b>	<b>5%</b>	<b>35%</b>		
<b>Total sectors</b>	<b>2,301</b>		<b>7,401</b>					
<b>%</b>	<b>24%</b>		<b>76%</b>					
<i>2001 (for comparison)</i>	1,615	891	228	3,228	0	4,355	10,317	
	2,506		7,811					

Table 7: Total catches (in t) from fleets operating in the EEZ of French Polynesia since 1996

Year	Fleet	Domestic Fleet									Foreign Fleet							
		Active vessels	Tuna				Billfish		Miscellaneous		Total	Days fished	Tuna				Others	Total
			Skipjack	Yellowfin	Bigeye	Albacore	Marlins	Swordfish	Sharks	Others			Skipjack	Yellowfin	Bigeye	Albacore		
1996	Bonitiers	75	945	126	-	4	14	0	0	37	1,126							
	Poti marara	160	144	160	2	80	34	0	-	157	577							
	Albacore trollers	4				69					69							
	Longliners	59	26	380	184	1,463	551	84	387	298	3,373	1865	-	911	879	104	180	2,074
Total 1996		294	1,115	666	186	1,616	599	84	387	492	5,145	1865	-	911	879	104	180	2,074
1997	Bonitiers	70	698	142	-	9	15	0	0	70	934							
	Poti marara	166	176	99	2	69	32	0	-	300	678							
	Albacore trollers	1				24					24							
	Longliners	60	22	420	308	2,595	521	56	367	347	4,636	1598	-	428	1,078	49	182	1,737
Total 1997		296	896	661	310	2,697	568	56	367	717	6,272	1598	-	428	1,078	49	182	1,737
1998	Bonitiers	72	784	118	-	8	17	0	0	65	992							
	Poti marara	207	474	190	1	30	52	0	0	453	1,200							
	Albacore trollers	0									0							
	Longliners	54	34	480	402	3,189	431	58	348	342	5,282	1817	-	583	1,018	330	376	2,307
Total 1998		327	1,292	788	403	3,227	500	58	348	860	7,474	1817	-	583	1,018	330	376	2,307
1999	Bonitiers	74	526	160	0	38	21	0	0	81	826							
	Poti marara	242	479	257	2	23	72	0	0	373	1,206							
	Albacore trollers	0									0							
	Longliners	57	103	756	276	2,580	590	66	427	506	5,304	3228	-	641	1,500	74	310	2,524
Total 1999		359	1,108	1,173	278	2,641	683	66	427	960	7,336	3228	-	641	1,500	74	310	2,524
2000	Bonitiers	63	440	110	0	8	27	2	0	46	633							
	Poti marara	280	377	350	1	89	110	0	0	470	1,397							
	Albacore trollers	0									0							
	Longliners	57	72	1,202	711	3,473	355	47	556	480	6,896	2454	-	638	1,207	6	193	2,044
Total 2000		400	889	1,662	712	3,570	492	49	556	996	8,926	2454	-	638	1,207	6	193	2,044
2001	Bonitiers	60	688	84	0	8	21	0	0	90	891							
	Poti marara	250	477	264	1	147	82	0	0	644	1,615							
	Albacore trollers	0									0							
	Longliners	57	91	967	745	4,261	418	79	747	503	7,811							0

	<b>Total 2001</b>	<b>367</b>	<b>1,256</b>	<b>1,315</b>	<b>746</b>	<b>4,416</b>	<b>521</b>	<b>79</b>	<b>747</b>	<b>1,237</b>	<b>10,317</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>2002</b>	<b>Bonitiers</b>	<b>55</b>	<b>513</b>	<b>99</b>	<b>0</b>	<b>7</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>71</b>	<b>711</b>						
	<b>Poti marara</b>	<b>237</b>	<b>515</b>	<b>307</b>	<b>2</b>	<b>99</b>	<b>94</b>	<b>0</b>	<b>0</b>	<b>573</b>	<b>1,590</b>						
	<b>Albacore trollers</b>	<b>0</b>									<b>0</b>						
	<b>Longliners</b>	<b>54</b>	<b>93</b>	<b>507</b>	<b>649</b>	<b>4,557</b>	<b>347</b>	<b>70</b>	<b>525</b>	<b>653</b>	<b>7,401</b>						<b>0</b>
	<b>Total 2002</b>	<b>346</b>	<b>1,121</b>	<b>913</b>	<b>651</b>	<b>4,663</b>	<b>532</b>	<b>0</b>	<b>525</b>	<b>1,297</b>	<b>9,702</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

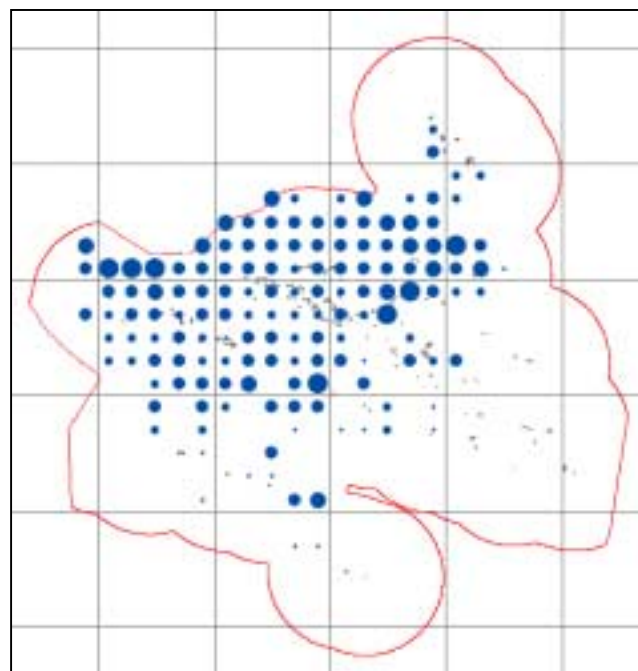
*Fishing effort in 2002 (number of hooks)*



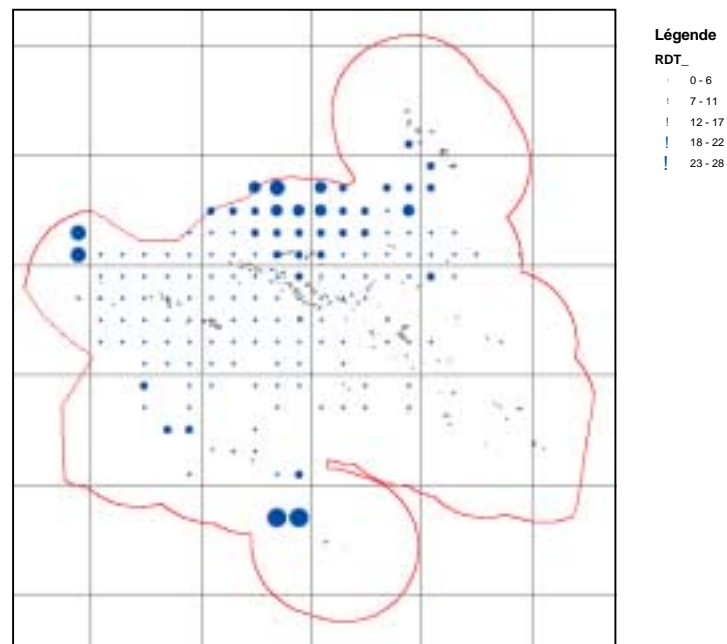
*Albacore yields (kilograms per 100 hooks)*

**Légende**  
**RDT**

- 0 - 13
- 14 - 26
- 27 - 38
- 39 - 51
- 52 - 64



***Bigeye yields (kilograms per 100 hooks)***



***Yellowfin yields (kilograms per 100 hooks)***

