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Comparative Fishing Between the R/V *Wilfred Templeman* and the
C/V *Playa De Menduña* in the NAFO Divisions 3NO in May 2001

by

Esther Román, Xabier Paz and Pablo Durán Muñoz
Instituto Español de Oceanografía, Vigo, Apartado 1552, Spain

Introduction

Following the recommendations of the 2000 Scientific Council Meeting, this year was conducted for second time a comparative fishing (Paz *et al.* 2000) between Canadian and Spanish Survey vessels in the Grand Bank (NAFO Div. 3NO) during 21 to 23 of May 2001. Although this year three ships were involved in the comparative experience, this paper presents only the results of the comparison between *C/V Playa de Menduña* and *R/V Wilfred Templeman*.

This paper presents the results of this 2001 comparative fishing from the Spanish vessel and the catches by set for the Canadian vessel. In addition, are presented the catches in weight and in number for the main species corresponding to both Spanish and Canadian vessels in the 2000-01 comparative fishing exercises.

Methods

The comparative fishing took place from 21th to 23th May, with 18 sets chosen from both the Spanish and Canadian spring surveys (9 from each survey), located in the strata 353, 354, 358, 359 and 360 in the NAFO Regulatory Area (Div. 3NO). All the sets were conducted in daylight hours. The normal fishing methods of each vessel were used during the comparative exercise (Brodie and Morgan, 2000). The Spanish vessel *C/V Playa de Menduña* used PEDREIRA gear and the Canadian vessel *R/V Wilfred Templeman* used CAMPELEN gear. The two vessels towed in parallel, separated by a mean distance of 0.2 nautical miles. Tow effective time were 15 minutes for each vessel on the Canadian positions and 30 minutes for each vessel on the Spanish positions. The characteristics of each haul were recorded (position, strata, speed, wire, depth, duration, etc.) and the catches were identified, weighed, counted and measured using normal sampling protocols.

Results

The table 1 shows the characteristics of the 18 sets carry out by the Spanish vessels in this 2001 comparative fishing. Table 2 shows the total catch of the main species for the Spanish vessel. The catches in weight and in number for the main species from both Canadian and Spanish vessels are presented in the tables 3 and 4. The Spanish vessel caught more in all tows. The differences (total catch) were high for all the species although minor that last year (figure 1).

The tables 3 - 4 and the figures 2 - 3 presented the catches in weight and in number for the main species for both Canadian and Spanish vessels. The *C/V Playa Menduña* caught more American plaice on the all sets than the Canadian vessel. The *C/V Playa Menduña* caught from 2.8 to 6.3 times more in number (average 4.3) and from 3.7 to 9.7 times more in weight (average 5.3) than the *R/V Wilfred Templeman*. More thorny skate was caught on every sets by the *C/V Playa Menduña* as well. The Spanish vessel caught from 2.2 to 17.7 times more in number (average 6.7) and from 2 to 12.9 times more in weight (average 6.1) than the Canadian vessel. For yellowtail flounder the *C/V Playa Menduña* caught between 1 to 58 times more in number (average 8.6) and from 1.1 to 107.7 times more in

weight (average 12.3) than the *R/V Wilfred Templeman*. The Canadian vessel caught witch flounder on only 10 sets while the Spanish vessel caught witch flounder on 15 sets. The Spanish vessel caught more witch flounder than Canadian vessel in all sets. Cod was captured for the Canadian vessel on 13 sets but in general more were caught by Spanish vessel. Few Greenland halibut were caught.

The total catch, haul by haul, for both the vessels (figure 1) and the catch in weight and in number for the main species in each vessel (figures 2 and 3) are presented for the period 2000-01.

These results seem to confirm highest efficiency of the *Pedreira* net for catch flatfish in the shallower areas than *Campelen* gear.

The length distribution in the catches of these species from Spanish vessel, are shown in the tables 5 – 10.

References

- Brodie, W. and J. Morgan, 2000. Preliminary results of comparative fishing between Spanish and Canadian survey vessels. NAFO SC Working Paper No 00/8, 2 pp.
- Paz, X., E. Román and P. Durán Muñoz, 2000. An exercise of comparative fishing between the *R/V Wilfred Templeman* and the *B/C Playa de Mendiña* in the NAFO DIV. 3N in May 2000. NAFO SC Working Paper 00/19.

Table 1.- Characteristic of the hauls carry out by *C/V Playa de Mendiña* in the Canadian - Spanish Comparative Fishing. NAFO Division 3NO. May, 2001.

Set	Stratum (unit)	Date	Speed (Knots)	Wire (m)	Latitude	Longitude	Depth (m)	Latitude	Longitude	Depth (m)
1 SPA.	353-300	21/05/01	3.2	400	433213	510041	69	433055	510050	67
2 SPA.	353-319	21/05/01	3	450	432208	510925	86	432112	510756	86
3 SPA.	353-288	21/05/01	3	400	433128	511445	75	432965	511449	77
4 SPA.	354-068	21/05/01	3	700	432538	513688	148	432436	513513	143
5 SPA.	354-082	21/05/01	3	600	432378	512872	115	432286	512707	115
6 SPA.	354-104	21/05/01	3	650	431639	511313	117	431539	511140	119
7 CAN.	360-425	22/05/01	3.1	500	430618	503957	91	430672	504034	89
8 CAN.	360-395	22/05/01	3	450	431534	504391	82	431612	504409	82
9 CAN.	360-305	22/05/01	3	400	432893	504041	66	432974	504014	64
10 CAN.	360-229	22/05/01	3	400	433610	504278	66	433690	504290	66
11 CAN.	360-199	22/05/01	3	400	434237	501792	58	434274	501698	58
12 CAN.	360-362	22/05/01	3	400	432547	502701	60	432474	502743	58
13 CAN.	360-445	22/05/01	3	400	432007	502032	62	431963	501939	64
14 SPA.	359-016	23/05/01	3.1	700	430645	505858	163	430521	505727	168
15 SPA.	359-033	23/05/01	3	600	430265	504569	110	430176	504406	108
16 CAN.	358-011	23/05/01	3	900	425164	502882	227	425123	502799	232
17 CAN.	359-075	23/05/01	3	700	425567	500807	139	425550	500711	150
18 SPA.	359-086	23/05/01	3	600	425708	500003	102	425796	495848	97

SPA: Spanish sets (30 minutes effective time)

CAN: Canadian sets (15 minutes effective time)

Table 2.- Total Catch (Kg) of the main species in the Canadian - Spanish comparative fishing.

C/V Playa de Mendiña.NAFO Division 3NO. May, 2001.

Species		Total Catch (kg)
American plaice	<i>Hippoglossoides platessoides</i>	17132.7
Thorny skate	<i>Raja radiata</i>	5926.7
Yellowtail flounder	<i>Limanda ferruginea</i>	4041
Redfish	<i>Sebastes sp</i>	2464.5
White hake	<i>Urophycis tenuis</i>	2382
Witch flounder	<i>Glyptocephalus cynoglossus</i>	1870.2
Cod	<i>Gadus morhua</i>	1639.3
Haddock	<i>Melanogrammus aeglefinus</i>	266
Wolffish lupus	<i>Anarhichas lupus</i>	96
Sand lance	<i>Ammodytes sp</i>	88
Monkfish	<i>Lophius americanus</i>	70.4
Greenland halibut	<i>Reinhardtius hippoglossoides</i>	44.2
Capelin	<i>Mallotus villosus</i>	43.9
<i>Snow crab</i>	<i>Chionocetes opilio</i>	1616.3
Crab	<i>Hyas sp.</i>	6
TOTAL:		37687.2

Table 3.- Canadian - Spanish Comparative Fishing. NAFO Division 3NO. May, 2001. Main species catch weight (Kg) and number. C/V Playa Menduïña.

Set	Date	Strata / Unit	American plaice		Yellowtail flounder		Thorny skate		Cod		Witch flounder		Greenland halibut	
			Weight (kg)	Number	Weight (kg)	Number	Weight (kg)	Number	Weight (kg)	Number	Weight (kg)	Number	Weight (kg)	Number
1 SPA.	21/05/01	353-300	1266	4799	761	1701	1211	522	111.9	70	12.7	20	-	-
2 SPA.	21/05/01	353-319	2390	9916	5.3	16	1021	568	13.9	3	104.1	259	0.43	6
3 SPA.	21/05/01	353-288	1249	4677	23.7	58	419	274	10.63	2	143.3	274	-	-
4 SPA.	21/05/01	354-068	239.1	435	0.7	1	280	83	20.9	24	487.1	1310	2.2	31
5 SPA.	21/05/01	354-082	662.2	1372	0	0	362	205	21.7	26	240.5	866	4.4	76
6 SPA.	21/05/01	354-104	1203	3361	0.35	1	222	153	14.8	10	164.1	410	7.4	98
7 CAN.	22/05/01	360-425	1017	7810	1.1	3	111.1	80	0	0	2.3	3	0.7	3
8 CAN.	22/05/01	360-395	1104.7	5449	2	3	327.9	177	1.6	1	2.7	5	0.09	2
9 CAN.	22/05/01	360-305	331.6	1557	561.6	1420	187.1	79	2.6	7	0.6	1	-	-
10 CAN.	22/05/01	360-229	457.4	1762	456.8	1382	197.6	142	44.6	31	5.9	6	-	-
11 CAN.	22/05/01	360-199	670.9	959	792.4	3153	141.8	78	0.4	7	0	0	-	-
12 CAN.	22/05/01	360-362	493.2	1544	672.9	1833	217	100	1.9	7	0	0	-	-
13 CAN.	22/05/01	360-445	887.1	3240	762.1	2262	463.4	227	1.9	2	0.5	1	-	-
14 SPA.	23/05/01	359-016	151.2	570	0	0	300.8	186	636	583	550.4	1486	21.3	242
15 SPA.	23/05/01	359-033	1636.9	7728	0.8	3	115.4	52	2.7	3	53.9	95	7.6	59
16 CAN.	23/05/01	358-011	89.5	217	0	0	133.3	53	288	300	92.8	180	-	-
17 CAN.	23/05/01	359-075	1068.6	3311	0	0	193.8	100	49.4	27	9.2	13	0.15	4
18 SPA.	23/05/01	359-086	2214.9	4281	0.4	1	23.3	7	416.4	406	0	0	-	-

SPA: Spanish sets (30 minutes effective time)

CAN: Canadian sets (15 minutes effective time)

Table 4.- Canadian - Spanish Comparative Fishing. NAFO Divisions 3NO. May, 2001. Main species catch weight (Kg) and number. R/V Wilfred Templeman.

Set	Date	Strata / Unit	American plaice		Yellowtail flounder		Thorny skate		Cod		Witch flounder		Greenland halibut	
			Weight (kg)	Number	Weight (kg)	Number	Weight (kg)	Number	Weight (kg)	Number	Weight (kg)	Number	Weight (kg)	Number
1 SPA.	21/05/01	353-300	346.83	1404	281.6	592	396.7	189	12.2	11	0.85	1	-	-
2 SPA.	21/05/01	353-319	504.23	2119	0.33	1	519.55	254	0.28	1	3.3	9	0.51	8
3 SPA.	21/05/01	353-288	214.82	1250	0.22	1	69.65	46	13.6	2	5.15	10	0.08	1
4 SPA.	21/05/01	354-068	63.5	158	0.45	1	67.75	23	0.64	1	32.1	85	1.18	19
5 SPA.	21/05/01	354-082	131.2	443	0.39	1	107.95	42	164.9	34	7.55	24	3.6	67
6 SPA.	21/05/01	354-104	236.53	849	0.24	1	25.3	13	1.72	3	5.65	10	3.15	67
7 CAN.	22/05/01	360-425	249.73	2075	0.45	1	11.7	10	-	-	-	-	-	-
8 CAN.	22/05/01	360-395	202.05	1285	1	2	100.55	56	-	-	-	-	0.55	1
9 CAN.	22/05/01	360-305	75.85	370	141.05	306	33.75	16	0.45	1	-	-	-	-
10 CAN.	22/05/01	360-229	96.75	405	139.95	432	39.9	18	13.85	1	-	-	-	-
11 CAN.	22/05/01	360-199	69.4	157	150.7	623	12.15	9	-	-	-	-	-	-
12 CAN.	22/05/01	360-362	109.8	405	106.25	347	55.8	21	-	-	-	-	-	-
13 CAN.	22/05/01	360-445	156.15	604	113.95	328	70.7	37	-	-	-	-	-	-
14 SPA.	23/05/01	359-016	34.25	208	-	-	45.1	18	62.15	63	23.9	61	5.15	64
15 SPA.	23/05/01	359-033	267	1168	0.75	1	21.55	8	3.05	4	1.35	2	3.5	48
16 CAN.	23/05/01	358-011	16.95	61	-	-	10.3	3	11.35	13	7.5	15	0.05	3
17 CAN.	23/05/01	359-075	143	522	-	-	20.1	12	1.7	2	2	2	0.65	7
18 SPA.	23/05/01	359-086 (*)	471.87	981	-	-	7.45	2	906.79	819	-	-	-	-

SPA: Spanish sets (30 minutes effective time)

CAN: Canadian sets (15 minutes effective time)

Table 5.- Length distribution of American plaice in the Canadian - Spanish Comparative Fishing corresponding to the catches from C/V Playa Menduiña. NAFO Divisions 3NO. May, 2001.

Length Groups (cm)	Frecuency			Combined
	Males	Females	Indeterm.	
12-13	26	98	0	124
14-15	247	373	0	620
16-17	624	438	0	1062
18-19	3620	3533	0	7153
20-21	7731	8853	0	16584
22-23	4885	6040	0	10925
24-25	1318	1534	0	2852
26-27	310	555	0	865
28-29	468	487	0	955
30-31	1326	297	0	1623
32-33	2060	509	0	2569
34-35	1606	672	0	2278
36-37	1042	1615	0	2657
38-39	386	1739	0	2125
40-41	227	2215	0	2442
42-43	11	2028	0	2039
44-45	3	2134	0	2137
46-47	0	1749	0	1749
48-49	0	677	0	677
50-51	17	597	0	614
52-53	0	488	0	488
54-55	0	290	0	290
56-57	0	61	0	61
58-59	0	63	0	63
60-61	0	30	0	30
62-63	0	0	0	0
64-65	0	11	0	11
66-67	0	9	0	9
68-69	0	0	0	0
70-71	0	6	0	6
<i>TOTAL</i>	<i>25907</i>	<i>37101</i>	<i>0</i>	<i>63008</i>
<i>Nº Ind. Sampled: 1900</i>		<i>2985</i>	<i>0</i>	
<i>Nº Samples: 18</i>				
<i>Total Catch (kg): 17133</i>				
<i>Total Hauls: 18</i>				

Table 6.- Length distribution of yellowtail flounder in the Canadian - Spanish Comparative Fishing corresponding to the catches from C/V Playa Mendiña. NAFO Division 3NO. May, 2001.

Length Groups (cm)	Frecuency			Combined
	Males	Females	Indeterm.	
12-13	0	7	0	7
14-15	0	0	0	0
16-17	0	0	0	0
18-19	11	57	0	68
20-21	76	91	0	167
22-23	147	360	0	507
24-25	155	360	0	515
26-27	198	242	0	440
28-29	695	263	0	958
30-31	1326	473	0	1799
32-33	1005	1052	0	2057
34-35	642	1288	0	1930
36-37	273	1151	0	1424
38-39	110	593	0	703
40-41	83	460	0	543
42-43	8	338	0	346
44-45	12	183	0	195
46-47	0	135	0	135
48-49	0	32	0	32
50-51	0	18	0	18
TOTAL	4741	7103	0	11844
<i>Nº Ind. Sampled: 686</i>		<i>1015</i>	<i>0</i>	
<i>Nº Samples: 14</i>				
<i>Total Catch (kg): 4041</i>				
<i>Total Hauls: 18</i>				

Table 7.- Length distribution of thorny skate in the Canadian - Spanish Comparative Fishing corresponding to the catches from C/V Playa Menduiña. NAFO Divisions 3NO. May, 2001.

Length Groups (cm)	Frecuency			Combined
	Males	Females	Indeterm.	
14-15	27	21	0	48
16-17	6	4	0	10
18-19	4	3	0	7
20-21	3	3	0	6
22-23	10	5	0	15
24-25	6	6	0	12
26-27	12	6	0	18
28-29	11	7	0	18
30-31	23	14	0	37
32-33	31	27	0	58
34-35	33	22	0	55
36-37	51	39	0	90
38-39	49	62	0	111
40-41	79	67	0	146
42-43	81	64	0	145
44-45	100	68	0	168
46-47	108	88	0	196
48-49	99	105	0	204
50-51	99	77	0	176
52-53	79	61	0	140
54-55	61	76	0	137
56-57	67	56	0	123
58-59	53	49	0	102
60-61	46	57	0	103
62-63	33	41	0	74
64-65	47	41	0	88
66-67	33	56	0	89
68-69	39	65	0	104
70-71	25	70	0	95
72-73	36	70	0	106
74-75	44	58	0	102
76-77	63	47	0	110
78-79	39	36	0	75
80-81	48	16	0	64
82-83	21	14	0	35
84-85	26	4	0	30
86-87	16	0	0	16
88-89	4	1	0	5
90-91	4	0	0	4
92-93	2	0	0	2
94-95	0	0	0	0
96-97	2	0	0	2
<i>TOTAL</i>	<i>1620</i>	<i>1506</i>	<i>0</i>	<i>3126</i>
<i>Nº Ind. Sampled:</i>	<i>1204</i>	<i>1206</i>	<i>0</i>	
<i>Nº Samples:</i>	<i>18</i>			
<i>Total Catch (kg):</i>	<i>5927</i>			
<i>Total Hauls:</i>	<i>18</i>			

Table 8.- Length distribution of cod in the Canadian - Spanish Comparative Fishing corresponding to the catches from C/V Playa Menduiña. NAFO Divisions 3NO. May, 2001.

Length Groups (cm)	Frecuency Combined
21-23	5
24-26	32
27-29	58
30-32	88
33-35	117
36-38	144
39-41	203
42-44	184
45-47	146
48-50	162
51-53	131
54-56	80
57-59	30
60-62	5
63-65	8
66-68	7
69-71	6
72-74	11
75-77	6
78-80	12
81-83	14
84-86	22
87-89	12
90-92	8
93-95	10
96-98	1
99-101	2
102-104	1
105-107	3
108-110	2
111-113	0
114-116	0
117-119	0
120-122	1
<i>TOTAL</i>	1511
<i>Nº Ind. Sampled:</i>	860
<i>Nº Samples:</i>	17
<i>Total Catch (kg):</i>	1639
<i>Total Hauls:</i>	18

Table 9.- Length distribution of Greenland halibut in the Canadian - Spanish Comparative Fishing corresponding to the catches from C/V Playa Mendiña. NAFO Divisions 3NO. May, 2001.

Length Groups (cm)	Frecuency			Combined
	Males	Females	Indeterm.	
12-13	18	17	0	35
14-15	36	47	2	85
16-17	14	7	0	21
18-19	7	2	0	9
20-21	52	44	0	96
22-23	79	105	0	184
24-25	25	36	0	61
26-27	1	3	0	4
28-29	1	2	0	3
30-31	5	4	0	9
32-33	1	2	0	3
34-35	2	2	0	4
36-37	0	1	0	1
38-39	0	1	0	1
40-41	2	1	0	3
42-43	1	1	0	2
44-45	0	1	0	1
TOTAL	244	276	2	522
<i>Nº Ind. Sampled:</i>	<i>213</i>	<i>251</i>	<i>2</i>	
<i>Nº Samples:</i>	<i>9</i>			
<i>Total Catch (kg):</i>	<i>44</i>			
<i>Total Hauls:</i>	<i>18</i>			

Table 10.- Length distribution of witch flounder in the Canadian - Spanish Comparative Fishing corresponding to the catches from C/V Playa Mendiña. NAFO Divisions 3NO. May, 2001.

Length Groups (cm)	Frecuency			Combined
	Males	Females	Indeterm.	
18-19	0	4	0	4
20-21	3	5	0	8
22-23	26	94	0	120
24-25	67	145	0	212
26-27	40	37	0	77
28-29	29	43	0	72
30-31	76	92	0	168
32-33	144	233	0	377
34-35	220	310	0	530
36-37	378	327	0	705
38-39	392	347	0	739
40-41	336	355	0	691
42-43	157	293	0	450
44-45	91	251	0	342
46-47	45	162	0	207
48-49	25	82	0	107
50-51	7	62	0	69
52-53	0	24	0	24
54-55	0	30	0	30
56-57	0	2	0	2
58-59	0	1	0	1
TOTAL	2036	2899	0	4935
<i>Nº Ind. Sampled:</i>	<i>735</i>	<i>1039</i>	<i>0</i>	
<i>Nº Samples:</i>	<i>15</i>			
<i>Total Catch (kg):</i>	<i>1870</i>			
<i>Total Hauls:</i>	<i>18</i>			

R/V *Wilfred Templeman* and C/V *Playa de Mendiña*: 2000-01.

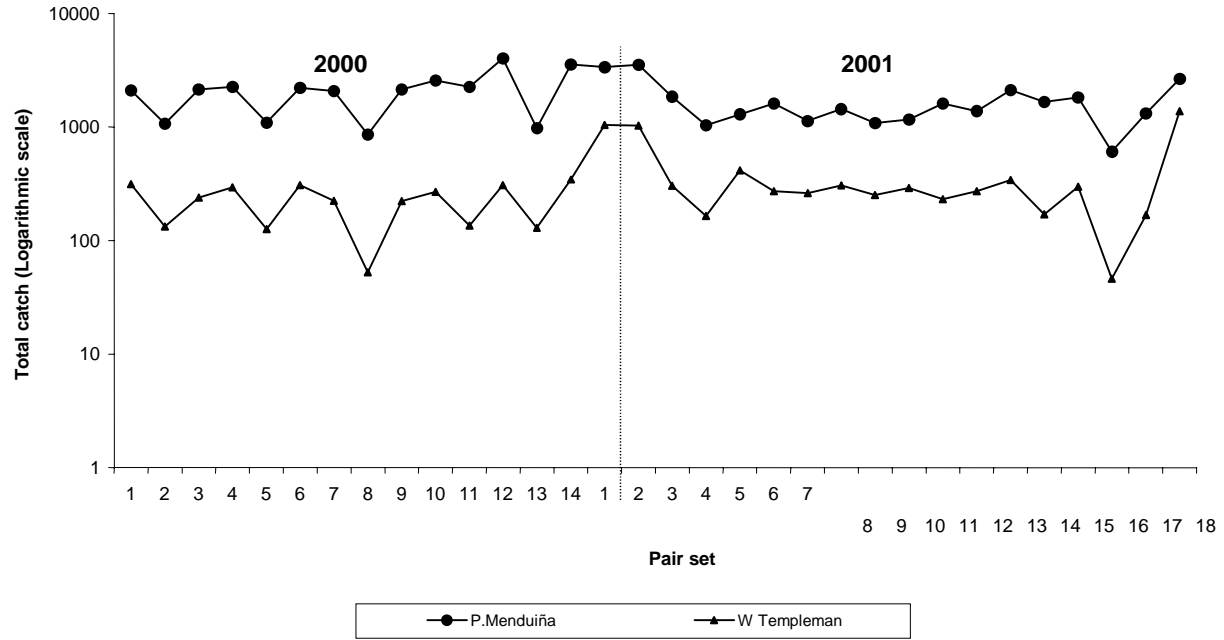


Fig. 1. Total catch of the main species (American plaice, yellowtail, thorny skate, cod, witch and Greenland haliibt) for the comparative fishing between R/V *Wilfred Templeman* and R/V *Playa de Mendiña*: 2000-01.

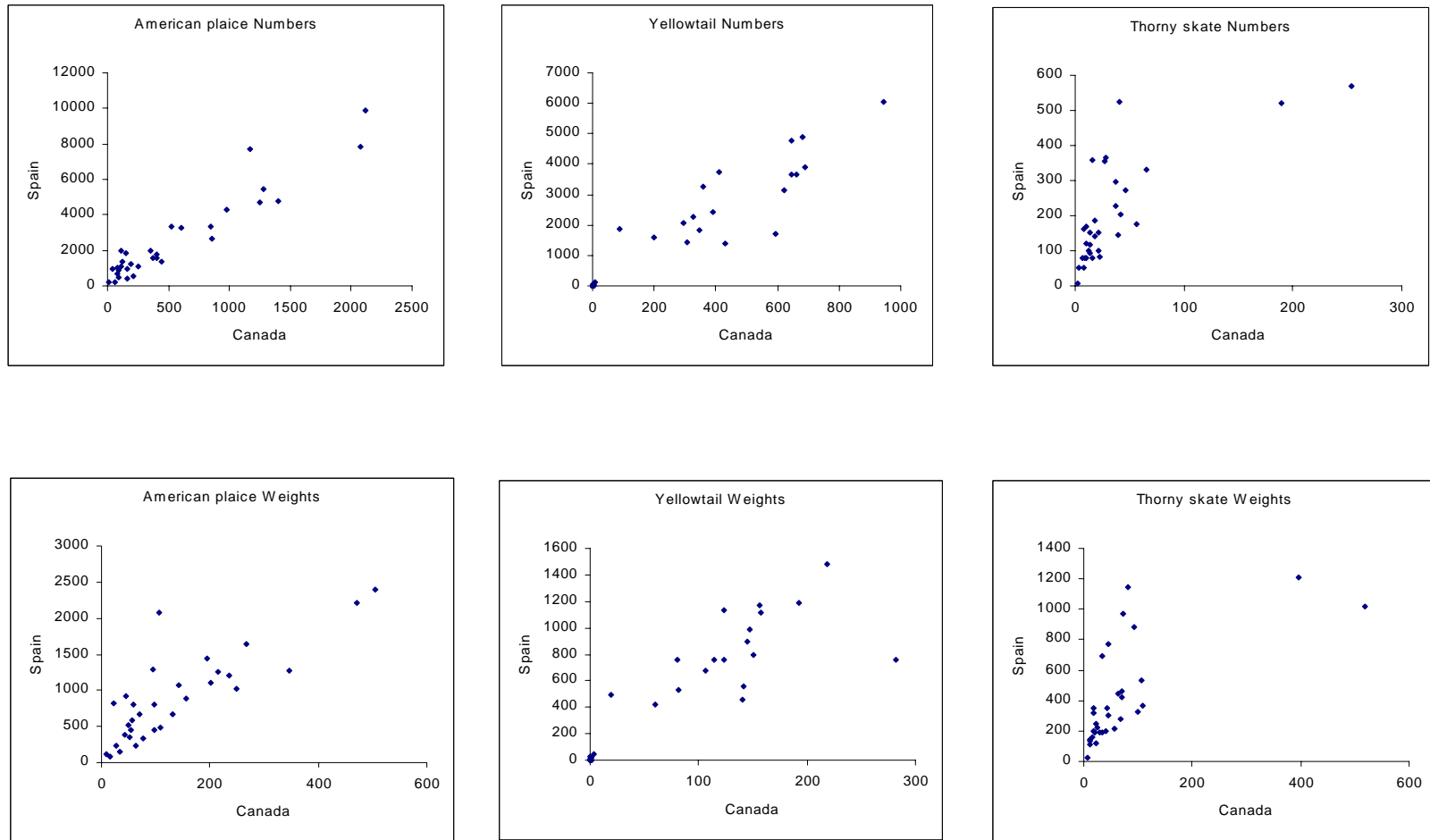


Fig. 2.- Catch in number and weight (kg) for American plaice, yellowtail flounder and thorny skate. Canadian - Spanish comparative fishing exercise: 2000-01.

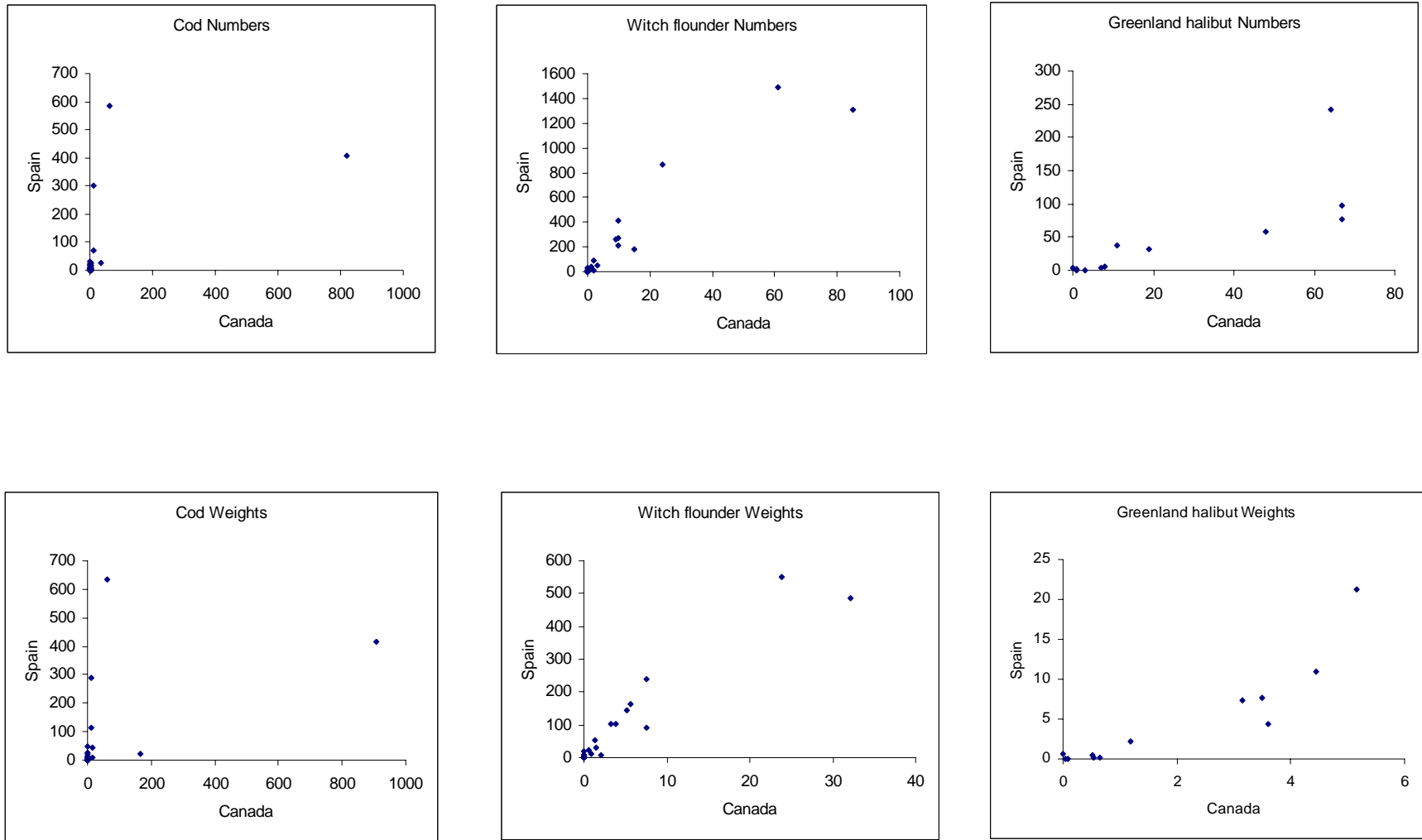


Fig. 3. Catch in number and weight (kg) for cod, witch flounder and Greenland halibut. Canadian - Spanish comparative fishing exercise: 2000-01.