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Spanish fisheries information in Corner Rise Seamount Complex (NAFO Divisions 6GH).

by

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### ABSTRACT

The Corner Rise Seamount complex is located in a small area of the NAFO Subarea 6 (34°- 37° N, 47° - 53° W). The aim of this paper is to review and present the Spanish fisheries information available in this area between 2005 and March 2007.

Results show that Kükenthal peak, in particular and western Corner Rise part in general seem to have more species diversity and more fishing yield than the other Corner Rise parts. The most important species in the catches were *Beryx splendens*, *Aphanopus carbo* and *polyprion americanus*.

*Beryx splendens* catches length range was 27 – 41 cm in 2007. Males were more abundant for sizes less than 33 cm. while females were more abundant for bigger sizes.

### INTRODUCTION

The aim of this paper is to review and present the Spanish fisheries information available about the Corner Rise Seamount complex, that have been requested for the NAFO Scientific Council 2007 meeting.

Commercial aggregations of deep water fish in the Corner Rise Complex area were discovered by the Union of Soviet Socialist Republics(USSR) research vessels in 1976. After this year, several fishing and commercial trip were made in this area by USSR and Russian vessels till 1996 (V. I. Vinnichenko, 1997).

In 2004, one polyvalent Spanish trawler carried out a experimental survey in NAFO Regulatory Area Divisions 6EFGH and 4XWVs (P. Duran Muñoz *et al.*, 2005). After 2004, some Spanish commercial vessels have been working in the Corner Rise Seamount complex area in the last years (2005-2007), this document present the data collected during these fishing trips.

The Corner Rise Seamount complex is located in a small area of the NAFO Subarea 6 (34°- 37° N, 47° - 53° W). Figure 1 presents the Corner Rise Seamount complex map of the “Deep Atlantic Stepping Stones: Exploring the Western North Atlantic Seamounts” NOAA exploration with the names submitted by Les Watling to the International Hydrographic Organization and the Intergovernmental Oceanographic Commission for some of the seamounts. In this area there are at least 13 seamounts and in Figure 1 we show the names proposed by Les Watling for five of them.

### MATERIAL AND METHODS

All the data used in this document were collected by the NAFO Observers. These Observers on board cover all the Spanish fleet effort in this area and they have collected information (catches, positions, etc.) on a haul basis and one of them has carried out length and biological samples of the main species in the catches. The information available

come from 125 hauls carried out by four vessels between 2005 and march 2007. Figure 2 shows the map with the hauls positions by year.

#### Fishing Operations (Method):

Two different fishing operation have been carried out in this area by these vessels: One was a pelagic trawl over the peaks called “cucharada” with the trawl gear “Pedreira” (OTB) used in the NAFO Regulatory Area (NRA). And the other was a normal pelagic trawl with a pelagic trawl gear (OTM). Both gears with 130 mm cod-end mesh size. Figure 3 shows the position hauls for each of the gears.

## RESULTS

Table 1 presents the effort (hours), number of hauls and the mean trawl time per haul by year and gear carried out by the four vessels in each Corner Rise Seamount. Lyman peak, in the Eastern part, and one peak with unknown name between Verrill and Lyman peak (called in these document tables as C - 3), in the central part of the Corner Rise, was only fished in 2005 with the OTM gear. Kükenthal seamount, in the western part, has been the peak with more effort and hauls and the unique fished in the three years (2005-2007) with both gears.

The OTB mean trawl time per haul was smaller than the OTM gear. The real trawl time with the OTB gear in the “cucharada” fishing operation is very short due to the small area of the peaks. In many hauls, the trawl came and back over the peak area. In the OTM mean trawl time per haul is large and in this case the gear can be trawl outside of the peak area.

The most important species in the catches were *Beryx splendens*, *Aphanopus carbo* and *polyprion americanus*. These three species were the 98% of the total catches.

Table 2 presents the catches in each peak by species, gear and year. It can be observed that in 2005 for the same gear (OTM), the species composition were different between Corner rise areas, in the western part the diversity of species were more than in the central and eastern part. The species more abundant in the western part was *Beryx splendens* and in the central and eastern part was *Sebastes* spp. Between gears it seems that the catch composition diversity of OTB gear was greater than the OTM gear. To highlight that the high 2005 *Polyprion americanus* catches in Kükenthal peak not appear in 2006 and 2007 catches in the same peak.

Table 3 shows the CPUE (Kg/Hour) for the different species by seamount, year and gear. The CPUE in the western part of Corner Rise complex are much bigger than in the central and eastern part. To highlight the high *Beryx splendens* CPUE in Kükenthal peak for both gears although bigger with the OTB gear. CPUE, for the same species, between years are very changeable.

There were only biological and length distributions samples for 2007 catches. Figure 4 shows the 2007 catches length distributions for *Beryx splendens* measured to the fork, the length range was 27 – 41 cm and the most abundant length in the catches were between 33 and 36 cm. This length distributions are very similar to the length distributions presented by V. I. Vinnichenko in 1997, but are not comparable to the length distributions presented by P. Duran Muñoz *et al.* because these were measured to the total length.

Figure 5 presents the males sex ratio by length, it can be observed that males were more abundant for sizes less than 33 cm. while females were more abundant for bigger sizes.

## CONCLUSION

Kükenthal peak, in particular and western Corner Rise part in general seem to have more species diversity and more fishing yield than the other Corner Rise parts.

The most important species in the catches were *Beryx splendens*, *Aphanopus carbo* and *polyprion americanus*. The OTB CPUE are greater than the OTM.

*Beryx splendens* catches length range was 27 – 41 cm. Males were more abundant for sizes less than 33 cm. while were more abundant for bigger sizes.

## REFERENCES

Durán Muñoz P., M. Mandado, A. Gago, C. Gómez & G. Fernández. 2005. BRIEF RESULTS OF A TRAWL EXPERIMENTAL SURVEY AT NW ATLANTIC. NAFO SCR Doc. 05/32, Serial No. N5095.

National Oceanic & Atmospheric Administration (NOAA). Ocean Explorer. Deep Atlantic Stepping Stones: Exploring the Western North Atlantic Seamounts  
<http://oceanexplorer.noaa.gov/explorations/05stepstones/logs/summary/summary.html>

Vinnichenko V. I. 1997. Russian Investigations and deep water Fishery on the Corner Rising Seamount in Subarea 6. NAFO Scientific Council Studies Number 30: 41-49.

Walting L. 2006. Seamount studies in the NW Atlantic. Workshop on the Cobalt-Rich-Crusts and the Diversity and Distribution Patterns of Seamount Fauna. Kingston, Jamaica, 27-31 March 2006.

**Table 1.-** Spanish fleet fishing effort (hours), number of hauls and haul mean time trawl by gear and year in the Corner Rise Complex.

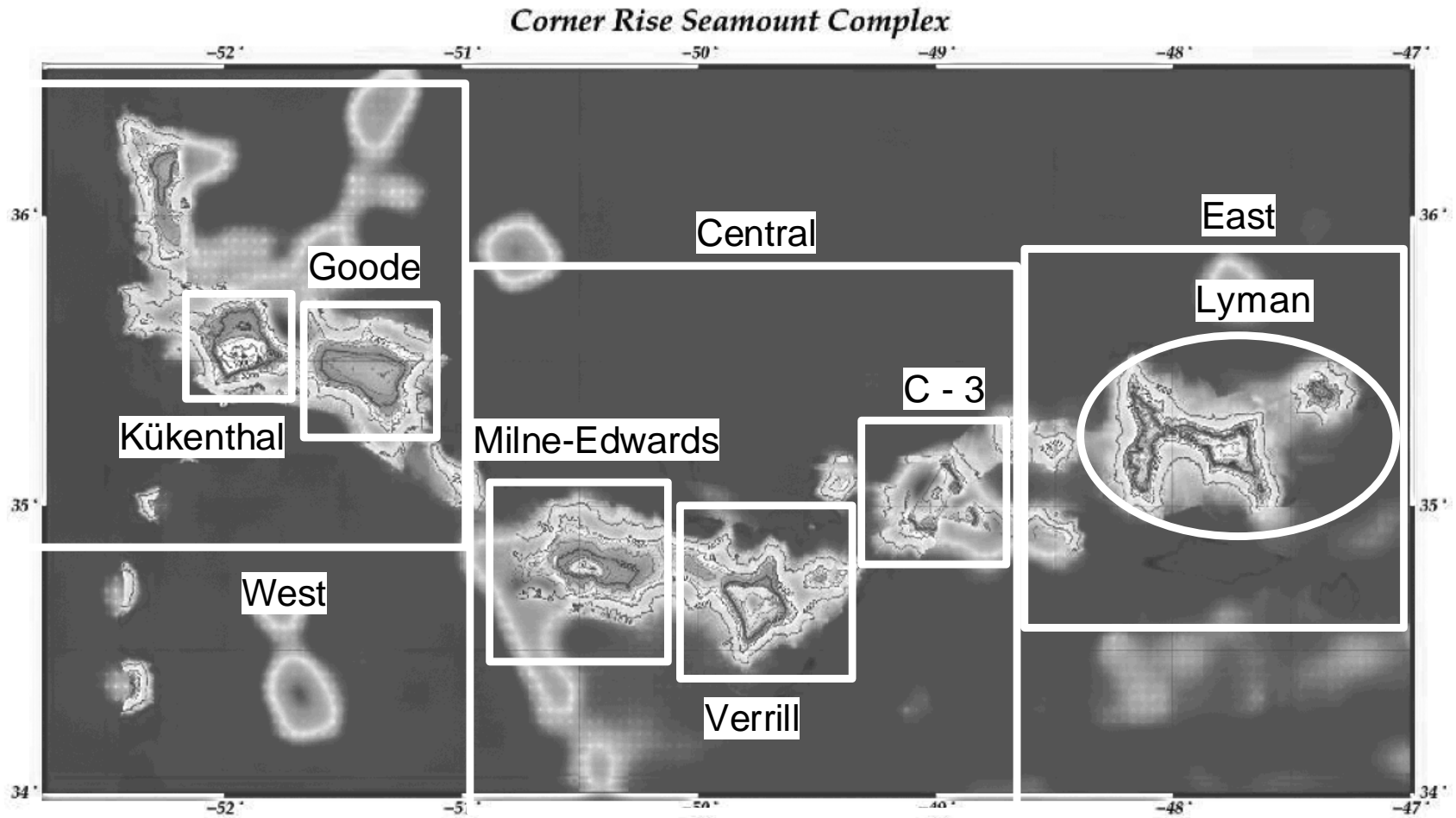
Corner Seamount	Gear		Year			Total
			2005	2006	2007	
Kükenthal	OTB	Effort (hours)	101		16	117
		Hauls	75		11	86
		Mean Time Haul	1.3		1.5	1.4
	OTM	Effort (hours)	43	43	6	92
		Hauls	12	22	1	35
		Mean Time Haul	3.6	2.0	6.0	2.6
Goode	OTM	Effort (hours)	1		16	17
		Hauls	1		1	2
		Mean Time Haul	0.7		16.3	8.5
C - 3	OTM	Effort (hours)	8			8
		Hauls	1			1
		Mean Time Haul	8.1			8.1
Lyman	OTM	Effort (hours)	7			7
		Hauls	1			1
		Mean Time Haul	7.0			7.0
Total Effort (hours)			160	43	38	242
Total Hauls			90	22	13	125
Mean Time Haul			1.8	2.0	3.0	1.9

**Table 2.-** Spanish total catches (tons) by species, gear and year in the Corner Rise Complex.

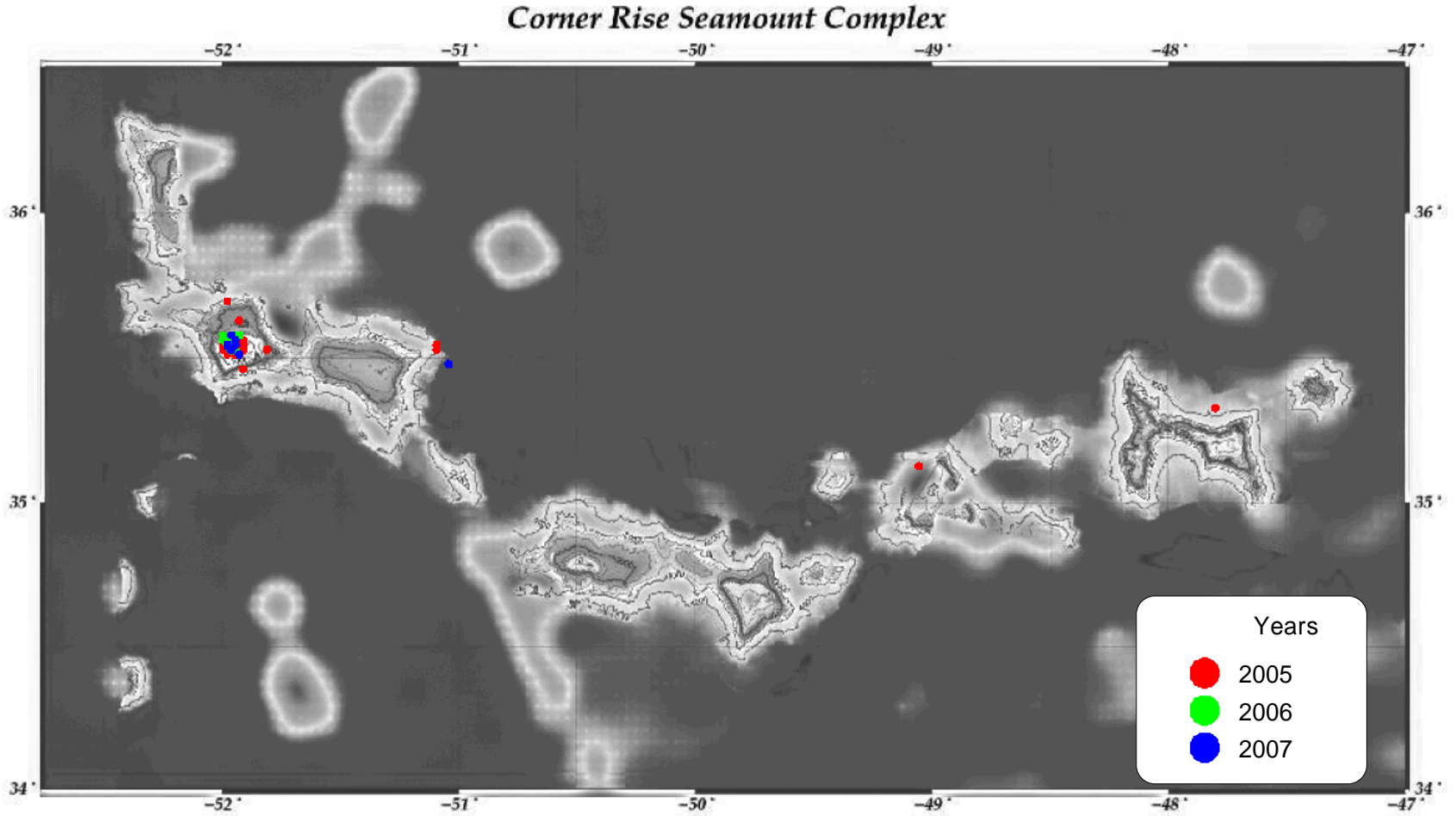
Corner Peak	Gear	Scientific_name	2005	2006	2007	Total		
Kükenthal	OTB	<i>Beryx splendens</i>	1084.0		52.1	1136.2		
		<i>Polyprion americanus</i>	24.7			24.7		
		<i>Hexanchus griseus</i>	8.2			8.2		
		<i>Aphanopus carbo</i>	4.3			4.3		
		<i>Trachichthyidae</i>	2.4			2.4		
		<i>Alepocephalus spp</i>	1.7		0.0	1.7		
		<i>Mustelus mustelus</i>			1.1	1.1		
		<i>Mitsukurina owstoni</i>			0.5	0.5		
		<i>Squaliformes</i>	0.1			0.1		
		<i>Rubetus pretiotus</i>			0.1	0.1		
		<i>Epigonus telescopus</i>	0.0			0.0		
		<i>Centrophorus niger</i>			0.0	0.0		
		<i>Polyprion americanus</i>			0.0	0.0		
		<i>Grammicolepis brachiuscuulus</i>			0.0	0.0		
		<i>Chimaera monstrosa</i>			0.0	0.0		
		<i>Hoplostethus atlanticus</i>	0.0			0.0		
		<i>Hoplostethus mediterraneus</i>			0.0	0.0		
		<i>Corales blandos</i>			0.0	0.0		
		<i>Osteichthyes</i>	0.0			0.0		
		<i>Lophiidae</i>			0.0	0.0		
		Total OTB			1125.5		53.9	1179.3
		Kükenthal	OTM	<i>Beryx splendens</i>	35.5	63.7		99.2
				<i>Aphanopus carbo</i>	4.1	81.0	0.0	85.1
<i>Epigonus telescopus</i>	1.2			3.6		4.8		
<i>Sebastes spp</i>	4.7					4.7		
<i>Elasmobranchii</i>	2.0					2.0		
<i>Mitsukurina owstoni</i>				0.2		0.2		
<i>Centroscymnus coelolepis</i>				0.1		0.1		
<i>Hoplostethus atlanticus</i>	0.0					0.0		
<i>Macrourus spp</i>	0.0			0.0		0.0		
<i>Chimaera monstrosa</i>	0.0					0.0		
<i>Illex spp.</i>					0.0	0.0		
Total OTM			47.5	148.6	0.0	196.0		
Total Kükenthal			1172.9	148.6	53.9	1375.4		
Goode	OTM	<i>Beryx splendens</i>	5.3		0.0	5.3		
		<i>Mitsukurina owstoni</i>			0.2	0.2		
		<i>Rubetus pretiotus</i>			0.0	0.0		
		<i>Illex spp.</i>			0.0	0.0		
		Total OTM			5.3		0.2	5.5
Total Goode			5.3		0.2	5.5		
C - 3	OTM	<i>Sebastes spp</i>	0.5			0.5		
		<i>Aphanopus carbo</i>	0.3			0.3		
		<i>Beryx splendens</i>	0.1			0.1		
		Total OTM			0.9			0.9
Total C - 3			0.9			0.9		
Lyman	OTM	<i>Sebastes spp</i>	1.2			1.2		
		<i>Aphanopus carbo</i>	0.9			0.9		
		<i>Beryx splendens</i>	0.1			0.1		
		Total OTM			2.2			2.2
Total Lyman			2.2			2.2		
Total			1181.3	148.6	54.1	1383.9		

**Table 3.-** Spanish CPUE (Kg/Hour) by species, gear and year in the Corner Rise Complex.

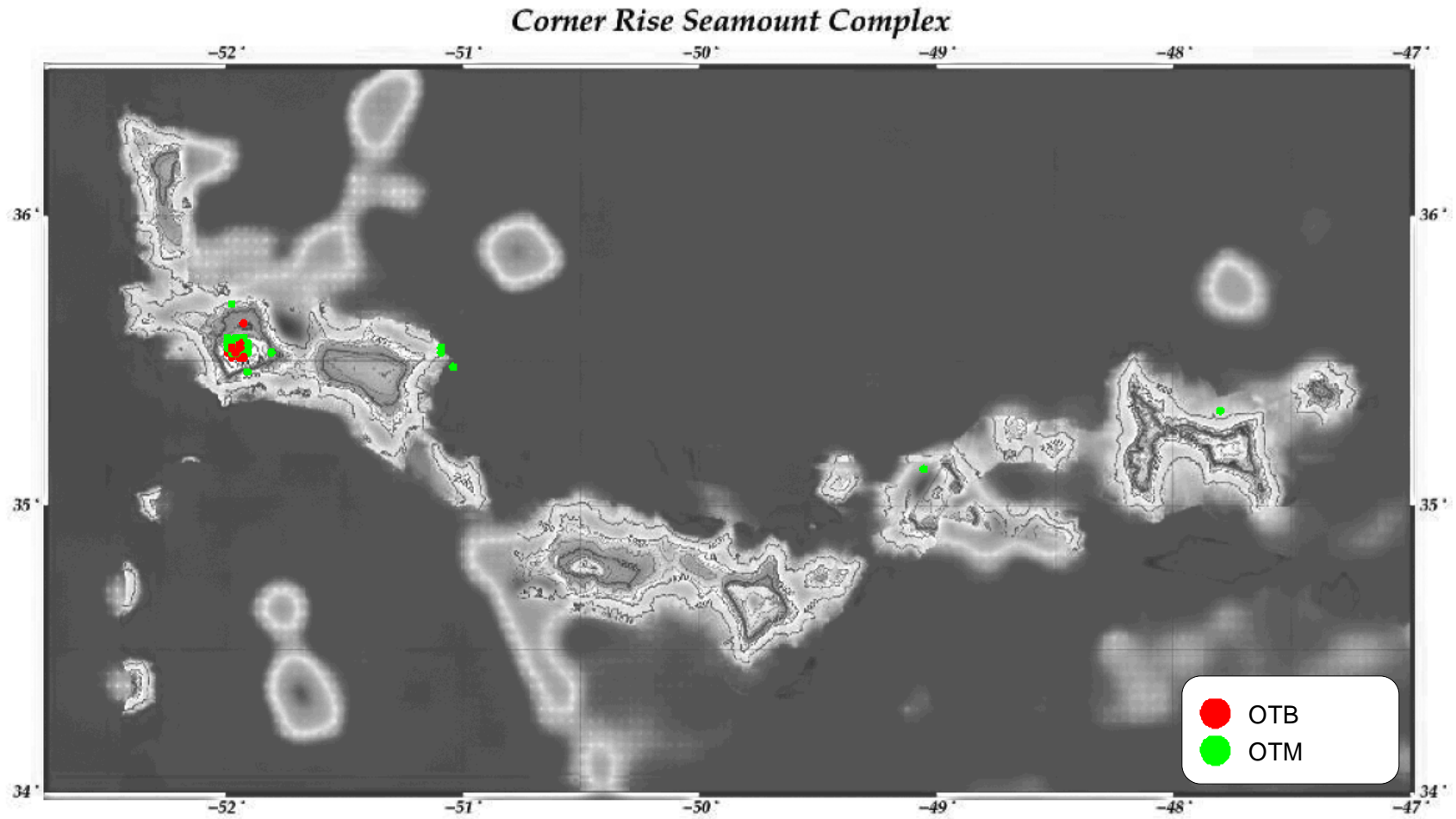
Corner Peak	Gear	Scientific_name	Year			Total		
			2005	2006	2007			
Kükenthal	OTB	<i>Beryx splendens</i>	10719		3228	9687		
		<i>Polyprion americanus</i>	244			211		
		<i>Hexanchus griseus</i>	81			69		
		<i>Aphanopus carbo</i>	43			37		
		<i>Trachichthyidae</i>	24			20		
		<i>Alepocephalus spp</i>	17		1	15		
		<i>Mustelus mustelus</i>			68	9		
		<i>Mitsukurina owstoni</i>			32	4		
		<i>Squaliformes</i>	1			1		
		<i>Rubetus pretiotus</i>			4	1		
		<i>Epigonus telescopus</i>	0			0		
		<i>Centrophorus niger</i>			2	0		
		<i>Polyprion americanus</i>			1	0		
		<i>Grammicolepis brachiuscuulus</i>			1	0		
		<i>Chimaerra monstrosa</i>			0	0		
		<i>Hoplostethus atlanticus</i>	0			0		
		<i>Hoplostethus mediterraneus</i>			0	0		
		<i>Corales blandos</i>			0	0		
		<i>Osteichthyes</i>	0			0		
		<i>Lophiidae</i>			0	0		
	OTM	<i>Beryx splendens</i>	823	1470		1073		
		<i>Aphanopus carbo</i>	94	1869	2	921		
		<i>Epigonus telescopus</i>	28	83		52		
		<i>Sebastes spp</i>	109			51		
		<i>Elasmobranchii</i>	46			22		
		<i>Mitsukurina owstoni</i>		3		2		
		<i>Centroscymnus coelolepis</i>		2		1		
		<i>Hoplostethus atlanticus</i>	1			0		
		<i>Macrourus spp</i>	0	0		0		
		<i>Chimaera monstrosa</i>	0			0		
		<i>Illex spp.</i>			0	0		
		Goode	OTM	<i>Beryx splendens</i>	7885		0	310
				<i>Mitsukurina owstoni</i>			12	11
<i>Rubetus pretiotus</i>					1	1		
<i>Illex spp.</i>					0	0		
C - 3	OTM	<i>Sebastes spp</i>	56			56		
		<i>Aphanopus carbo</i>	42			42		
		<i>Beryx splendens</i>	12			12		
Lyman	OTM	<i>Sebastes spp</i>	176			176		
		<i>Aphanopus carbo</i>	130			130		
		<i>Beryx splendens</i>	10			10		



**Figure 1.-** Corner Rise Seamount Complex map with areas and peak names.

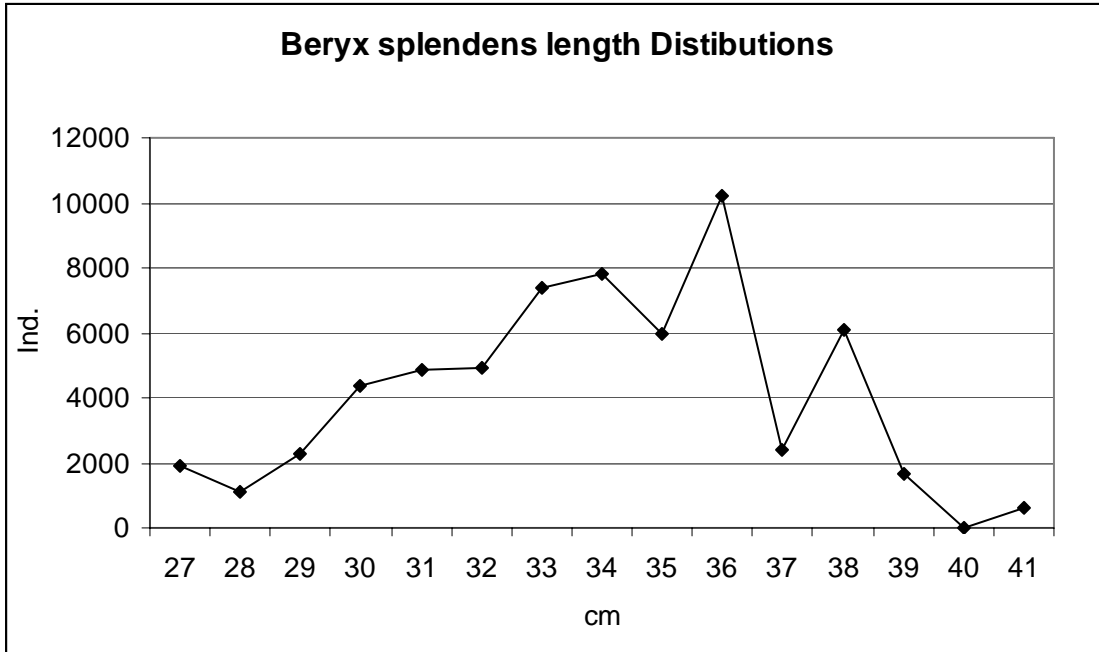


**Figure 2.-** Corner Rise Seamount Complex map with the hauls positions by year.

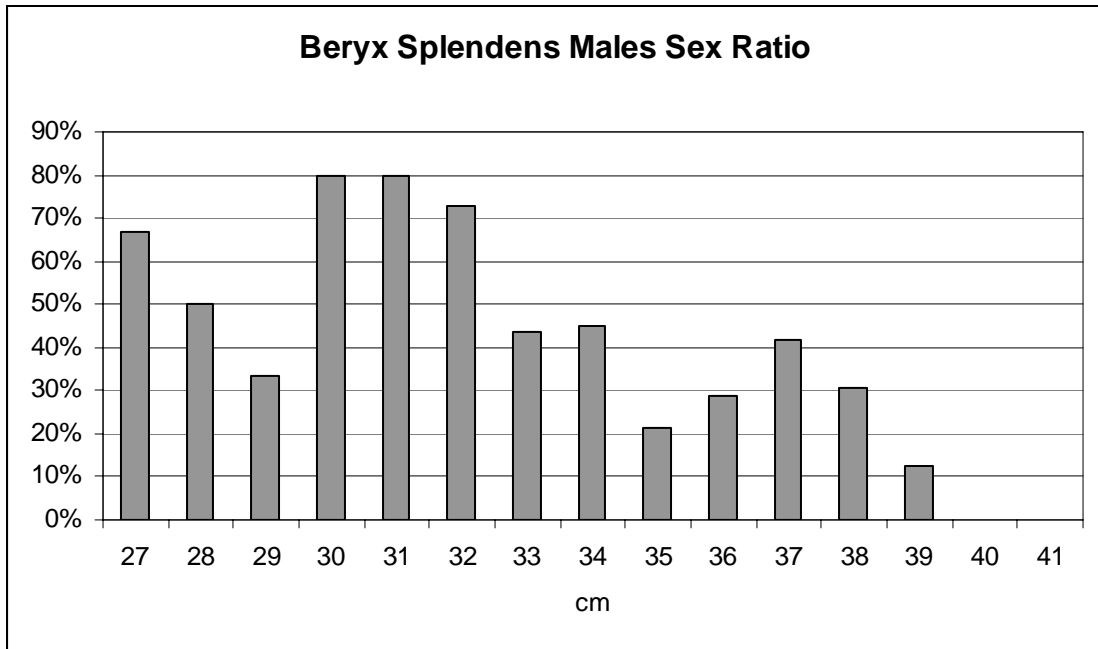


**Figure 3.-** Corner Rise Seamount Complex map with the hauls positions by gear.





**Figure 4.-** *Beryx splendens* 2007 catches length distribution.



**Figure 5.-** *Beryx splendens* 2007 males sex ratio.