IMARPE
INSTITUTO DEL MAR DEL PERÚ

2018 International Symposium: Understanding Changes in Transitional Regions of the Pacific

SPATIAL-TEMPORARY DISTRIBUTION OF BIODIVERSITY ON THE NORTHERN BORDER OF THE PERUVIAN MARITIME DOMAIN (2014-2015)

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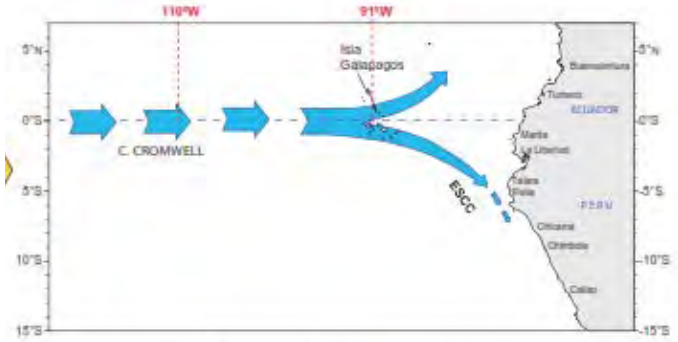
OBJECTIVE

The objective of this study was **characterize the variability of community structure (fishes and invertebrates), that inhabit mainly the bentho-demersal environment and that cohabit with Peruvian Hake in the Northern – Central zone of Peru**, during autumn of 2014 and 2015.

Peruvian Hake
Merluccius gayi peruanus

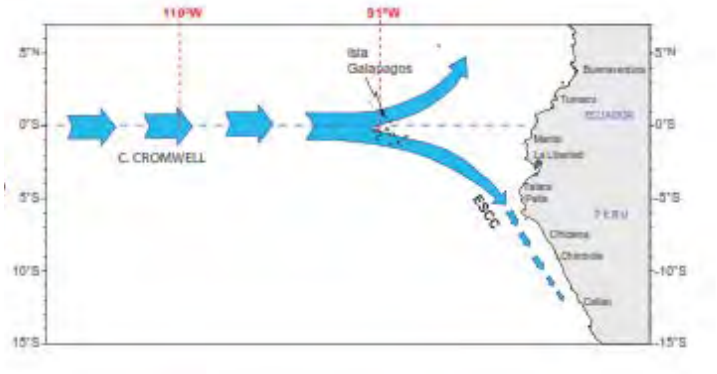
MAIN CURRENT SYSTEM

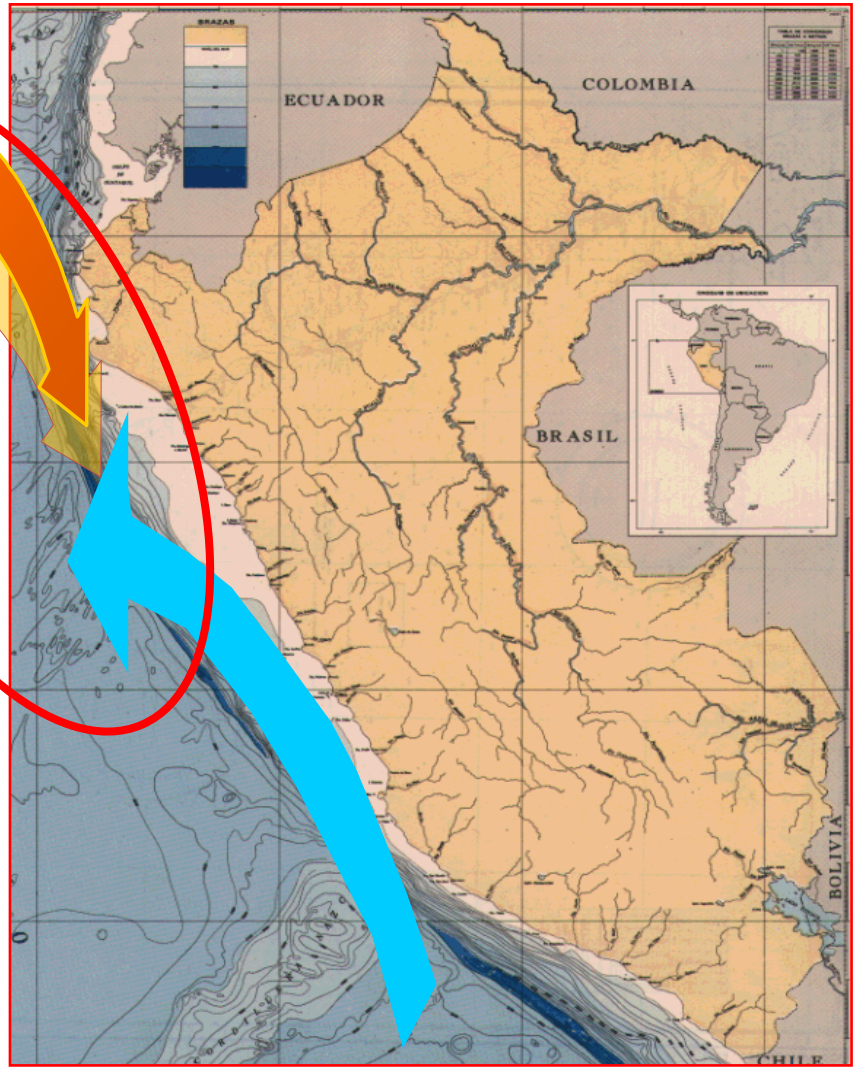
CROMWELL SUBSURFACE CURRENT



KELVIN WAVES

EXTENDED DURING AUTUMN AND WARM EVENTS





METHODOLOGY

-Assessment Cruises of **Peruvian hake and other demersal species** were developed in autumn of every year.

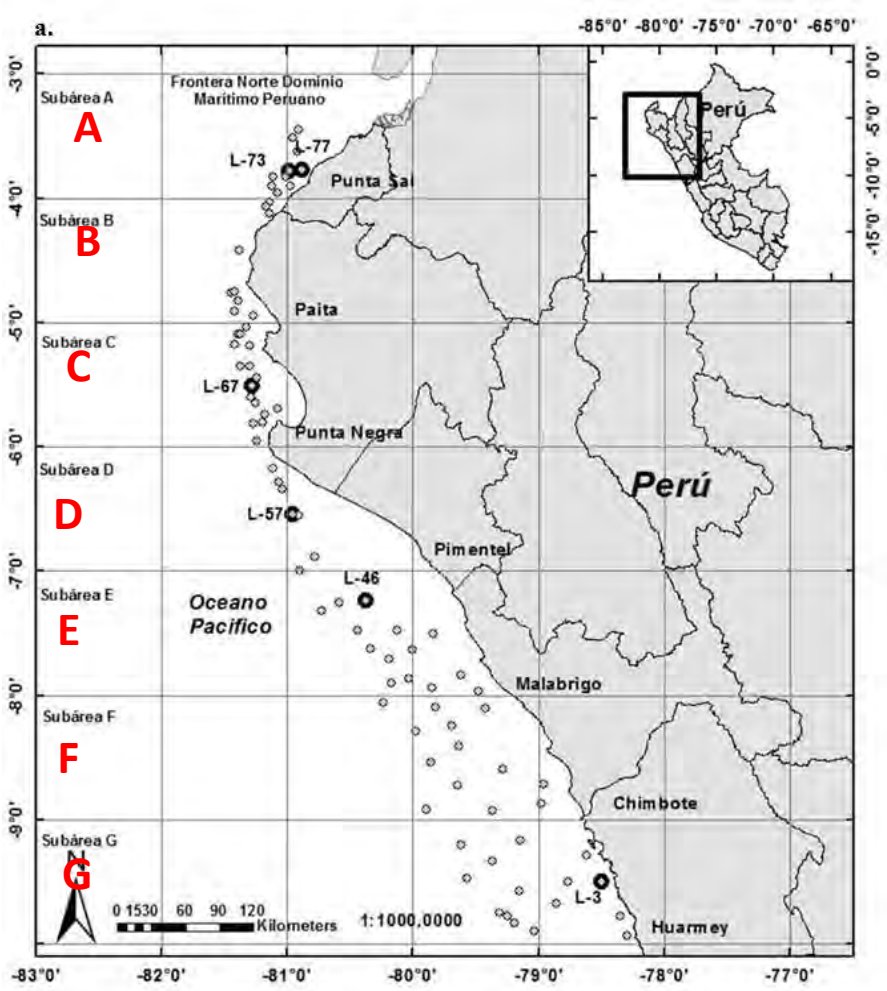
-The catches were carried out using **bottom trawl** on board the scientific vessel of IMARPE.

-115 (2014) and 107 (2015) hauls were made between 3°S to 9°S (Subareas A to G), in an approximate area of 10732 nm^2.

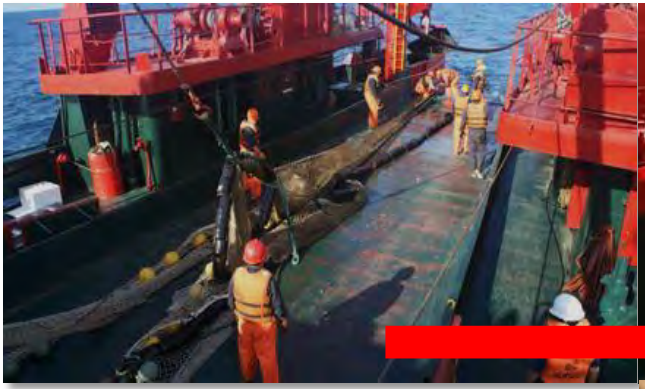
-A bathymetric coverage was established over **three depth levels:**

Stratum I: 20 – 50 bz
Stratum II: 51 -100 bz
Stratum III: 101-200 bz

-Samples of **fishes and invertebrates** were collected and identify.



METHODOLOGY



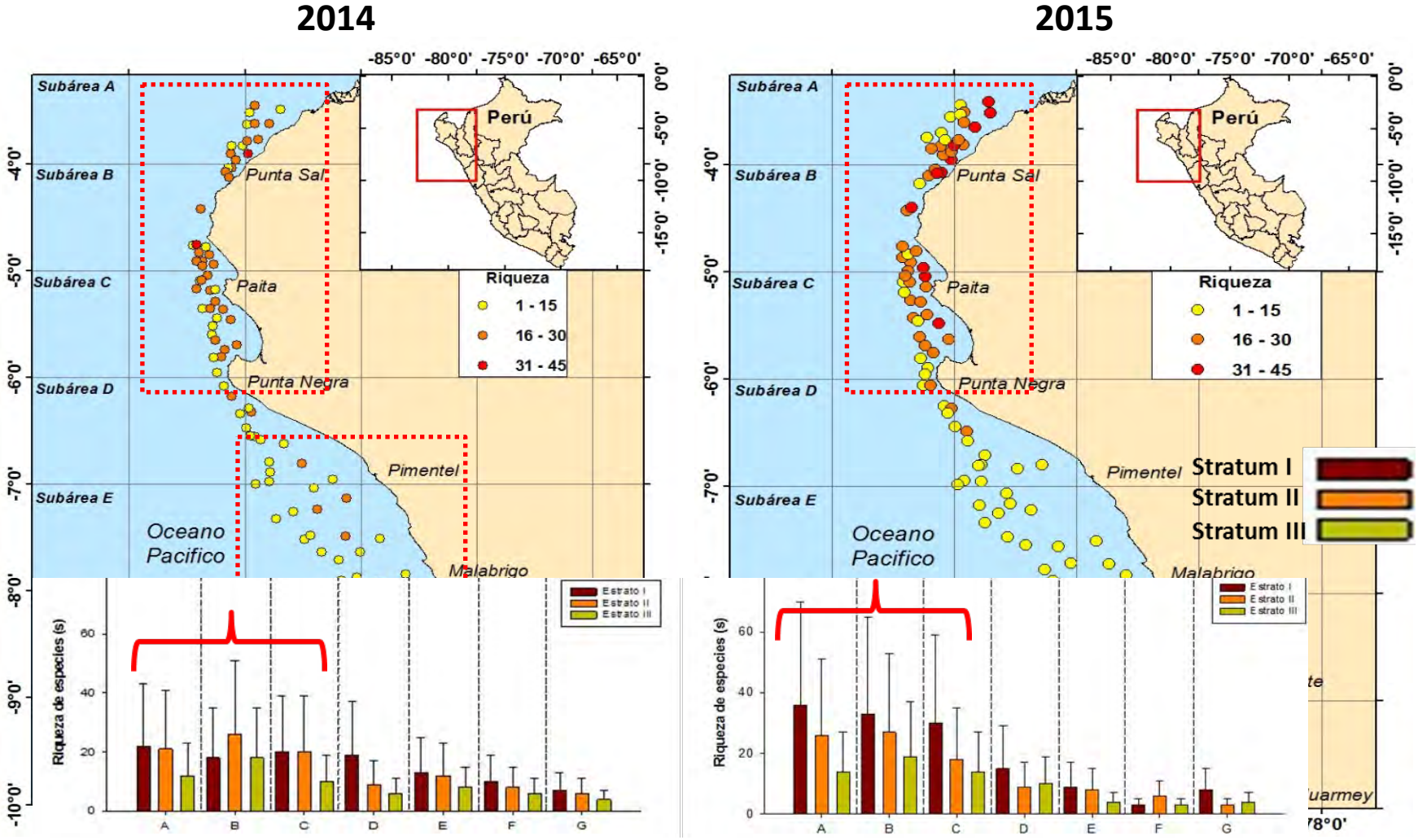
Participation of researchers of IMARPE in sampling and identification analysis of species





RESULTS

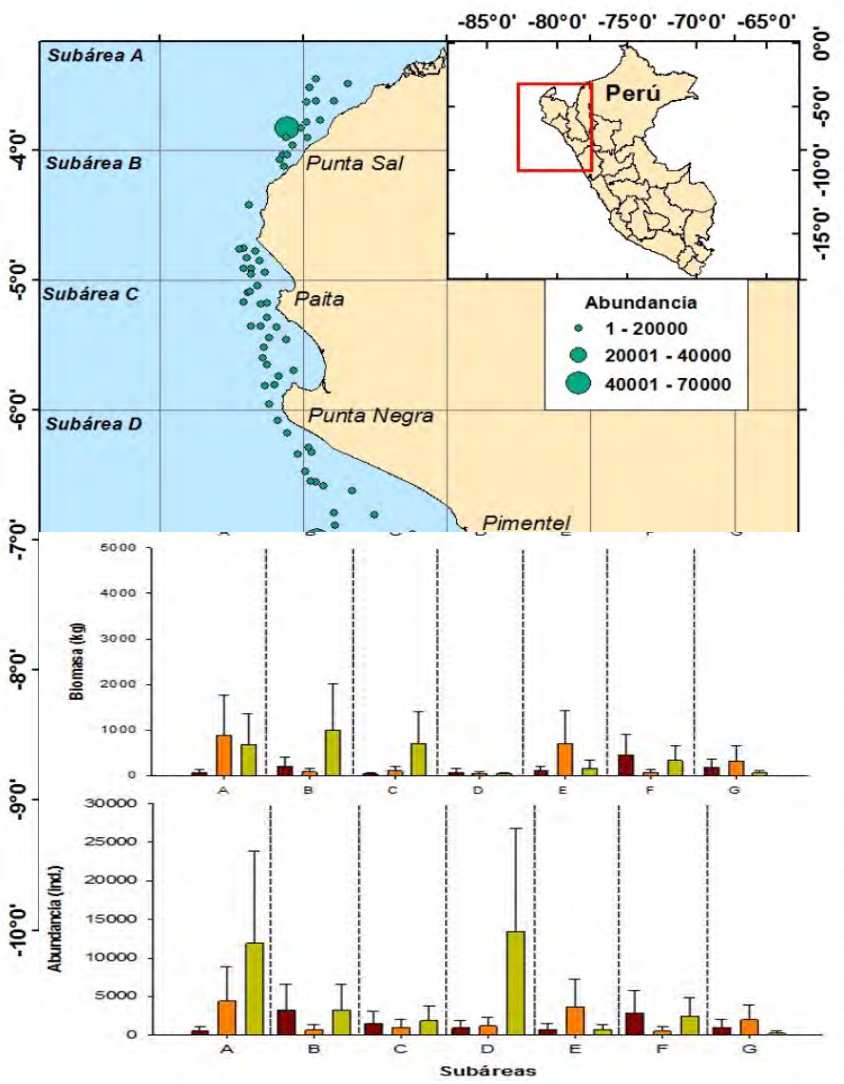
Comparison of the Richness of bentho-demersal species



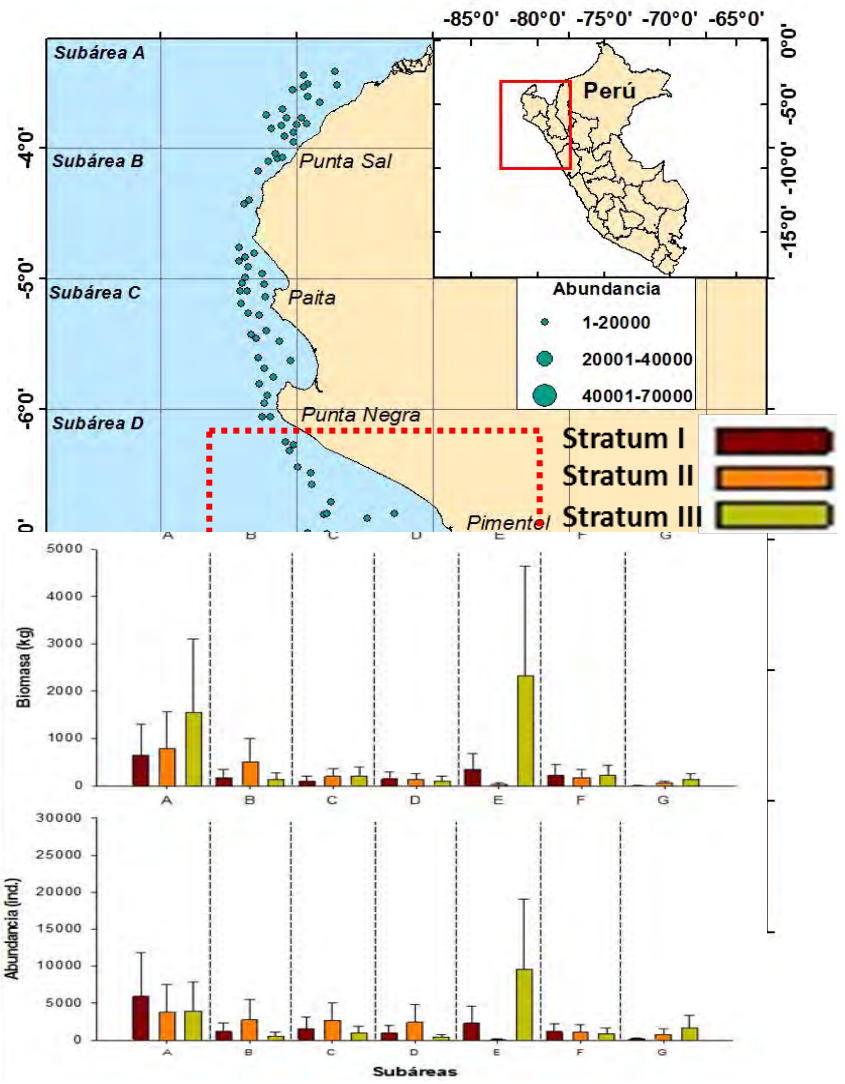
RESULTS

Comparison of Abundances of bentho-demersal species

2014

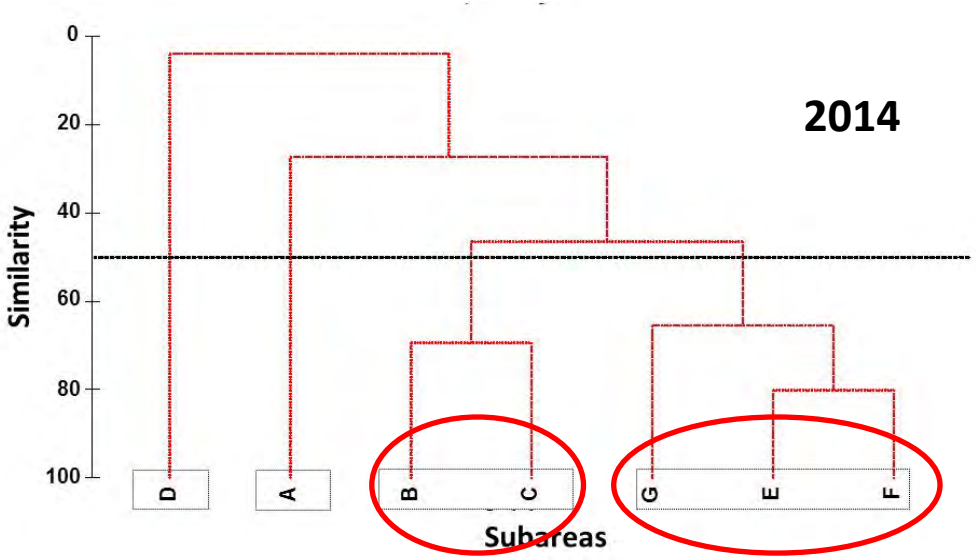


2015



RESULTS

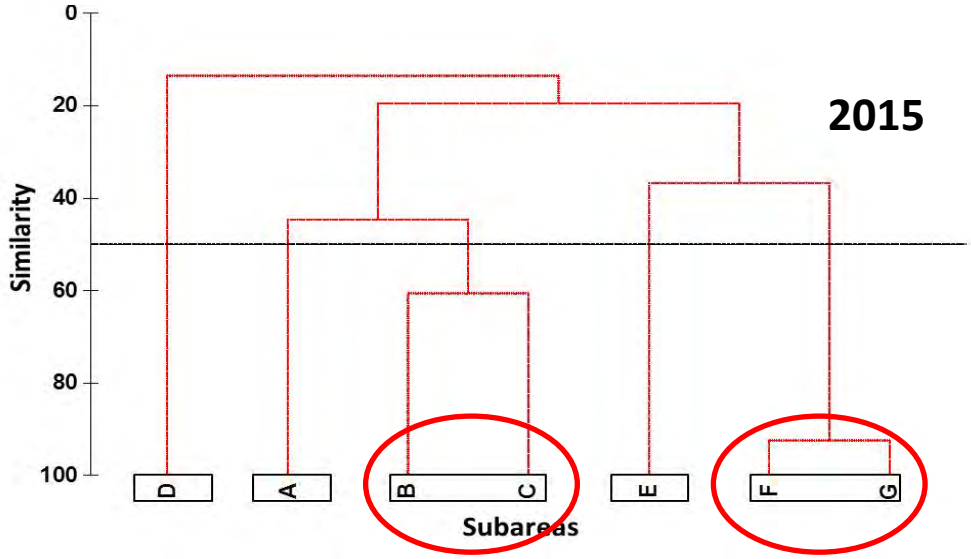
Dendrogram of grouping, obtained from the similarity profile analysis (SIMPROF)



This analysis allowed comparing the sub-areas and forming two important groups:

In 2014: (group 1) made up of sub-areas B and C, and (group 2) sub-areas E, F and G; with a percentage of similarity greater than 70%.

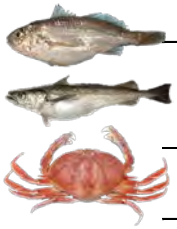
In 2015: (group 1) sub-areas B and C and (group 2) sub-areas F and G; with a percentage of similarity greater than 60%.



RESULTS

Main taxa that contribute to the similarity between the groups formed by the SIMPROF method

2014



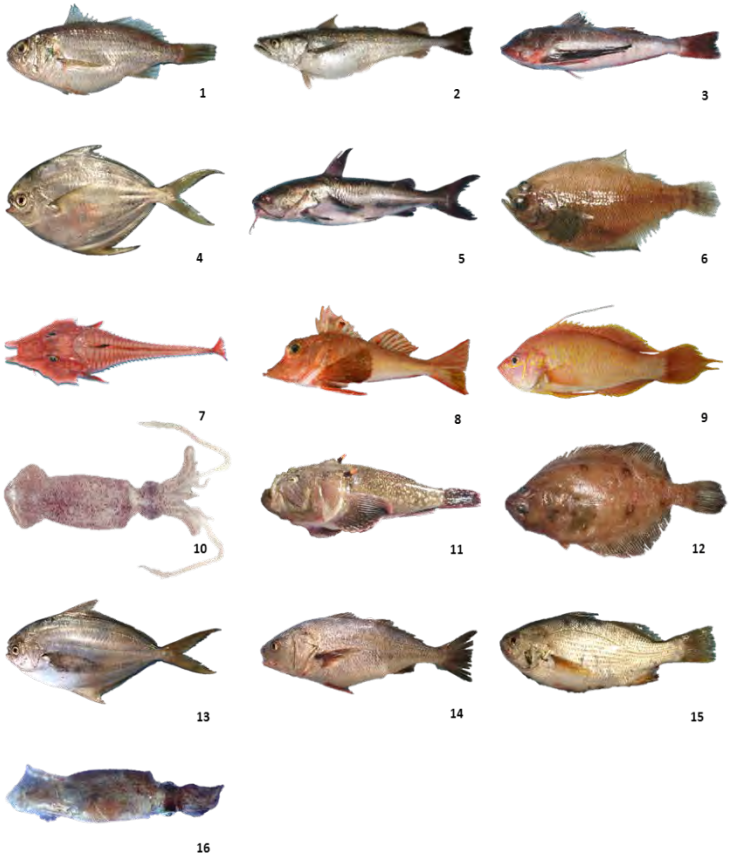
Groups	Taxons	Abundance Aver.	Similarity Aver.	Similarity SD	Contribution Parc. %	Contribution Acum. %	
1	*Ctenosciaena peruviana*	701.33	19.28	1.11	67.86	67.86	(Peruvian barbel drum)
	Merluccius gayi peruanus	713.75	5.62	0.35	19.80	87.66	(Peruvian hake)
	Platymera gaudichaudii	28.02	0.93	0.94	3.29	90.95	(armed box crab)
2	*Merluccius gayi peruanus*	1144.95	32.19	1.47	87.69	87.69	(Peruvian hake)
	Doryteuthis gahi	64.69	1.78	0.67	4.84	92.53	(Patagonian squid)

2015

Groups	Taxons	Abundance Aver.	Similarity Aver.	Similarity SD	Contribution Parc. %	Contribution Acum. %	
1	*Platymera gaudichaudii*	171.36	6.81	0.57	41.15	41.15	(armed box crab)
	Merluccius gayi peruanus	121.58	3.68	0.39	22.25	63.40	(Peruvian hake)
	Ctenosciaena peruviana	758.12	2.98	0.31	17.99	81.39	(Peruvian barbel drum)
	Hippoglossina macrops	35.55	1.00	0.43	6.03	87.42	(Bigeye flounder
	Prionotus stephanophrys	195.61	0.49	0.21	2.94	90.36	(Lumptail searobin)
2	*Merluccius gayi peruanus*	978.96	20.13	0.74	93.39	93.39	(Peruvian hake)

RESULTS

Most representative species of fishes and invertebrates recorded in the catches in the austral autumn of 2014

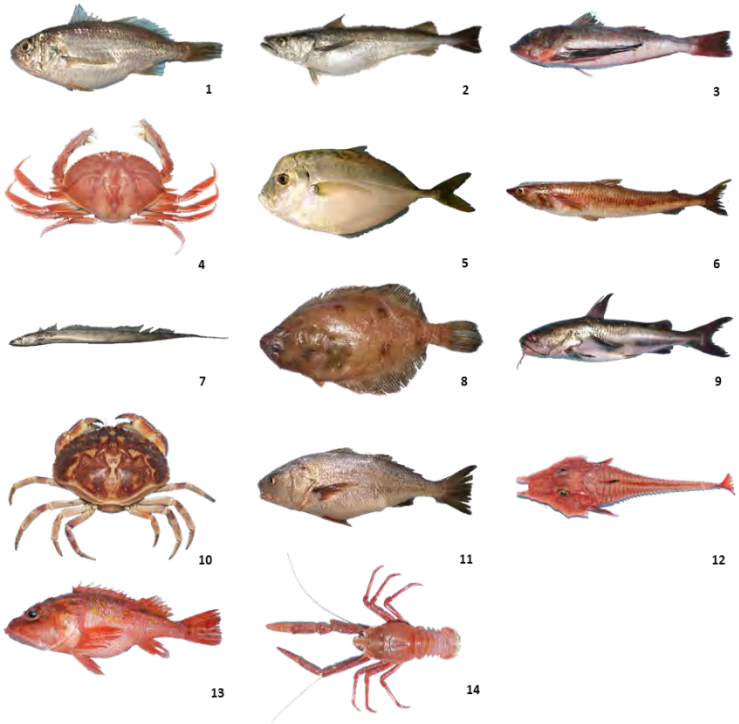


2014

1. Bereche con barbo *Ctenosciaena peruviana*; (Peruvian barbel drum)
2. Merluza *Merluccius gayi peruanus*; (Peruvian hake)
3. Falso volador *Prionotus stephanophrys* (Lumptail searobin)
4. Chiri *Peprilus medius*; (Pacific harvestfish)
5. Bagre con faja *Galeichthys peruvianus*; (Peruvian sea catfish)
6. Lenguado *Citharichthys sordidus*; (Pacific sanddab)
7. Pez cocodrilo *Peristedion barbiger*; (Flathead searobin)
8. Trigla *Bellator gymnostethus*; (Naked-belly searobin)
9. Doncella *Hemanthias peruanus*; (Splittail bass)
10. Calamar dardo *Lolliguncula diomedeae*; (Dart squid)
11. Bulldog *Kathetostoma averruncus*; (Smooth stargazer)
12. Lenguado de ojo grande *Hippoglossina macrops*; (Bigeye flounder
13. Pampanito *Peprilus snyderi*; (Salema butterfish)
14. Lorna *Sciaena deliciosa*; (Lorna drum)
15. Mojarrilla común *Stellifer minor*; (Minor stardrum)
16. Calamar patagónico *Doryteuthis gahi*; (Patagonian squid)

RESULTS

Most representative species of fishes and invertebrates recorded in the catches in the austral autumn of 2015



2015

1. Bereche con barbo *Ctenosciaena peruviana*; (Peruvian barbel drum)
2. Merluza *Merluccius gayi peruanus*; (Peruvian hake)
3. Falso volador *Prionotus stephanophrys*; (Lumptail searobin)
4. Jaiva paco *Platymera gaudichaudii*; (armed box crab)
5. Espejo *Selene peruviana*; (Peruvian moonfish)
6. Pez iguana *Synodus evermanni*; (Inotted lizardfish)
7. Pez cinta *Trichiurus lepturus*; (Largehead hairtail)
8. Lenguado de ojo grande *Hippoglossina macrops*; (Bigeye flounder)
9. Bagre con faja *Galeichthys peruvianus*; (Peruvian sea catfish)
10. Jaiva *Cancer porteri*; (Rock Crab)
11. Lorna *Sciaena deliciosa*; (Lorna drum)
12. Pez cocodrilo *Peristedion barbiger*; (Flathead searobin)
13. Diablico *Pontinus sierra*; (Speckled scorpionfish
14. Múnida *Pleuroncodes monodon*; (Carrot squart lobster)

CONCLUSIONS

-A total of 164 (2014) and 200 taxa (2015) were registered, being Sciaenidae, Serranidae and Paralichthyidae families the most diverse.

-In 2014, shallow water and deep water environments had a diverse bentho-demersal community but their distribution tended to be patchy. While in 2015, in the bathymetric gradient, the structure of the community was more diverse and presented a more uniform distribution.

-In the study area can be delimited up to five important biogeographic zones from certain associations of the bentho-demersal communities: between 3° and 4° (subarea A); between 4° and 6° (subarea B and C); between 6° and 7° (sub-area D); between 7 ° and 8 ° (subarea E) and between 8 ° and 10 ° (subarea F and G).

-The presence and concentration of the species *Platymera gaudichaudii, Merluccius gayi peruanus, Ctenosciaena peruviana, Hippoglossina macrops, Prionotus stephanophrys, Bellator gymnostethus* and *Hemanthias peruanus*, influenced significantly the structure of these communities.

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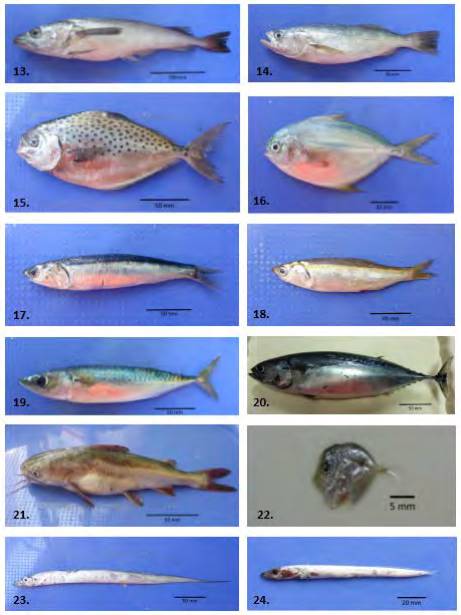

Thank you very much!

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