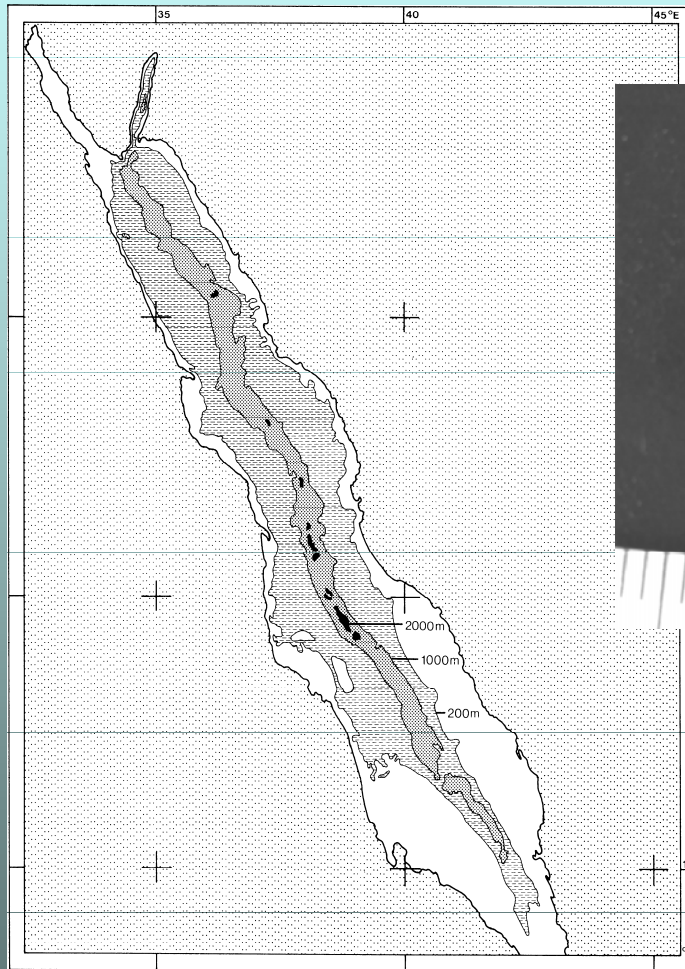


Re-appraisal of the deep-water and deep-sea fish community of the Red Sea



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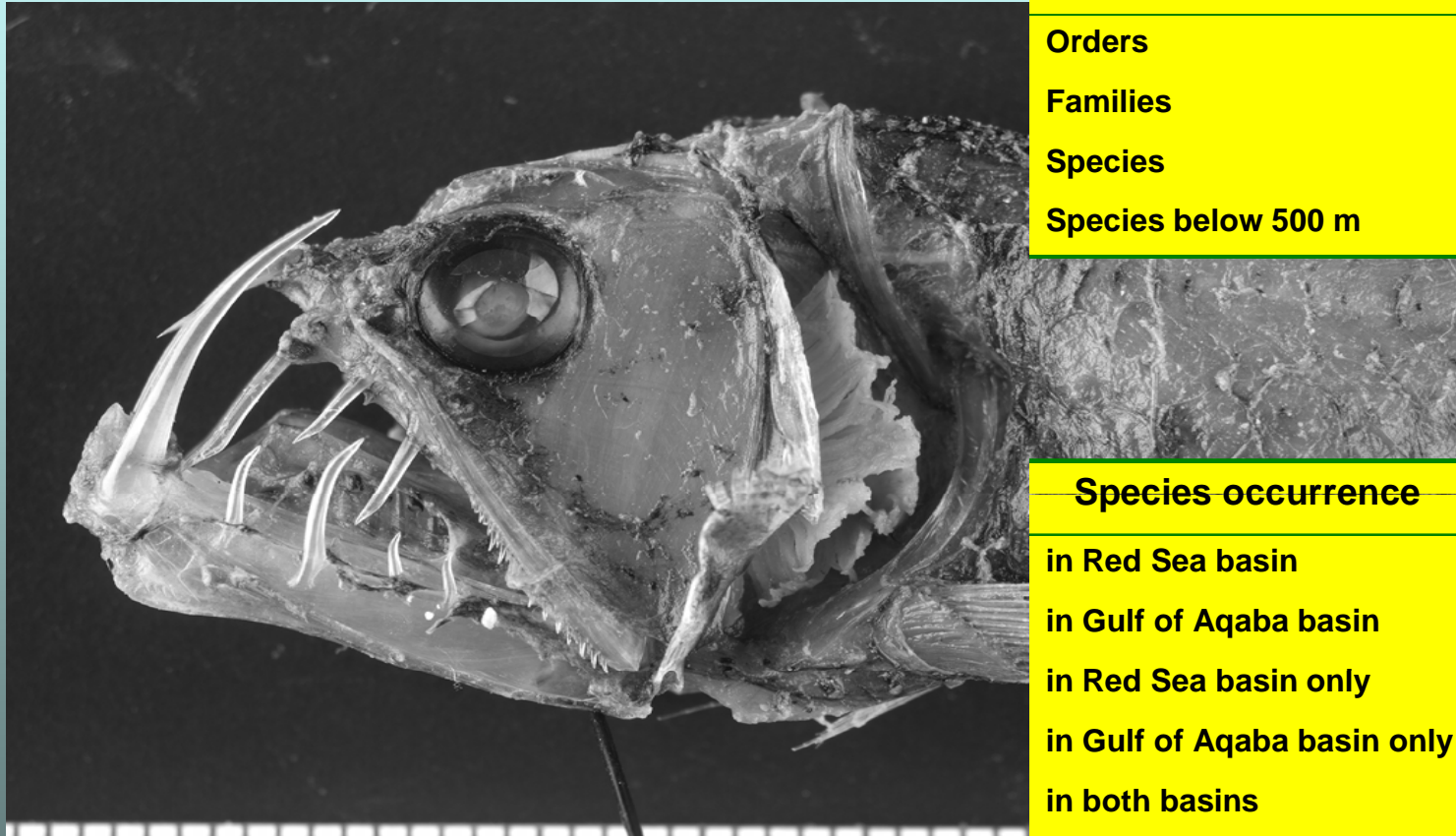
Astronesthes martensii Klunzinger, 1871



Number of taxa

Diversity

Chauliodus cf. pammelas Alcock, 1892



Ranks	
Orders	17
Families	73
Species	153
Species below 500 m	41

Species occurrence	
in Red Sea basin	90
in Gulf of Aqaba basin	111
in Red Sea basin only	56
in Gulf of Aqaba basin only	77
in both basins	34
below 500 m	41

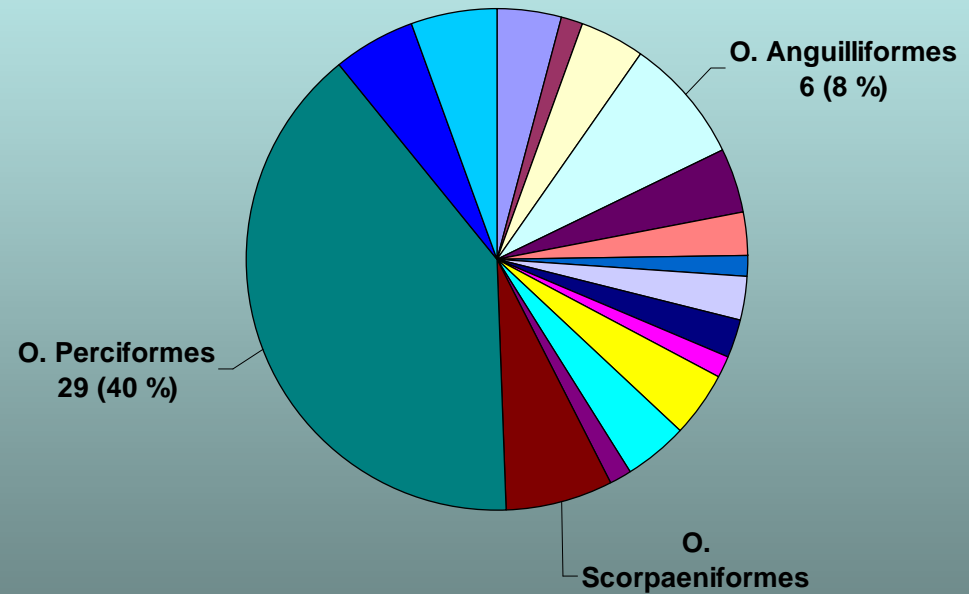


Higher taxa

Orders	Fam.s
O. Carchariniformes	3
O. Lamniformes	1
O. Rajiformes	3
O. Anguilliformes	6
O. Stomiiformes	3
O. Aulopiformes	2
O. Myctophiformes	1
O. Gadiformes	2
O. Ophidiiformes	2
O. Batrachoidiformes	1
O. Lophiiformes	3
O. Stephanoberyciformes	3
O. Syngnathiformes	1
O. Scorpaeniformes	5
O. Perciformes	29
O. Pleuronectiformes	4
O. Tetraodontiformes	4

Diversity

Relative distribution of families among the orders



Species-rich families

Diversity

Species below 150 m only

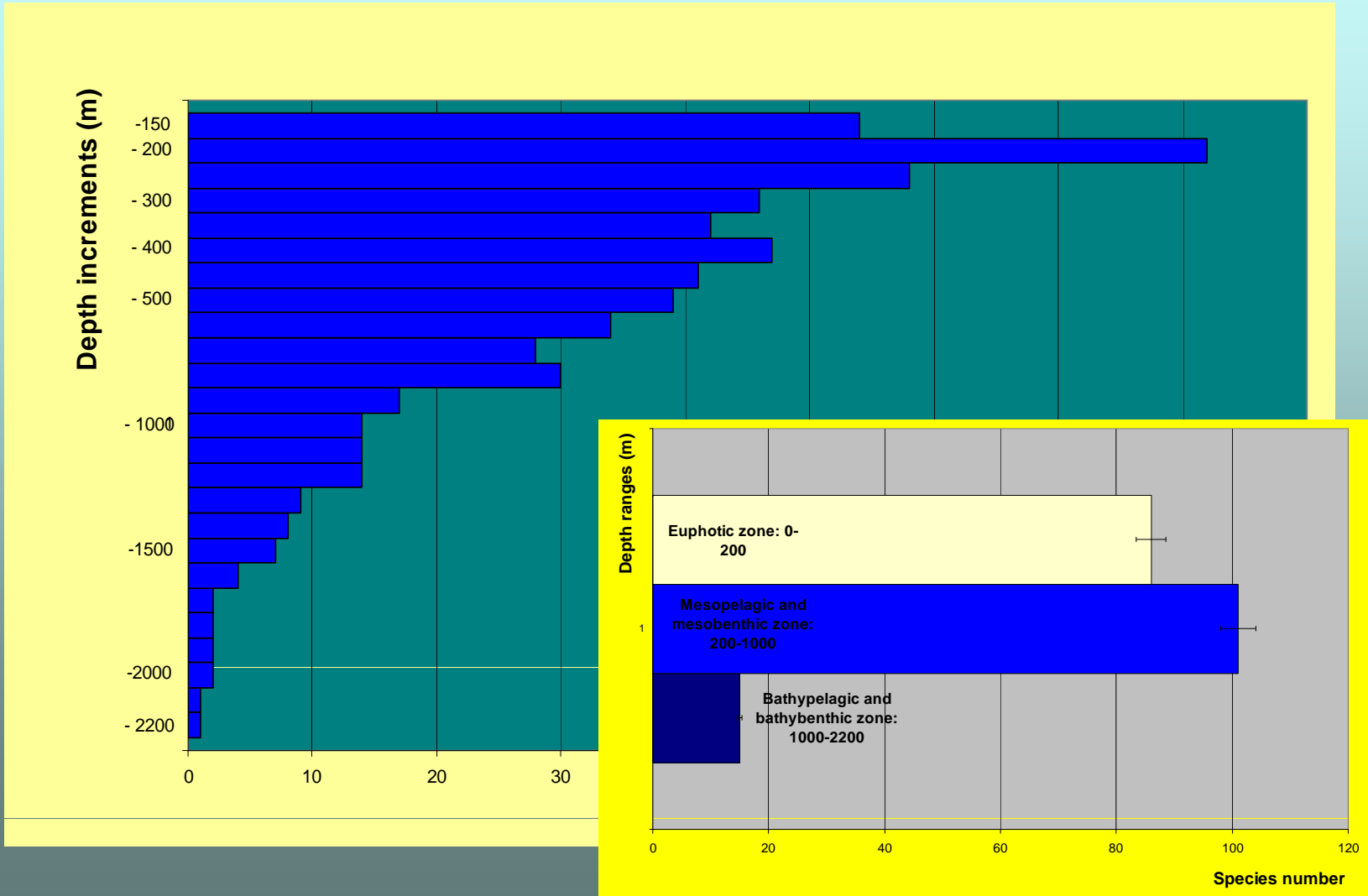
Family	Spp
Congridae	9
Serranidae	8
Nemipteridae	7
Mullidae	6
Nettastomatidae	5
Lutjanidae	5
Synodontidae	4
Holocentridae	4
Triglidae	4
Carangidae	4
Total of remaining 63 fam.	97

Family	Spp.
Congridae	7
Nettastomatidae	5
Nemipteridae	3
Triakidae	2
Synaphobranchidae	2
Ophichthidae	2
Paralepididae	2
Holocentridae	2
Acropomatidae	2
Gobiidae	2
Total of remaining 30 fam.	39



Species numbers at different depths

Depth and habit



Distribution of different life habits among depth ranges

Depth and habit

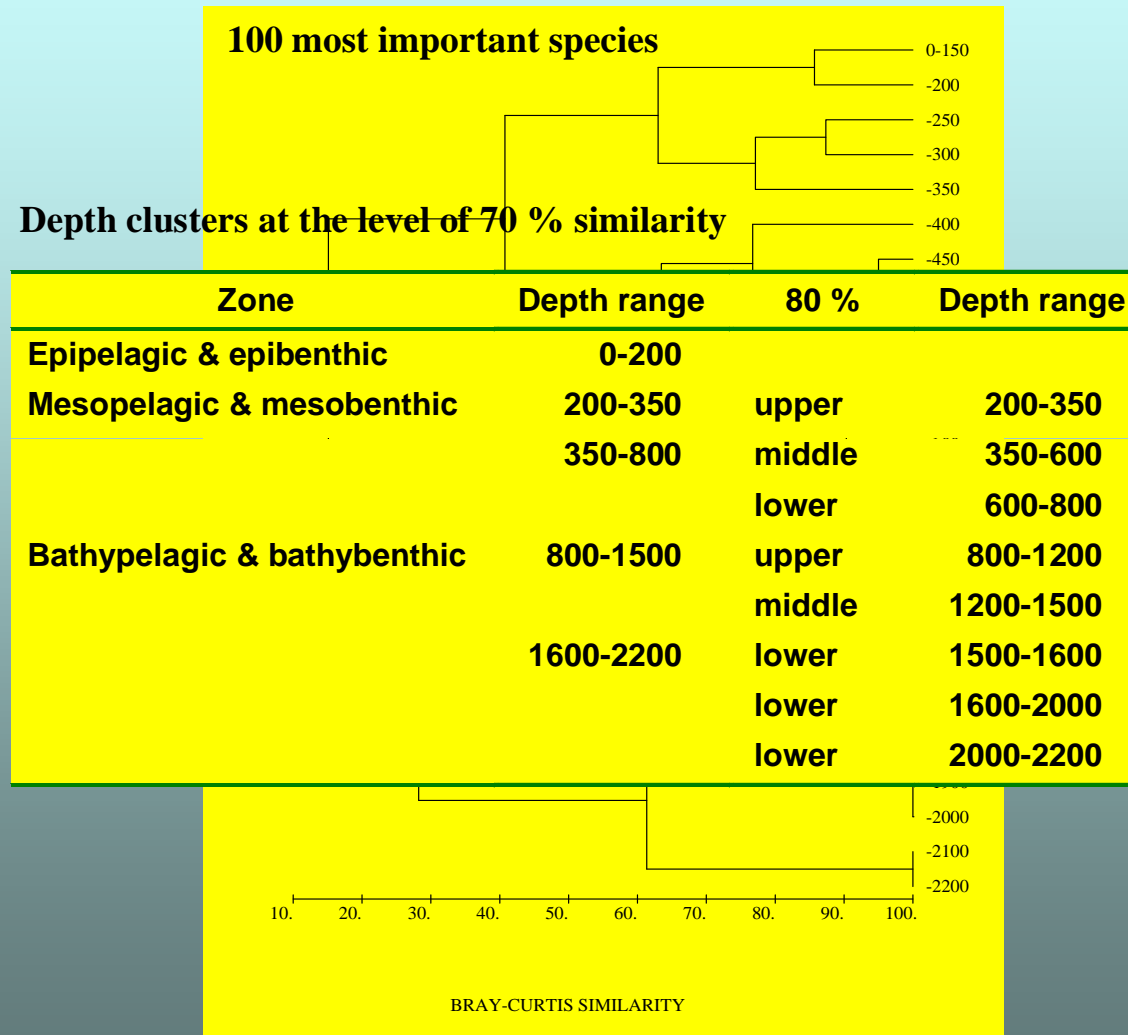
Species	Indian Ocean	Red Sea	Diff.
<i>Iago omanensis</i>	100-400	300-1650	+
<i>Muraenesox cinereus</i>	< 100	> 740	+
<i>Ariosoma mauritianum</i>	0-500	360-1135	+
<i>Uroconger erythraeus</i> *	50	1550	+
<i>Harpadon erythraeus</i>	400-500	800-1150	+
<i>Physiculus marisrubri</i> *	243	730-1479	+
<i>Neobythites stefanovi</i>	80-549	434-804	+
<i>Grammonus robustus</i>	50-549	363-1258	+
<i>Hoplostethus mediterraneus</i>	265-787	365-1258	+
<i>Bembrops adenensis</i> *	180-220 (500)	360-590	+
<i>Champsodon omanensis</i>	130-375	30-1120	+
<i>Cynoglossus acutirostris</i>	220	740-1425	+
<i>Maurolicus mülleri</i>	0-1524	40-560	-
<i>Vinciguerria mahabiss</i>		20-2170	
<i>Astronesthes martensii</i>	0-2091	20-824	-
<i>Stomias affinis</i>	-3182	40-560	-
<i>Benthoosema pterotum</i>	- 2000 ?	40-560	-
<i>Diaphus coeruleus</i>	- 550	200-560	

After Uiblein (1996), modified



Depth clusters according to species p/a: Bray-Curtis similarity, group linkage

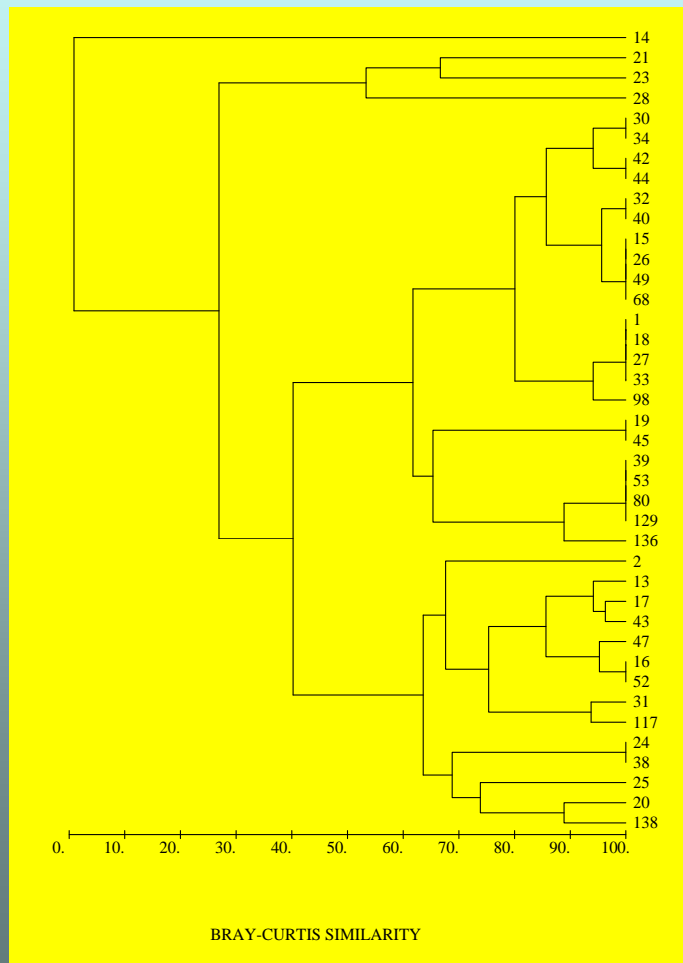
Ecological clusters



Presence/absence clusters of selected species: Bray-Curtis similarity, group linkage

Ecological clusters

40 most important species



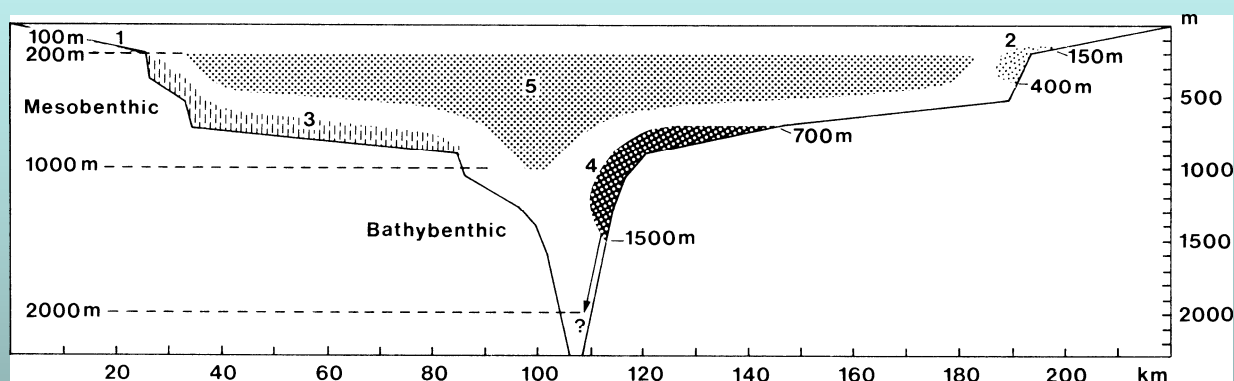
Group	Species	No.
1-4	<i>Dysomma</i> n.sp.	14
	<i>Gnathophis</i> aff. <i>mystaxus</i>	21
	<i>Saurenhelys</i> <i>meteor</i>	3
	<i>Brachysomophis</i> <i>cirrocheilos</i>	28
10-11	<i>Facciolella</i> <i>saurenheloides</i>	24
	<i>Harpadon</i> <i>erythraeus</i>	38
	<i>Facciolella</i> <i>karreri</i>	25
	<i>Bathycongrus</i> n.sp.	20
	<i>Cynoglossus</i> <i>acutorostris</i>	138



Comparison with previous work

Ecological clusters

Ecological groups, after Klauswitz (1986, 1989)



Ecological group	Depth range	Character.
Sublittoral fishes	150-200	epibenthic, deep immigrants
Upper mesobenthic fishes	150-400	demersal, deep immigrants
Archibenthic fishes	200-1000	mesobenthic, eurybaric
Bathybenthic fishes	700-1500	deep-sea adapted
Mesopelagic fishes	200-1000	migratory



Summary

Diversity:

Is higher than expected for a long time, but still depauperated.

Increasing record of shore fishes from below 150 m. The meso and bathybenthal is relatively rich.

Depth distribution:

A large number of species immigrate to substantially greater depth relative to the Indian Ocean.

Migratory-mesopelagic do probably not

Ecological Clusters:

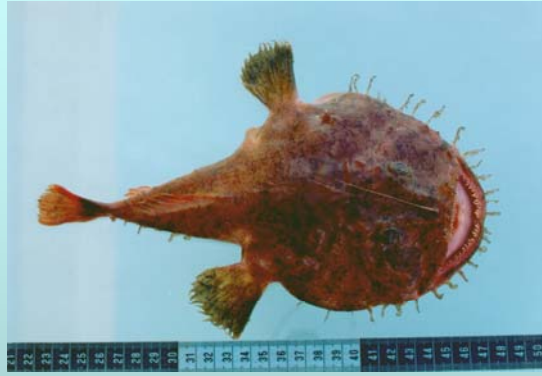
A complex depth distribution pattern exists. Present concepts can be refined based on increasing faunistic record

Gaps and outlook



Gulf of Aqaba: New records

Outlook



Deep-sea eels: Several new species and new records



Gulf of Aden: Comparing the deep-sea fish communities

