

# ***Beryx splendens*** **Species Profile**

**SEAFO**  
**South East Atlantic Fisheries Organization**



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## **UPDATE**

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## 1. Taxonomy

Phylum	Chordata
Subphylum	Vertebrata
Superclass	Osteichthyes
Class	Actinopterygii
Subclass	Neopterygii
Infraclass	Teleostei
Superorder	Acanthopterygii
Order	Beryciformes
Suborder	Berycoidei
Family	Berycidae
Genus	<i>Beryx</i> Cuvier, 1829
Species	<i>Beryx splendens</i> Lowe, 1834
Synonyms	<b>None known</b>
Common name	Alfonsiño (Sp) Alfonsino (En) Slender alfonsino (En) Splendid alfonsino (En) Alfonsim/Imperador da costa estreita (Po) Béryx long (Fr)
Species code	BYS <i>Beryx splendens</i> ALF <i>Beryx</i> spp. BRX Berycidae

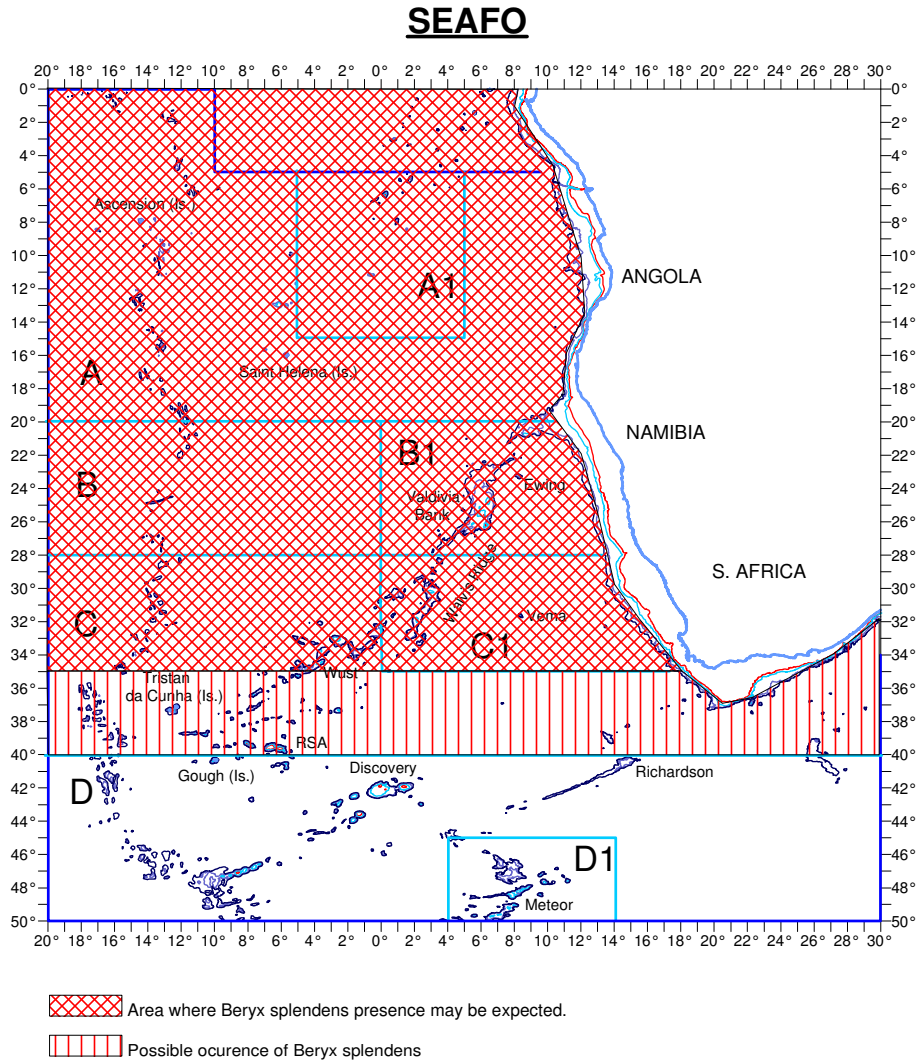
## 2. Species characteristics

### 2.1 Distribution

The Berycidae *Beryx splendens* Lowe, 1834, commonly called alfonsino, is a circumglobal benthopelagic species that inhabits the outer shelf and slope between 25 and 1300 m depth. This species could also be considered as a representative species of seamounts and underwater ridges. However, its distribution excludes the north-eastern Pacific and the Mediterranean Sea (Paxton, 1999).

The geographical distribution in the Southeast Atlantic Ocean is roughly represented in figure 1. Although its presence around Tristan da Cunha has been referenced, the southern limit of

distribution would be placed between 35°S and 40°S.



**Figure 1.-** Geographical distribution of *B. splendens* in the SEAFO region and adjacent waters.

## 2.2 Habitat

Adults inhabit the more steeply hard bottoms up to 1000 metres depth on the seamounts and underwater ridges in the open ocean, as well as the outer shelf (180 m) and the slope to at least 1,300 m depth close to the continent. Eggs, larvae and juveniles are pelagic.

Northeast Walvis Ridge  
Valdivia Bank  
Filippov seamount  
Vema seamount  
Wust seamount

2.3 *Biological characteristics*

Sort description extracted from Fischer *et al.* (1981):

**Distinctive characters:** Body moderately deep, compressed, its greatest depth contained 2.5 to 2.8 times in standard length and only insignificantly greater than length of head. Head with large, skin-covered cavities on interorbital space of forehead and above upper margins of eyes, containing white, transparent, slimy liquid; cheeks covered with scales; upper profile slightly concave at forehead; mouth large, oblique; posterior end of maxilla wide, reaching to slightly behind a vertical line through middle of eye; bands of villiform teeth in both jaws; lower margin of gill covers finely serrated; gill rakers fairly long, total on first gill arch 25 to 28. Dorsal fin with 4 close-set spines and 13 to 15 soft rays; anal fin with 3 or 4 close-set spines and 25 to 29 soft rays; its origin at about (just before to behind) a vertical line through end of dorsal fin base. Scales ctenoid, with a small, elevated, pad-like disc under free part. Lateral-line scales about 65 to 67 (to end of standard length); 9 rows of scales in an oblique line between base of first dorsal fin spine and lateral line; 19 rows between base of first anal fin spine and lateral line. Pyloric caeca about 30.

**Distinguishing characters of similar species occurring in the area:** *Beryx decadactylus*: body distinctly deeper, its depth contained from 2.0 to 2.25 times in standard length and greatly superior to length of head (from slightly less than 2.5 to 2.8 times in standard length and slightly greater than head length in *B. splendens*); anal fin origin below middle of base of dorsal fin; dorsal fin with 16 to 18 soft rays (13 to 15 in *B. splendens*); gill rakers (total) 23 or 24 (25 to 28 in *B. splendens*); pyloric caeca about 100 (about 30 in *B. splendens*).

**Colour:** upper parts of head and body as well as basal parts of fins bright orange red; sides of body pink on a silvery background. Iris uniform blood red.

The growth parameters from different geographical regions are summarized in table 1: the Atlantic Ocean (De León and Malkov 1979; Isarev 1991; Isidro 1996; Krug *et al.* 1998; Anibal *et al.* 1998; and Rico *et al.* 2001; López Abellán *et al.*, 2007), the Pacific Ocean (Ikenouye and Masuzawa 1968; Ikenouye 1969; Masuzawa *et al.* 1975; Shibata 1983; Massey and Horn 1990; Lehodey and Grandperrin 1996a; and Adachi *et al.* 2000), and the Indian Ocean (Kotlyar 1987; Santamaría *et al.*, 2006).

Table 1. Growth parameters of *B. splendens* from different geographical regions. Table modified from López-Abellán *et al.* (2007).

	Area	Sex	k	L <sub>∞</sub>	t <sub>0</sub>	Reference
Atlantic Ocean	New Year Rise	Both sexes	0.209	44.8	-0.89	De León & Malkov (1979)
	Angular Rise	Both sexes	0.170	48.5	-2.63	De León & Malkov (1979)
	Vavilov Ridge	Both sexes	0.112	48.6	-2.63	Isarev (1991)
	Azores	Both sexes	0.083	56.7	-3.51	Isidro (1996)
	Azores	Both sexes	0.111	50.0	-2.81	Isidro (1996) *
	Azores	Both sexes	0.114	50.8	-3.58	Krug <i>et al.</i> (1998)
	Azores	Males	0.085	53.7	-4.02	Anibal <i>et al.</i> (1998)
	Azores	Females	0.133	45.3	-2.74	Anibal <i>et al.</i> (1998)
	Azores	Both sexes	0.120	46.1	-3.18	Anibal <i>et al.</i> (1998)
	Azores	Both sexes	0.170	43.1	-2.80	Rico <i>et al.</i> (2001)
	Madeira	Both sexes	0.060	58.7	-5.71	Rico <i>et al.</i> (2001)
	Canary Islands	Both sexes	0.150	44.5	-3.41	Rico <i>et al.</i> (2001)
	Gulf of Guinea (3°S – 7°S SEAFO Sub-Div. A1)	Males	0,142	42,1	-1,98	López Abellán <i>et al.</i> (2007)
	Gulf of Guinea (3°S – 7°S SEAFO Sub-Div. A1)	Females	0,077	52,6	-3,82	López Abellán <i>et al.</i> (2007)

	Gulf of Guinea (3°S – 7°S SEAFO Sub-Div. A1)	Both sexes	0,097	48,0	-3,09	López Abellán <i>et al.</i> (2007)
Pacific Ocean	Japan (Sagami Bay)	Both sexes	0.505	33.7	-	Ikenouye & Masuzawa (1968)
	Japan (Sagami Bay)	Both sexes	0.457	34.8	-	Ikenouye & Masuzawa (1968)
	Japan (Sagami Bay)	Both sexes	0.439	37.8	0.40	Ikenouye (1969)
	Japan (Sagami Bay)	Both sexes	0.323	45.8	-0.22	Masuzawa <i>et al.</i> (1975)
	Japan (Zunan Sea)	Both sexes	0.181	54.4	-0.08	Masuzawa <i>et al.</i> (1975)
	Japan (Chiba)	Both sexes	0.137	65.6	-1.05	Shibata (1983)
	Japan (Izu Islands)	Males	0.132	44.4	-3.45	Adachi <i>et al.</i> (2000)
	Japan (Izu Islands)	Females	0.150	45.0	-2.08	Adachi <i>et al.</i> (2000)
	New Zealand (Palliser Bank)	Males	0.110	51.1	-3.56	Massey & Horn (1990)
	New Zealand (Palliser Bank)	Males	0.116	49.6	-3.67	Massey & Horn (1990) *
	New Zealand (Palliser Bank)	Females	0.088	57.5	-4.10	Massey & Horn (1990)
	New Zealand (Palliser Bank)	Females	0.087	57.9	-4.17	Massey & Horn (1990) *
	New Zealand (Tuaheni High)	Males	0.093	54.9	-4.30	Massey & Horn (1990)
	New Zealand (Tuaheni High)	Females	0.042	76.3	-8.25	Massey & Horn (1990)
	New Zealand (Paoanui Ridge)	Males	0.144	49.1	-1.81	Massey & Horn (1990)
	New Caledonia (Norfolk-Loyalty)	Males	0.146	45.2	-2.34	Lehodey & Grandperrin (1996)
	New Caledonia (Norfolk-Loyalty)	Females	0.134	50.8	-2.00	Lehodey & Grandperrin (1996)
	New Caledonia (Norfolk-Loyalty)	Both sexes	0.119	51.3	-2.51	Lehodey & Grandperrin (1996)
Indian Ocean	South-West Indian Ocean (Walters Shoals & Sapmer Seamount)	Males	0.099	49.1	-4.11	Santamaría <i>et al.</i> (2006)
	South-West Indian Ocean (Walters Shoals & Sapmer Seamount)	Females	0.081	57.1	-4.16	Santamaría <i>et al.</i> (2006)
	South-West Indian Ocean (Walters Shoals & Sapmer Seamount)	Both sexes	0.085	53.5	-4.33	Santamaría <i>et al.</i> (2006)

(\*) Back-calculation

Estimates on length-weight relationship from specimens caught in the Gulf of Guinea and northern SEAFO CA seamounts are provided in table 2:

**Table 2.** Parameters of the total length (cm) - total weight (g) relationship ( $TW=aTL^b$ ) for males, females and all individuals of *Beryx splendens* from northern SEAFO CA (modified from López-Abellán *et al.*, 2007)

	a	b	n	R <sup>2</sup>	FL range (cm)
Males	0.0187	3.0716	2292	0.98	14.1-42.3
Females	0.0230	3.0040	1730	0.99	14.9-46.4
All individuals	0.0209	3.0353	4036	0.98	14.1-46.4

Other Life history data for specimens caught in the Gulf of Guinea and northern SEAFO CA seamounts (Sub-Division A1) (López-Abellán *et al.*, 2007): Maximum size (46.4 cm FL; female); Maximum age (20 years; female);

Spawning season in New Caledonia seamounts covers from November to February and spawning occurs about 10 to 12 times during the breeding season. Fecundity ranged between 270 000 and 675 000 eggs for fish between 34 and 40 cm in fork length (Lehodey *et al.*, 1997).

This species mainly feeds on small fishes, crustaceans and cephalopods. Variation in the diet of

*B. splendens* is related to its length, seasonal variations which depend of the prey abundance, and variations in the depth distribution of predator and prey (Dürr and González, 2003).

#### 2.4 Population structure

- General description of size structure, sex-ratio ....
- Identification of potential spatial structure changes.

Not available.

#### 2.5 Behavior and associated species

Juveniles of this species are pelagic and later they aggregate in the continental and seamount slopes but mainly associated with underwater cliffs

*Beryx splendens* is a predator trophic level 4.38 (s.e. 0.76) (Froese and Pauly, 2012 – FishBase). This species feeds on midwater micronekton and actively tracks the movements of the main 'deep scattering layer' (Porteiro and Sutton, 2007) and it is a prey of big sharks.

Associated species:

*Pseudopentaceros richardsoni*

*Beryx decadactylus*

*Epigonus telescopus*

*Helicolenus mouchezi*

*Hyperoglyphe antarctica*

*Schedophilus velaini*

*Mora moro*

*Polyprion americanus*

#### 2.6 Resilience / productivity

##### **Low**

( $k=0.10-0.18$ ;  $t_m=5-7.5$ ;  $t_{max}=23$ ; Fecundity = 270,000)

(Froese and Pauly, 2012 – FishBase)

#### 2.7 Intrinsic vulnerability

**High vulnerability** (57 of 100)

(Froese and Pauly, 2012 – FishBase, based in Cheung *et al*, 2005; Cheung *et al*, 2007)

### 3. Other remarks

Not available.

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