SUPPORTING INFORMATION

Table S1: Species that contributed the most to retrospective abundance estimates, in each sector of the Mediterranean Sea. Similarities were measured with the Bray-Curtis index

Sub-sector	Species	Average similarity	Average abundance	Sim/ SD	Contribution (%)	Cumulative (%)
Levantine (average similarity = 44.79)	*Lagocephalus sceleratus*	0.84	39.74	1.19	88.70	88.70
	Fistularia commersoni	0.32	4.32	0.32	9.64	98.34
Adriatic (average similarity = 34.31)	*Pomatomus saltatrix*	0.74	30.75	0.88	89.60	89.60
	Caranx crysos	0.16	1.02	0.14	2.97	92.56
Tyrrhenian (average similarity = 13.72)	*Pomatomus saltatrix*	0.41	6.83	0.39	49.79	49.79
	Sphyraena viridensis	0.26	2.27	0.24	16.57	66.36
	Caranx crysos	0.16	0.88	0.14	6.40	72.75
	Stephanolepis diaspros	0.13	0.76	0.12	5.52	78.28
	Sparisoma cretense	0.14	0.70	0.13	5.13	83.40
	Pomadasys incisus	0.11	0.48	0.09	3.49	86.89
	Sardinella aurita	0.09	0.30	0.08	2.20	89.09
	Lichia amia	0.09	0.27	0.08	1.98	91.06
Algero-Provencal (average similarity = 35.11)	*Sphyraena viridensis*	0.79	21.19	0.99	60.34	60.34
	Balistes capriscus	0.42	5.19	0.41	14.78	75.12
	Epinephelus marginatus	0.47	4.83	0.50	13.75	88.87
	Pomatomus saltatrix	0.32	2.57	0.30	7.33	96.20
North Aegean (average similarity = 14.70)	*Sparisoma cretense*	0.32	5.70	0.31	38.78	38.78
	Coryphaena hippurus	0.24	2.90	0.22	19.73	58.50
	Sardina pilchardus	0.20	2.89	0.18	19.65	78.16
	Sardinella aurita	0.20	1.99	0.18	13.53	91.69
Ionian (average similarity = 26.57)	*Balistes capriscus*	0.58	13.33	0.67	50.19	50.19
	Thunnus thynnus	0.33	4.75	0.31	17.87	68.06
	Lagocephalus lagocephalus	0.33	3.69	0.31	13.88	81.94
	Sparisoma cretense	0.33	3.69	0.31	13.88	95.82
Strait of Sicily (average similarity = 32.41)	*Sphyraena viridensis*	0.71	13.83	0.89	42.67	42.67
	Caranx crysos	0.57	7.30	0.61	22.53	65.20
	Sparisoma cretense	0.43	3.97	0.39	12.24	77.44
	Diplodus sargus	0.29	1.90	0.22	5.88	83.32
	Diplodus vulgaris	0.29	1.90	0.22	5.88	89.19
	Siganus luridus	0.29	1.36	0.22	4.20	93.39

Table S2. Table showing whether each species was perceived as increasing or not, in each Mediterranean subregion: Adr = Adriatic; Aeg = north Aegean; AlP = Algero Provencal; Ion = Ionian; Lev = Levantine; StT = Strait of Sicily and Tunisa; Tyr = Tyrrhenian. Values equal to '1' indicated that at least one respondent mentioned the species as increasing

Species Group	Species	Mediterranean sub-regions						
		Adr	Aeg	AlP	Ion	Lev	StT	Tyr
NES	*Balistes capriscus*	1	1	1	1	1	1	1
	Caranx crysos	1	1	1	1	1	1	1
	Coryphaena hippurus	1	1	1	1	1	1	1
	Epinephelus aeneus	1	0	0	0	0	0	0
	Epinephelus costae	1	0	0	0	1	0	0
	Epinephelus marginatus	0	0	1	0	1	1	1
	Lichia amia	1	1	1	1	1	1	1
	Lobotes surinamensis	0	0	0	0	0	0	1
	Mycteroperca rubra	0	0	0	0	1	0	0
	Pomadasys incisus	1	1	1	1	1	1	1
	Pomatomus saltatrix	1	1	1	1	1	1	1
	Sardinella aurita	1	1	1	1	1	1	1
	Scomber colias	1	0	0	0	0	0	1
	Seriola dumerili	1	0	1	0	0	0	1
	Sparisoma cretense	1	1	1	1	1	1	1
	Sphoeroides pachygaster	1	0	0	0	0	0	0
	Sphyraena viridensis	1	1	1	1	1	1	1
	Talassoma pavo	0	0	1	0	1	0	0
	Trachinotus ovatus	1	0	0	0	0	1	1
NIS	*Fistularia commersonii*	1	1	1	1	1	1	1
	Hemiramphus far	0	0	0	0	0	0	1
	Lagocephalus lagocephalus	0	0	0	1	0	0	0
	Nemipterus randalii	0	0	0	0	1	0	0
	Plotosus lineatus	0	0	0	0	1	0	0
	Pterois miles	0	0	0	0	1	0	0
	Sargocentron rubrum	0	0	0	0	1	0	0
	Saurida lessepsianus	1	1	1	1	1	1	1
	Scomberomorus commerson	0	0	0	0	1	0	0
	Siganus luridus	0	0	0	0	0	1	1
	Siganus rivulatus	0	0	0	0	1	0	1
	Stephanolepis diaspros	1	1	1	1	1	1	1
OIS	*Aulopus filamentosus*	0	0	0	0	0	0	1
	Boops boops	0	0	0	0	0	0	0
	Chelidonichthys lucerna	1	0	0	0	0	0	0
	Chromis chromis	1	0	0	1	0	0	0
	Coris julis	0	0	0	0	0	0	1
	Dactylopterus volitans	0	0	1	0	0	0	0
	Dentex dentex	0	0	1	0	0	0	0
	Dentex gibbosus	0	0	0	0	0	0	0
	Dicentrarchus labrax	1	0	0	0	1	0	1
	Diplodus sargus	0	0	0	0	0	1	1
	Diplodus vulgaris	0	0	0	0	0	1	0

	Species							
	Gymnothorax unicolor	0	0	1	0	0	0	0
	Labrus viridis	0	0	1	0	0	0	0
	Lagocephalus sceleratus	1	1	1	1	1	1	1
	Lampris guttatus	0	0	0	1	0	0	0
OIS	*Macroramphosus scolopax*	0	0	0	1	0	0	0
	Merlangius merlangus	0	1	0	0	1	0	0
	Muraena helena	1	0	0	0	0	0	0
	Oblada melanura	0	1	0	0	0	0	0
	Pagellus erythrinus	0	0	0	0	0	0	1
	Pagrus pagrus	1	0	0	0	0	0	0
	Regalecus glesne	0	0	0	1	0	0	0
	Sarda sarda	0	0	0	0	0	0	1
	Sardina pilchardus	0	1	0	0	0	0	0
	Sarpa salpa	1	0	0	0	0	0	1
	Sciaena umbra	0	0	1	0	0	0	0
	Scomber scombrus	0	1	0	0	0	0	1
	Serranus cabrilla	0	0	0	0	0	0	1
	Serranus scriba	0	0	0	0	0	0	1
	Sparus aurata	1	1	1	1	1	1	1
	Spicara maena	0	0	0	0	0	0	1
	Spondyliosoma chantarus	0	0	0	0	0	0	0
	Sprattus sprattus	0	0	0	0	0	0	1
	Synodus saurus	1	1	1	1	1	1	1
	Tetrapturus belone	0	0	1	0	0	0	0
	Thunnus thynnus	1	0	1	1	0	0	1
	Trachurus mediterraneus	1	0	0	0	0	0	1
	Trachurus trachurus	0	0	0	0	0	0	1
	Tylosurus acus imperialis	1	0	0	0	0	0	0
	Umbrina cirrosa	1	0	0	0	1	0	1
	Xiphias gladius	0	0	0	0	1	0	0
	Xyrichthys novacula	1	0	0	0	0	0	1
	Zu cristatus	0	0	1	0	0	0	0

Table S3 – Modelling results on the total amount of increasing species respect to latitude and longitude. Increasing species were classified in three different groups, according to their origin and spatial trend. We distinguished non-indigenous species (NIS), other-indigenous species (OIS), and native North expanding species (NES). Each model is represented together with the R squared adjusted values (R^2 Adj), the amount (%) of deviance explained (Dev), the Un-Biased Risk Estimator (UMBRE), the effective degrees of freedom (edf), the χ^2 statistic values and the corresponding p values for the smoothing term (p).

model	R^2 Adj.	Dev.	UMBRE	Smooth terms	edf	χ^2	p
Species ~ s(Lat, k=6) + s(Long, k=6)	0.54	33.5%	0.267	Lat-NIS	1.00	18.18	< 0.001
				Lat-OIS	1.00	0.17	0.667
				Lat-NES	1.67	11.20	< 0.001
				Long-NIS	1.00	1.46	0.227
				Long-OIS	1.00	16.06	< 0.001
				Long-NES	2.82	18.32	< 0.001

Figure S1. Distribution of the 886 observations across 75 species increasing species. These included 13 NIS, 46 OIS and 20 NES
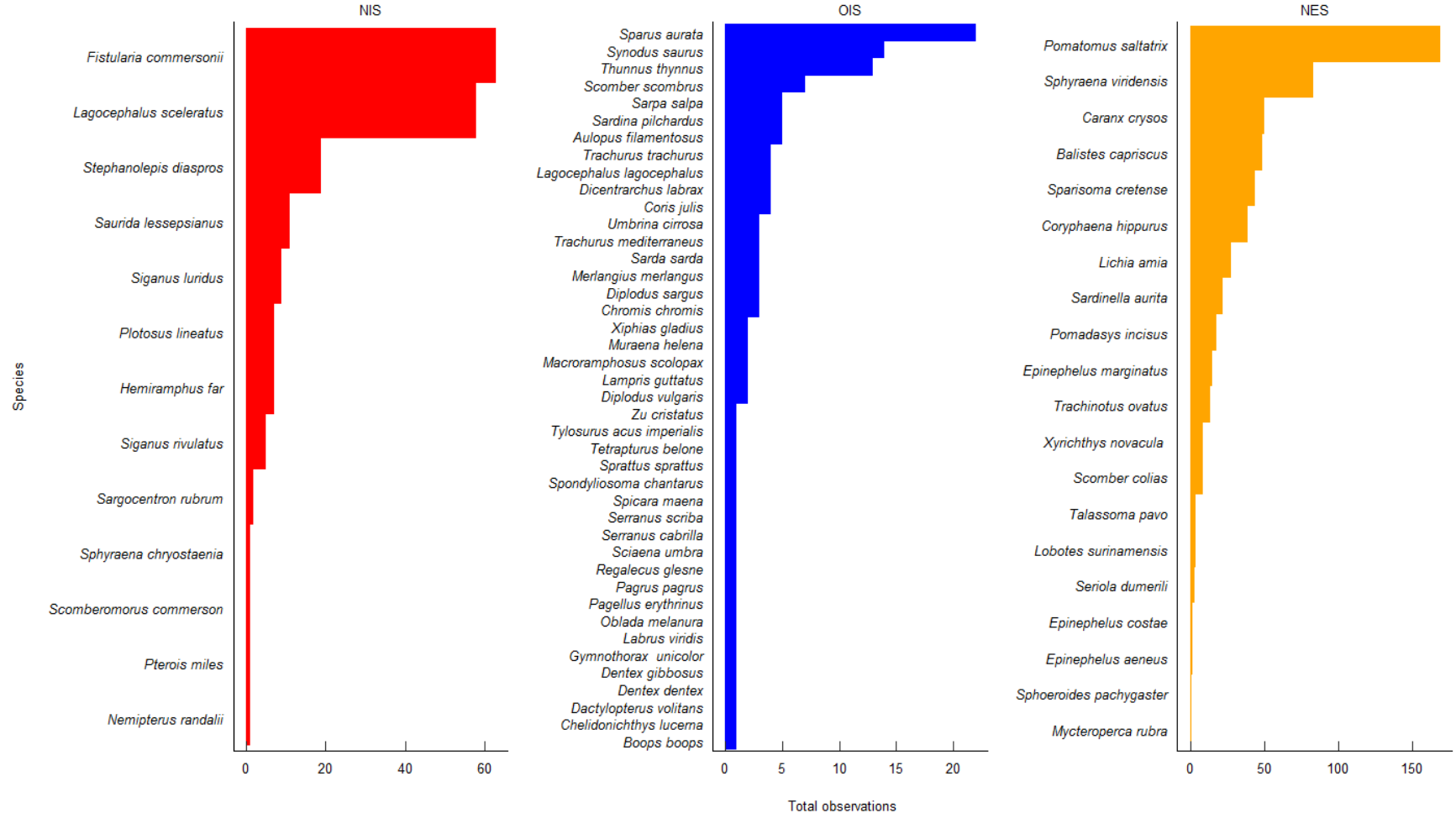
Figure S2. A complete reconstruction of historical abundances according to fisher's knowledge for four species (*Fistularia commersonii, Lagocephalus sceleratus, Pomatomus saltatrix* and *Sphyraena viridensis*) in the seven Mediterranean subsectors.