The following supplement accompanies the article

Hindcasting the dynamics of an Eastern Mediterranean marine ecosystem under the impacts of multiple stressors

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Table S1. Input (in bold) and output parameters of the Israeli Mediterranean continental shelf Ecopath model for 1990-1994 time period. B = final biomass ($t \cdot km^{-2}$); P/B = production/biomass ($year^{-1}$); Q/B = consumption/biomass ($year^{-1}$); EE = ecotrophic efficiency; P/Q = production/consumption ratio; catch ($t \cdot km^{-2} \cdot year^{-1}$), TL = Trophic level; BA = Biomass accumulation rate ($year^{-1}$).

	Functional group	B	P/B	Q/B	EE	P/Q	Catch	BA	TL
1	Phytoplankton	**2.78**	**88.42**	-	0.22	-	-	-	1.00
2	Benthic primary producers	0.08	**5.50**	-	**0.50**	-	-	-	1.00
3	Micro and Mesozooplankton	1.05	**22.82**	69.15	**0.95**	**0.33**	-	-	2.05
4	Macrozooplankton	0.13	17.15	**57.17**	**0.95**	**0.30**	-	**-0.005**	2.75
5	Gelatinous plankton	0.06	**15.56**	**56.65**	**0.30**	0.27	-	**-0.003**	2.89
6	Polychaetes	0.55	**5.28**	**22.80**	**0.80**	0.23	-	**-0.179**	2.02
7	Suprabenthos	0.21	**11.84**	**57.12**	**0.80**	0.21	-	**-0.199**	2.16
8	Native Shrimps	0.12	**3.10**	**9.76**	**0.95**	0.32	**0.05**	**-0.019**	2.96
9	Alien Shrimps	0.06	**3.10**	**10.12**	**0.95**	0.31	**0.03**	**-0.016**	2.95
10	Native Crabs	0.04	**2.80**	**9.25**	**0.95**	0.30	**0.00**	**-0.007**	2.88
11	Alien Crabs	0.02	**2.80**	**9.55**	**0.95**	0.29	**0.01**	**-0.004**	2.88
12	Benthic invertebrates	1.10	3.27	**10.90**	**0.80**	**0.30**	-	**-0.208**	2.15
13	Benthic cephalopods	0.04	**1.90**	**6.80**	**0.95**	0.28	**0.01**	**-0.007**	3.29
14	Benthopelagic cephalopods	0.06	**2.50**	**26.47**	**0.95**	0.09	**0.01**	**-0.005**	3.56
15	Mullets	**0.05**	**1.86**	**8.32**	0.97	0.22	**0.05**	**-0.001**	3.07
16	Goatfishes	**0.03**	**1.88**	**8.55**	0.99	0.22	**0.03**	**-0.001**	3.07
17	Hake	**0.05**	**0.89**	**5.80**	1.00	0.15	**0.02**	-	4.05
18	Flatfishes	**0.02**	**1.52**	**8.23**	0.98	0.18	**0.01**	**-0.001**	3.28
19	Rocky fishes	**0.06**	**1.73**	**7.18**	0.95	0.24	**0.02**	**-0.009**	3.01
20	Small Native dem. fish	**0.24**	**1.49**	**6.62**	0.96	0.23	**0.16**	**-0.014**	3.24
21	Large Native dem. fish	**0.11**	**1.10**	**6.08**	0.92	0.18	**0.08**	-	3.71
22	Alien herbivorous	0.01	**1.72**	6.90	**0.95**	**0.25**	**0.00**	**-0.001**	2.00
23	Earlier alien dem. fish	**0.03**	**1.58**	**6.79**	0.98	0.23	**0.02**	**-0.004**	3.23
24	New alien dem. fish	**0.11**	**1.49**	**6.67**	0.98	0.22	**0.07**	**-0.005**	3.25
25	Alien lizardfish	**0.07**	**1.18**	**7.01**	0.95	0.17	**0.05**	**-0.001**	3.79
26	Demersal fishes (upper slope)	**0.01**	1.01	**5.92**	0.99	**0.17**	**0.00**	-	3.70
27	Benthopelagic fishes	0.13	2.03	**10.14**	**0.95**	**0.20**	**0.03**	**-0.033**	3.14
28	Mesopelagic fishes	0.04	1.74	**8.70**	**0.95**	**0.20**	-	-	3.27
29	Demersal sharks	**0.02**	**0.70**	4.67	0.64	**0.15**	**0.01**	-	4.05
30	Rays and Skates	**0.03**	**0.94**	**5.70**	0.85	0.16	**0.02**	-	3.60
31	Small pelagic fishes	0.67	2.40	**11.98**	**0.95**	**0.20**	**0.13**	**-0.125**	3.06
32	Horse mackerel	0.12	1.44	**8.02**	**0.95**	**0.18**	**0.06**	**-0.013**	3.30
33	Mackerel	0.07	1.42	**7.88**	**0.95**	**0.18**	**0.02**	**-0.009**	3.52
34	Native medium pelagic fishes	0.09	0.85	**7.07**	**0.90**	**0.12**	**0.04**	-	4.12
35	Alien medium pelagic fishes	**0.02**	0.85	**7.11**	0.90	**0.12**	**0.01**	-	4.12
36	Large pelagic fishes	**0.06**	**0.90**	**5.35**	0.97	0.17	**0.05**	-	4.25
37	Turtles	**0.06**	**0.17**	**2.78**	**0.50**	0.06	**0.00**	-	3.02
38	Sea birds	**0.00**	**5.10**	**75.23**	0.01	0.07	**0.00**	-	3.04
39	Dolphins	**0.01**	**0.09**	**10.95**	0.48	0.01	**0.00**	-	4.32
40	Detritus	**17.98**	-	-	0.21	-	-	**-0.007**	1.00
41	Discards	**0.17**	-	-	0.94	-	-	**-0.003**	1.00

Table S2. Temperature response functions included in the Israeli Mediterranean continental shelf ecosystem for the period 1994-2010. Values in bold indicates values changed during the expert opinion meeting.

		Temperature function			
	Functional group	**Min.**	**Pref. Min. (10th)**	**Pref. Max. (90th)**	**Max.**
1	Phytoplankton	-	-	-	-
2	Benthic primary producers	-	-	-	-
3	Micro and Mesozooplankton	-	-	-	-
4	Macrozooplankton	-	-	-	-
5	Gelatinous plankton	-	-	-	-
6	Polychaetes	-	-	-	-
7	Suprabenthos	-	-	-	-
8	Native Shrimps	8	17	26	30
9	Alien Shrimps	**11.8**	**18**	27	32
10	Native Crabs	7.8	18.6	27.7	30
11	Alien Crabs	13.5	19	28.4	32
12	Benthic invertebrates	-	-	-	-
13	Benthic cephalopods	-	-	-	-
14	Benthopelagic cephalopods	-	-	-	-
15	Mullets	5	12.3	20	26.5
16	Goatfishes	**12**	**17.5**	26	31
17	Hake	5	11.1	**19.5**	28
18	Flatfishes	-	-	-	-
19	Rocky fishes	8.8	10.8	20.5	**27**
20	Small Native dem. fish	9.9	14.9	20.5	**27.5**
21	Large Native dem. fish	10.3	17.1	24	28.1
22	Alien herbivorous	**16**	**17.5**	**25**	30
23	Earlier alien dem. fish	**13**	**15**	26	31
24	New alien dem. fish	**13.5**	**17**	27	32
25	Alien lizardfish	**14**	**18**	25	29
26	Demersal fishes (upper slope)	-	-	-	-
27	Benthopelagic fishes	5	14.5	23.5	29.1
28	Mesopelagic fishes	-	-	-	-
29	Demersal sharks	11.8	15.1	27.7	31.9
30	Rays and Skates	10.4	17.2	27.8	32
31	Small pelagic fishes	9.1	16.3	26.6	31
32	Horse mackerel	10.9	14.1	19.5	26
33	Mackerel	7	15.6	24	30
34	Native medium pelagic fishes	**13**	15	23	30
35	Alien medium pelagic fishes	**14**	17	25	32
36	Large pelagic fishes	9.4	17	27	31.5
37	Turtles	-	-	-	-
38	Sea birds	-	-	-	-
39	Dolphins	-	-	-	-
40	Detritus	-	-	-	-
41	Discards	-	-	-	-

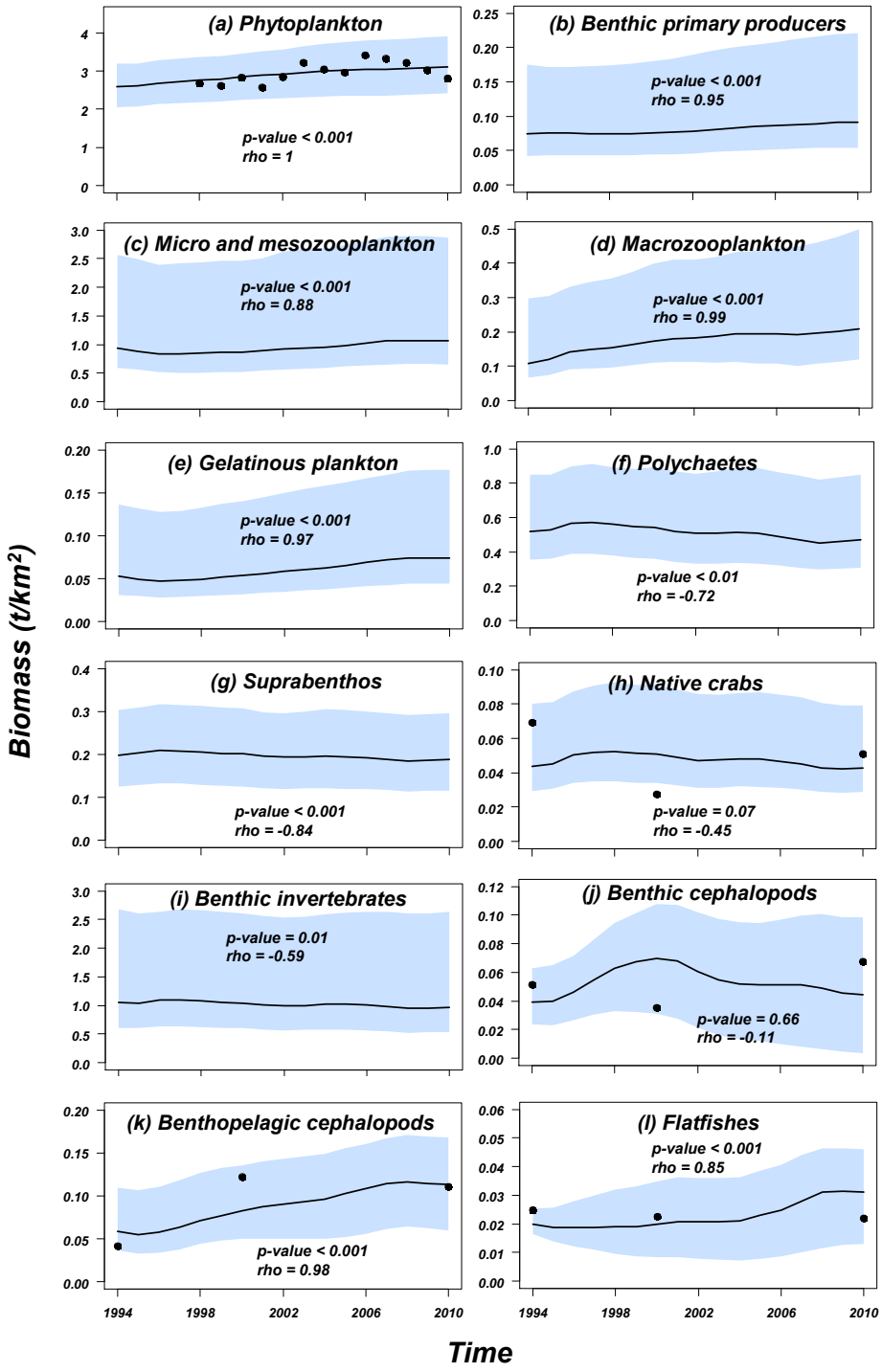
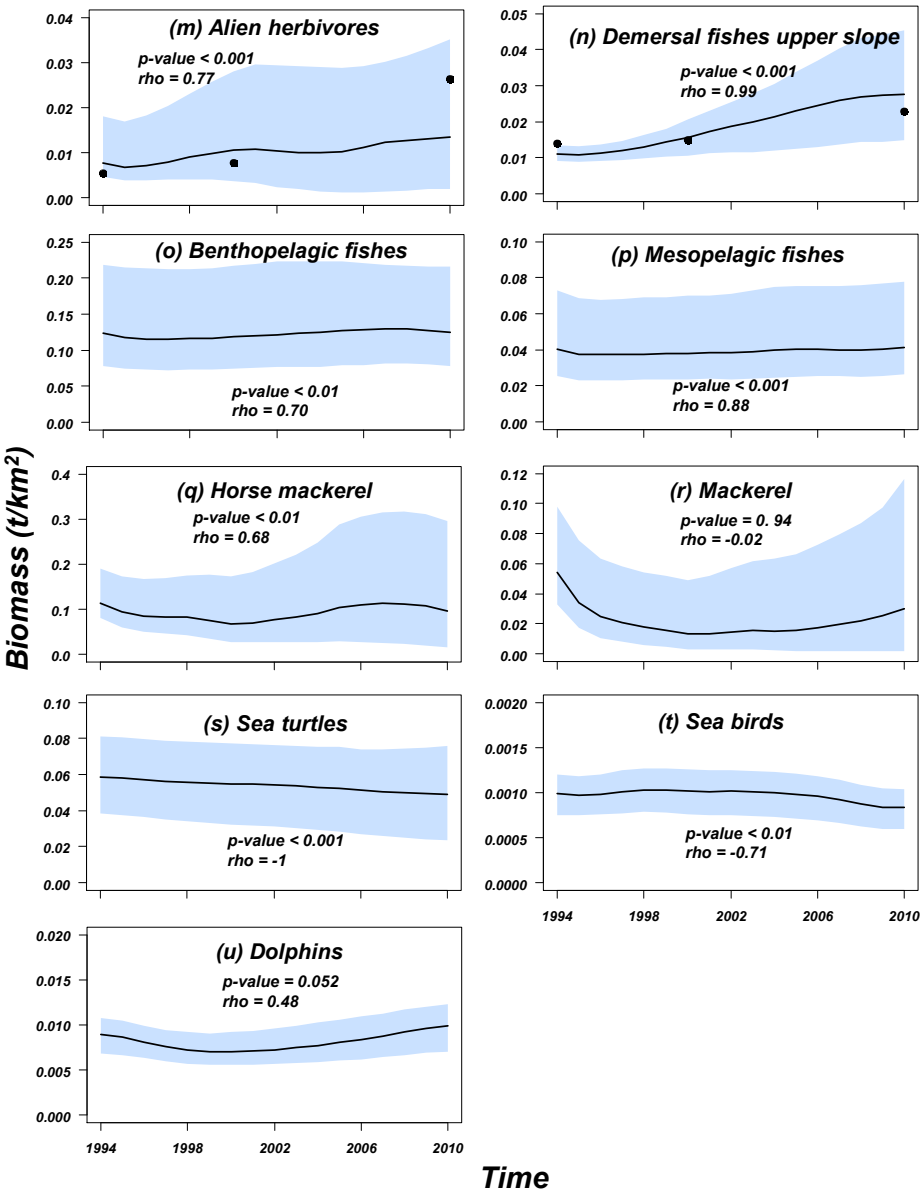


Fig. S1. (continued on next page) Predicted (solid lines) versus observed (dots) relative biomass (t/km^2) for the groups of the Israeli Mediterranean continental shelf ecosystem for the period 1994-2010. Blue shadows represents the 5% and 95% percentiles obtained using the Monte Carlo routine.



(Fig. S1 continued)

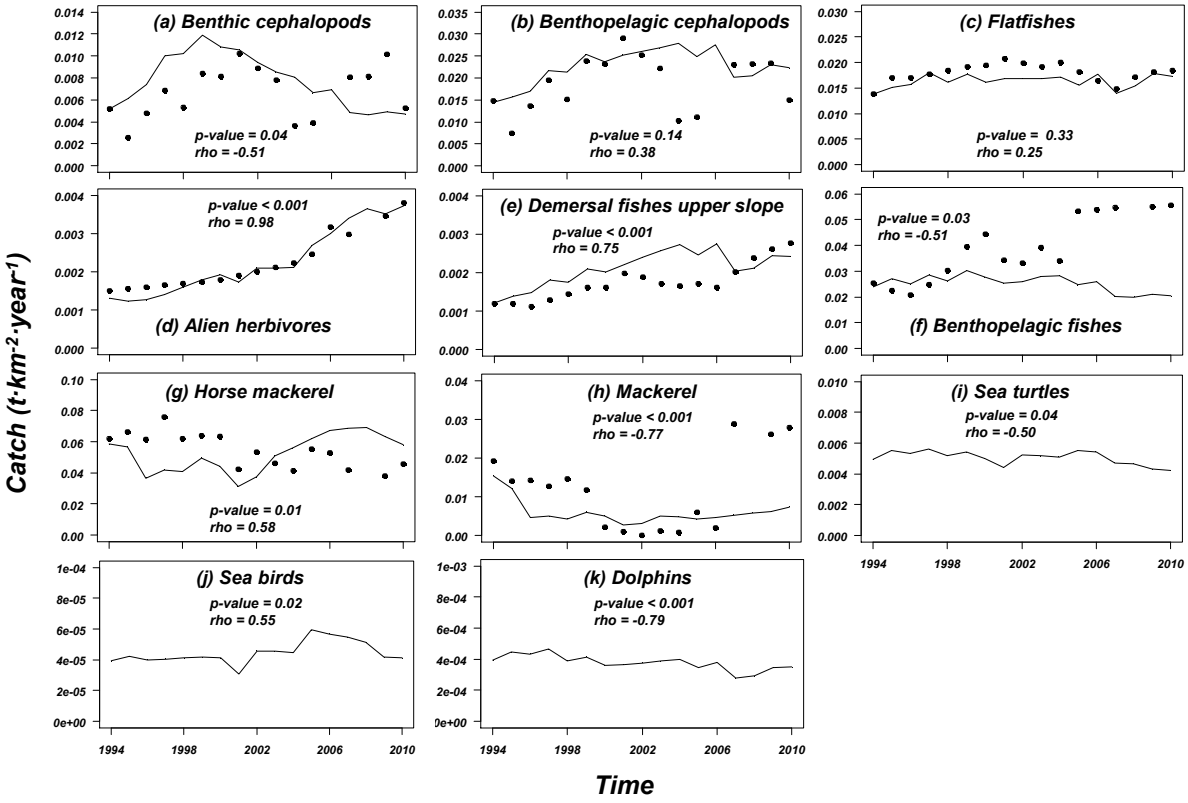


Fig. S2. Predicted (solid lines) versus observed (dots) catches (t/km^2·year) for the groups with available data of the Israeli Mediterranean continental shelf ecosystem model for the period 1994-2010.

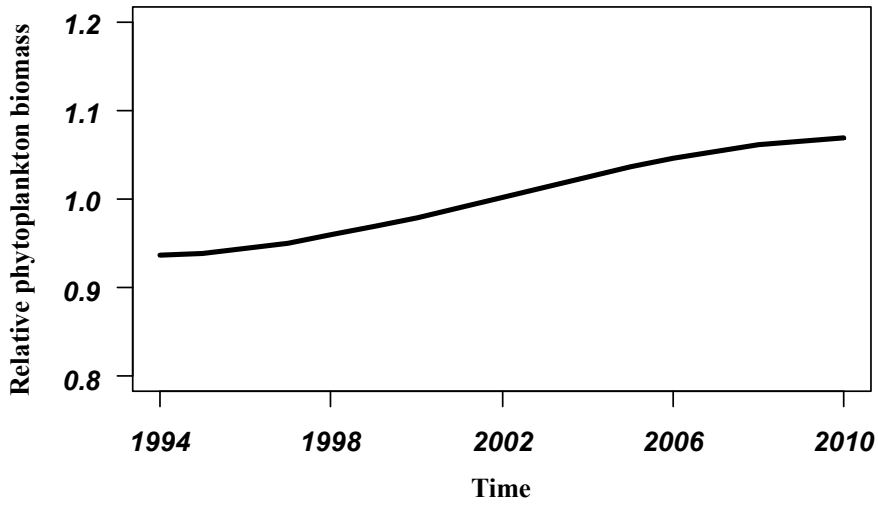


Fig. S3. Primary production anomaly resulting from the fitting procedure that expresses the relative phytoplankton biomass estimated for the period 1994-2010.