

The following supplement accompanies the article

DNA sequencing of fish eggs and larvae reveals high species diversity and seasonal changes in spawning activity in the southeastern Gulf of California

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Table S1. List of 157 Operational Taxonomic Units (OTU) found from ichthyoplankton collections taken in 2014 from Cabo Pulmo National Park. The results from NCBI's GenBank, including accession numbers, and the Barcode of Life Database, including sample ID, are shown as well as the percentage of identical sites (% Iden) that matched for each sequence.

OTU	NCBI Result	Accession #	% Iden	Barcode of Life result	Sample ID	% Iden
<i>Acanthemblemaria macrospilus</i>	<i>Acanthemblemaria macrospilus</i>	FJ884556	100.0	NO MATCH		
<i>Acanthurus triostegus</i>	<i>Acanthurus triostegus</i>	HM034207	99.8	<i>Acanthurus triostegus</i>		100.0
<i>Acanthurus xanthopterus</i>	<i>Acanthurus xanthopterus</i>	KY570710	99.8	<i>Acanthurus xanthopterus</i>		100.0
<i>Alphestes immaculatus</i>	<i>Alphestes afer</i>	JQ840759	90.6	<i>Alphestes immaculatus</i>	gal90410a280	99.8
<i>Ammodytoides gilli</i>	<i>Bleekeria mitsukurii</i>	KU944777	95.5	<i>Ammodytoides gilli</i>		100.0
<i>Anisotremus taeniatus</i>	<i>Anisotremus taeniatus</i>	EU697527	99.5	NO MATCH		
<i>Aulopus sp.</i>	<i>Aulopus sp.</i>	EU366559	97.0	NO MATCH		
<i>Auxis rochei</i>	<i>Auxis rochei</i>	KT074084	99.1	<i>Auxis rochei</i>	ADC08-L III A11.4	99.8
<i>Auxis thazard</i>	<i>Auxis thazard</i>	KP259551	99.8	NO MATCH		
<i>Axoclinus storeyae</i>	<i>Axoclinus storeyae</i>	KP636887	97.9	<i>Axoclinus storeyae</i>	mwb11e10	99.1
<i>Balistes polylepis</i>	<i>Balistes polylepis</i>	KF929641	100.0	NO MATCH		
<i>Bellator gymnostethus</i>	<i>Bellator gymnostethus</i>	KX810993	99.2	NO MATCH		
<i>Benthoosema panamense</i>	<i>Benthoosema panamense</i>	KJ555326	98.8	<i>Benthoosema panamense</i>		99.7
<i>Bodianus diplotaenia</i>	<i>Bodianus diplotaenia</i>	KC684983	99.8	NO MATCH		
<i>Bothus leopardinus</i>	<i>Bothus robinsi</i>	KF929672	89.4	<i>Bothus leopardinus</i>	gv85310bo230	99.7
<i>Calamus brachysomus</i>	<i>Calamus brachysomus</i>	KJ012304	100.0	NO MATCH		
<i>Carangoides orthogrammus</i>	<i>Carangoides orthogrammus</i>	KU943780	99.0	NO MATCH		
<i>Carangoides otrynter</i>	<i>Caranx latus</i>	JQ841100	90.3	<i>Carangoides otrynter</i>	Co-29-IMARPE	100.0
<i>Caranx caninus</i>	<i>Caranx caninus</i>	EU752066	99.8	NO MATCH		
<i>Caranx sexfasciatus</i>	<i>Caranx sexfasciatus</i>	KU199209	100.0	NO MATCH		
<i>Carapus dubius</i>	<i>Halichoeres pictus</i>	JQ839789	82.2	<i>Carapus dubius</i>		100.0
<i>Cephalopholis panamensis</i>	<i>Cephalopholis cruentata</i>	GU225173	94.8	<i>Cephalopholis panamensis</i>		99.8
<i>Chanos chanos</i>	<i>Chanos chanos</i>	LT669927	100.0	NO MATCH		

OTU	NCBI Result	Accession #	% Iden	Barcode of Life result	Sample ID	% Iden
<i>Cheilopogon dorsomacula</i>	<i>Cheilopogon furcatus</i>	KF489537	99.0	<i>Cheilopogon dorsomacula</i>		99.7
<i>Cirrhitichthys oxycephalus</i>	<i>Cirrhitichthys oxycephalus</i>	KR023554	98.4	<i>Cirrhitichthys oxycephalus</i>		99.4
<i>Coryphaena equiselis</i>	<i>Coryphaena equiselis</i>	KP266762	99.2	NO MATCH		
<i>Coryphaena hippurus</i>	<i>Coryphaena hippurus</i>	KY176439	98.5	NO MATCH		
<i>Cubiceps pauciradiatus</i>	<i>Cubiceps pauciradiatus</i>	KJ968014	99.0	<i>Cubiceps pauciradiatus</i>	DSLAR394-08.COI-5P	99.7
<i>Cyclopsetta panamensis</i>	<i>Cyclopsetta panamensis</i>	JX887475	100.0	NO MATCH		
<i>Decapterus macarellus</i>	<i>Decapterus macarellus</i>	KM986880	97.2	<i>Decapterus macarellus</i>	NOOR025-17.COI-5P	99.7
<i>Decapterus muroadsi</i>	<i>Decapterus macrosoma</i>	KC970467	99.6	<i>Decapterus muroadsi</i>	HQ010055	100.0
<i>Diodon holocanthus</i>	<i>Diodon holocanthus</i>	GU440304	100.0	NO MATCH		
<i>Diogenichthys laternatus</i>	<i>Diogenichthys laternatus</i>	HQ127668	99.8	<i>Diogenichthys laternatus</i>	gv12dl260	100.0
<i>Engraulidae sp.</i>	<i>Engraulidae sp.</i>	KC208625	98.8	NO MATCH		
<i>Etrumeus acuminatus</i>	<i>Etrumeus acuminatus</i>	KM116435	100.0	<i>Etrumeus sadina</i>	MFC231	99.1
<i>Eucinostomus currani</i>	<i>Eucinostomus currani</i>	KT067787	99.5	NO MATCH		
<i>Eucinostomus entomelas</i>	<i>Eucinostomus entomelas</i>	KJ622154	100.0	<i>Eucinostomus entomelas</i>	KJ622154	100.0
<i>Euthynnus lineatus</i>	<i>Euthynnus lineatus</i>	GU440322	99.8	NO MATCH		
<i>Fistularia commersonii</i>	<i>Fistularia commersonii</i>	KR861527	99.6	<i>Fistularia commersonii</i>	KP053209	100.0
<i>Fistularia corneta</i>	<i>Fistularia corneta</i>	HQ010105	99.6	NO MATCH		
<i>Gerres simillimus</i>	<i>Gerres simillimus</i>	KT005473	99.0	NO MATCH		
<i>Gymnothorax castaneus</i>	<i>Gymnothorax vicinus</i>	GU225293	89.8	<i>Gymnothorax castaneus</i>		99.7
<i>Haemulon flaviguttatum</i>	<i>Haemulon flaviguttatum</i>	GQ891092	98.6	<i>Haemulon flaviguttatum</i>	JQ741199	99.8
<i>Haemulon maculicauda</i>	<i>Haemulon maculicauda</i>	EU697537	99.4	NO MATCH		
<i>Haemulon sexfasciatum</i>	<i>Haemulon sexfasciatum</i>	JQ741255	100.0	NO MATCH		
<i>Halichoeres dispilus</i>	<i>Halichoeres dispilus</i>	JQ839467	99.0	<i>Halichoeres dispilus</i>		99.3
<i>Halichoeres melanotis</i>	<i>Halichoeres melanotis</i>	JQ839488	100.0	<i>Halichoeres melanotis</i>	pp96701hm160	100.0
<i>Halichoeres melanotis (16S)</i>	<i>Halichoeres melanotis</i>	KY815408	99.0	NO MATCH		
<i>Hemanthias signifer</i>	<i>Hemanthias signifer</i>	GU440335	99.6	<i>Hemanthias signifer</i>	MFC189	100.0
<i>Heteropriacanthus cruentatus</i>	<i>Heteropriacanthus cruentatus</i>	KT248793	100.0	<i>Heteropriacanthus cruentatus</i>		100.0
<i>Hoplopagrus guentherii</i>	<i>Hoplopagrus guentherii</i>	KJ557446	99.3	<i>Hoplopagrus guentherii</i>	KJ557446	99.7
<i>Hygophum atratum</i>	<i>Hygophum atratum</i>	GU440346	99.3	<i>Hygophum atratum</i>	MFC346	100.0
<i>Katsuwonus pelamis</i>	<i>Katsuwonus pelamis</i>	AB101290	99.5	NO MATCH		
<i>Labrisomus xanti</i>	<i>Labrisomus xanti</i>	HQ168599	99.6	NO MATCH		
<i>Lampanyctus parvicauda</i>	<i>Lampanyctus hubbsi</i>	KJ555411	93.6	<i>Lampanyctus parvicauda</i>		98.5
<i>Liopropoma fasciatum</i>	<i>Liopropoma fasciatum</i>	JX093903	99.4	NO MATCH		
<i>Lutjanus argentiventris</i>	<i>Lutjanus argentiventris</i>	KJ557432	100.0	<i>Lutjanus argentiventris</i>	MFC095	100.0
<i>Lutjanus colorado</i>	<i>Lutjanus colorado</i>	KJ557438	100.0	NO MATCH		
<i>Lutjanus guttatus</i>	<i>Lutjanus guttatus</i>	KT724723	100.0	NO MATCH		
<i>Lutjanus novemfasciatus</i>	<i>Lutjanus novemfasciatus</i>	KJ557444	100.0	NO MATCH		
<i>Lutjanus peru</i>	<i>Lutjanus peru</i>	KX119467	99.0	<i>Lutjanus peru</i>	HQ162412	99.8
<i>Microlepidotus inornatus</i>	<i>Microlepidotus inornatus</i>	JQ741282	99.8	NO MATCH		
<i>Micropogonias ectenes</i>	<i>Micropogonias ectenes</i>	KX401604	97.0	NO MATCH		
<i>Mugil curema</i>	<i>Mugil curema</i>	GU440409	100.0	NO MATCH		

OTU	NCBI Result	Accession #	% Iden	Barcode of Life result	Sample ID	% Iden
<i>Mulloidichthys dentatus</i>	<i>Mulloidichthys dentatus</i>	JX390743	99.4	<i>Mulloidichthys dentatus</i>	gal490md850	99.7
<i>Mycteroperca xenarcha</i>	<i>Mycteroperca microlepis</i>	KF836490	93.1	<i>Mycteroperca xenarcha</i>		100.0
<i>Myrichthys tigrinus</i>	<i>Myrichthys ocellatus</i>	MF041112	92.9	<i>Myrichthys tigrinus</i>	gv125zop	100.0
<i>Myripristis leiognathus</i>	<i>Myripristis leiognathus</i>	JX390743	99.4	<i>Myripristis leiognathus</i>		100.0
<i>Nematistius pectoralis</i>	<i>Nematistius pectoralis</i>	DQ027998	99.8	NO MATCH		
<i>Orthopristis reddingi</i>	<i>Orthopristis reddingi</i>	JQ741300	99.8	NO MATCH		
OTU # 01	<i>Lampanyctus hubbsi</i>	KJ555411	94.5	NO MATCH		
OTU # 02	<i>Assurger anzac</i>	AP012508	91.7	NO MATCH		
OTU # 03	<i>Cephalopholis cruentata</i>	JQ841494	93.4	NO MATCH		
OTU # 04	<i>Bleekeria mitsukurii</i>	KU944777	96.0	NO MATCH		
OTU # 05	<i>Tetragonorus cuvieri</i>	KF489780	94.2	NO MATCH		
OTU # 06	<i>Synodus poeyi</i>	JX519399	91.4	NO MATCH		
OTU # 07	<i>Syacium maculiferum</i>	JX887478	85.6	NO MATCH		
OTU # 08	<i>Bothus robinsi</i>	KF929672	90.1	NO MATCH		
OTU # 09	<i>Diaphus watasei</i>	KP267585	91.3	NO MATCH		
OTU # 10	<i>Uropterygius macularius</i>	MF041358	0.9	NO MATCH		
OTU # 11	<i>Mycteroperca microlepis</i>	JQ842598	95.1	NO MATCH		
OTU # 12	<i>Symphurus ginsburgi</i>	JX124904	83.7	NO MATCH		
OTU # 13	<i>Gillellus jacksoni</i>	GU224859	84.3	NO MATCH		
OTU # 14	<i>Ammodytes americanus</i>	KT723027	93.5	NO MATCH		
OTU # 15	<i>Actinopterygii environmental sample</i>	KP111790	89.5	NO MATCH		
OTU # 16	<i>Gillellus jacksoni</i>	GU224859	86.0	NO MATCH		
OTU # 17	<i>Callechelys muraena</i>	MF041245	92.5	NO MATCH		
OTU # 18	<i>Caranx crysos</i>	MF041098	99.4	NO MATCH		
OTU # 20	<i>Actinopterygii environmental sample</i>	KY936605	88.5	NO MATCH		
OTU # 21	<i>Synodus foetens</i>	KF930488	88.1	NO MATCH		
OTU # 22	<i>Myripristis leiognathus</i>	JX390743	91.8	NO MATCH		
OTU # 23	<i>Xyrichthys novacula</i>	KY815468	96.9	NO MATCH		
OTU # 24	<i>Symphurus atricaudus</i>	GU440541	82.7	NO MATCH		
OTU # 25	<i>Polylepion russelli</i>	JF435093	90.2	NO MATCH		
OTU # 26	<i>Abudefduf saxatilis</i>	JQ839920	95.8	NO MATCH		
OTU # 27	<i>Neoconger mucronatus</i>	GU224984	92.9	NO MATCH		
OTU # 28	<i>Prionotus scitulus</i>	EU239810	94.6	NO MATCH		
OTU # 29	<i>Opisthonema libertate</i>	HQ010071	94.4	NO MATCH		
OTU # 31	<i>Kyphosus vaigiensis</i>	KP116935	93.8	NO MATCH		
OTU # 32	<i>Bleekeria mitsukurii</i>	KU944777	91.1	NO MATCH		
OTU # 33	<i>Microdesmus carri</i>	JQ841721	86.0	NO MATCH		
OTU # 34	<i>Ophichthus gomesii</i>	KF461209	88.1	NO MATCH		
OTU # 35	<i>Cypselurus poecilopterus</i>	KU943243	82.0	NO MATCH		
OTU # 36	<i>Trachipterus trachipterus</i>	AP002925	81.8	NO MATCH		
OTU # 37	<i>Anchoa hepsetus</i>	JQ842003	90.0	NO MATCH		

OTU	NCBI Result	Accession #	% Iden	Barcode of Life result	Sample ID	% Iden
OTU # 38	<i>Caranx latus</i>	JQ841100	90.5	NO MATCH		
OTU # 39	<i>Gymnothorax vicinus</i>	GU225293	89.5	NO MATCH		
OTU # 40	<i>Trachinotus goodei</i>	JQ841419	97.8	NO MATCH		
OTU # 41	<i>Evoxymetopon taeniatus</i>	KU945019	92.6	NO MATCH		
OTU # 42	<i>Synodus poeyi</i>	JX519399	90.6	NO MATCH		
OTU # 43	<i>Kathetostoma laeve</i>	KR153507	97.4	NO MATCH		
OTU # 44	<i>Macruronus magellanicus</i>	EU074458	81.1	NO MATCH		
OTU # 46	<i>Ichthyapus ophioneus</i>	AF455772	92.5	NO MATCH		
OTU # 47	<i>Paralichthys lethostigma</i>	KT896534	86.3	NO MATCH		
OTU # 48	<i>Hyporthodus niveatus</i>	KU739517	98.6	NO MATCH		
OTU # 50	<i>Synodus lucioceps</i>	KJ010667	87.3	NO MATCH		
OTU # 51	<i>Synodus lucioceps</i>	KJ010667	87.7	NO MATCH		
OTU # 52	<i>Brotula barbata</i>	KF461141	88.9	<i>Genypterus maculatus</i>		99.5
OTU # 53	<i>Assurger anzac</i>	AP012508	98.1	NO MATCH		
OTU # 54	<i>Epinephelus clippertonensis</i>	JX093914	99.5	NO MATCH		
OTU # 55	<i>Hyporthodus niveatus</i>	KF836483	96.8	<i>Hyporthodus niphobles</i>		100.0
OTU # 56	<i>Kyphosus cinerascens</i>	JQ350079	99.7	NO MATCH		
OTU # 57	<i>Paraconger caudilimbatus</i>	MF041623	91.6	<i>Paraconger ophichthys</i>	gv123po1888	99.5
OTU # 58	<i>Syacium maculiferum</i>	JX887478	99.6	<i>Syacium maculiferum</i>	gv85310sm60	99.6
<i>Oxyporhamphus micropterus (16S)</i>	<i>Oxyporhamphus micropterus</i>	AY693459	99.8	NO MATCH		
<i>Oxyporhamphus micropterus</i>	<i>Oxyporhamphus micropterus</i>	KX769054	99.6	<i>Oxyporhamphus micropterus</i>		99.8
<i>Paralabrax maculatofasciatus</i>	<i>Paralabrax maculatofasciatus</i>	GU440446	99.8	NO MATCH		
<i>Paranthias colonus</i>	<i>Paranthias colonus</i>	GU440449	99.0	NO MATCH		
<i>Perissias taeniopterus</i>	<i>Scleronema angustirostre</i>	KY857962	81.9	<i>Perissias taeniopterus</i>	gv85310es100	100.0
<i>Plagiotremus azaleus</i>	<i>Plagiotremus azaleus</i>	HQ168581	99.6	NO MATCH		
<i>Polydactylus approximans</i>	<i>Polydactylus approximans</i>	GU440471	99.6	NO MATCH		
<i>Polylepion cruentum</i>	<i>Polylepion russelli</i>	JQ432026	89.8	<i>Polylepion cruentum</i>		99.8
<i>Pontinus furcirhinus</i>	<i>Pontinus kuhlii</i>	JQ774695	95.9	<i>Pontinus furcirhinus</i>		99.7
<i>Prionotus stephanophrys</i>	<i>Prionotus stephanophrys</i>	GU440478	99.3	NO MATCH		
<i>Prionurus punctatus</i>	<i>Prionurus punctatus</i>	KP280490	100.0	<i>Prionurus punctatus</i>	KP280495	100.0
<i>Pristigenys serrula</i>	<i>Pristigenys serrula</i>	JQ741339	99.6	NO MATCH		
<i>Prognichthys sealei</i>	<i>Prognichthys sealei</i>	KX769050	97.6	NO MATCH		
<i>Pronotogrammus multifasciatus</i>	<i>Pronotogrammus multifasciatus</i>	FJ548774	100.0	NO MATCH		
<i>Regalecus glesne</i>	<i>Regalecus glesne</i>	DQ532951	99.8	NO MATCH		
<i>Rypticus bicolor</i>	<i>Rypticus saponaceus</i>	JN828108	97.4	<i>Rypticus bicolor</i>	gal98609r181	100.0
<i>Scarus compressus</i>	<i>Scarus compressus</i>	JX026478	100.0	NO MATCH		
<i>Scarus ghobban</i>	<i>Scarus ghobban</i>	JX026489	100.0	NO MATCH		
<i>Scarus rubroviolaceus</i>	<i>Scarus rubroviolaceus</i>	JX026509	99.5	NO MATCH		
<i>Selar crumenophthalmus</i>	<i>Selar crumenophthalmus</i>	KJ502071	99.8	NO MATCH		
<i>Selene peruviana</i>	<i>Selene peruviana</i>	EU752202	99.4	NO MATCH		
<i>Seriola rivoliana</i>	<i>Seriola rivoliana</i>	KP733847	98.8	NO MATCH		

OTU	NCBI Result	Accession #	% Iden	Barcode of Life result	Sample ID	% Iden
<i>Sphyraena ensis</i>	<i>Sphyraena ensis</i>	GU440526	100.0	NO MATCH		
<i>Stegastes rectifraenum</i>	<i>Stegastes rectifraenum</i>	JQ729312	99.8	NO MATCH		
<i>Syacium ovale</i>	<i>Scarus psittacus</i>	KU944718	82.9	<i>Syacium ovale</i>	sio10018so	99.5
<i>Synodus evermanni</i>	<i>Synodus poeyi</i>	JX519399	91.4	<i>Synodus evermanni</i>		100.0
<i>Synodus lacertinus</i>	<i>Synodus lacertinus</i>	GU440545	99.4	NO MATCH		
<i>Synodus scituliceps</i>	<i>Synodus foetens</i>	KF930488	87.3	<i>Synodus scituliceps</i>		100.0
<i>Thalassoma lucasanum</i>	<i>Thalassoma lucasanum</i>	KY815460	100.0	NO MATCH		
<i>Thalassoma lucasanum</i>	<i>Thalassoma lucasanum</i>	JQ839621	100.0	NO MATCH		
<i>Thunnus albacares</i>	<i>Thunnus albacares</i>	LN908910	100.0	NO MATCH		
<i>Trachinotus rhodopus</i>	<i>Trachinodus goodei</i>	JQ843094	97.9	<i>Trachinodus rhodopus</i>		99.8
<i>Triphoturus mexicanus</i>	<i>Triphoturus mexicanus</i>	KJ555475	99.8	NO MATCH		
<i>Umbrina xanti</i>	<i>Umbrina xanti</i>	KP722787	98.6	NO MATCH		
<i>Vinciguerrria lucetia</i>	<i>Vinciguerrria lucetia</i>	HQ010067	100.0	<i>Vinciguerrria lucetia</i>	HQ010067	100.0
<i>Xyrichtys mundiceps</i>	<i>Xyrichtys mundiceps</i>	JQ839662	99.8	NO MATCH		

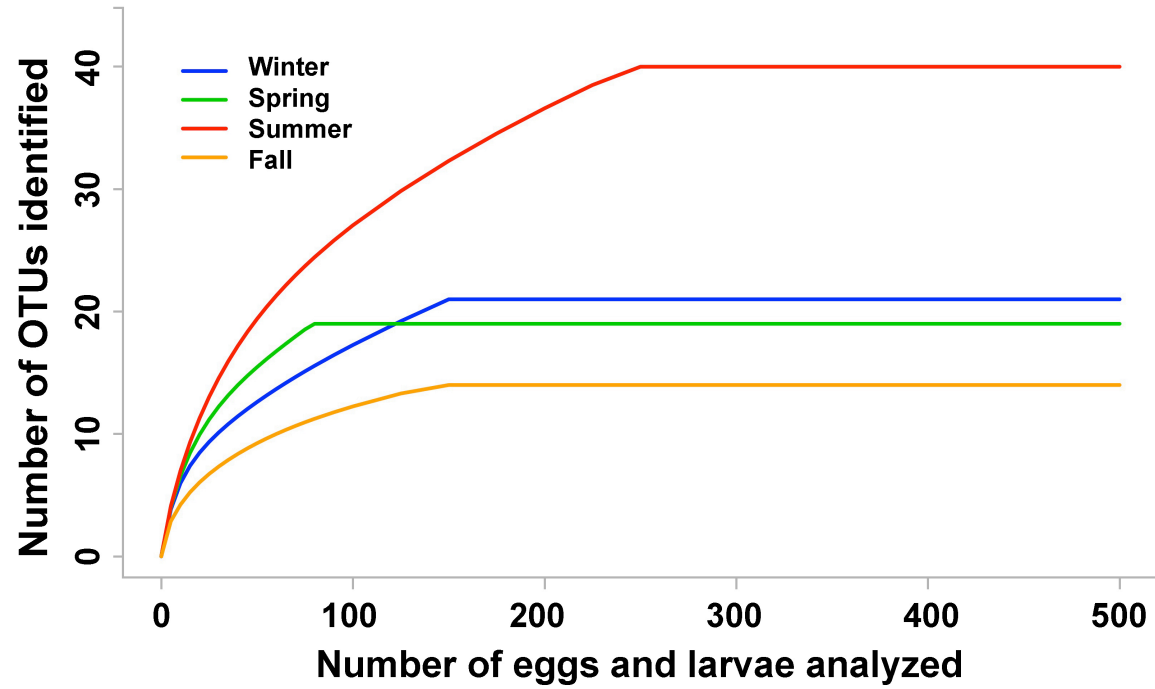


Fig. S1. Rarefaction curves of number of fish egg and larvae Operational Taxonomic Units (OTUs) identified as a function of specimens analyzed per seas