

Supplementary Table 1: The depth-range of 115 species of 1,042 bony fishes.

Species (number of genomes)	Accession numbers	Environment	Depth range	Usually depth
Perciformes (467)				
Pagellus bogaraveo (2)	AB305023 NC_009502	Marine	?-700m	150-300m
Oreochromis niloticus (8)	GU238433 NC_013663 GU370126 GU477624-GU477628	Fresh water	5-?m	?-20m
Siniperca scherzeri (6)	JN084101 NC_015815 JQ010985-JQ010988	Fresh water		
Thunnus thynnus (3)	GU256522 NC_014052 JN086149	Marine	?-985m	?-100m
Micropterus salmoides (2)	DQ536425 NC_008106	Fresh water	?-7m	
Oreochromis aureus (4)	GU370125 NC_013750 GU477629 GU477630	Fresh water	5-?m	
Pseudolabrus sieboldi (3)	AP006019 NC_009067 EU560727	Marine		2-5m
Thunnus alalunga (4)	AB101291 NC_005317 GU256526 JN086151	Marine	?-600m	
Katsuwonus pelamis (4)	AB101290 NC_005316 GU256527 JN086155	Marine	?-260m	
Auxis rochei (4)	AB103467 AB103468 AB105165	Marine	10-?m	

	NC_005313			
Micropterus dolomieu (3)	AB378749 AB378750 NC_011361	Fresh water		
Larimichthys polyactis (3)	FJ618559 NC_013754 GU586227	Marine		
Larimichthys crocea (3)	EU339149 NC_011710 FJ595214	Marine	10-?m	
Collichthys niveatus (3)	HM219223 NC_014263 JN678726 HM447239	Marine		
Collichthys lucidus (3)	NC_014350 JN857362	Marine	?-90m	
Oplegnathus fasciatus (3)	DQ872160 NC_010968 AP006010	Marine	1-10m	
Epinephelus bruneus (3)	FJ594964 NC_013820 JQ518289	Marine	20-200m	
Epinephelus lanceolatus (3)	FJ472837 NC_011715 HQ660062	Marine	4-100m	?-50m
Tropheus duboisi (2)	AP006015 NC_009063	Fresh water		
Oreochromis sp. 'red tilapia' (3)	GU477631 HM067614 NC_014060	Fresh water		
Thunnus obesus (3)	GU256525 NC_014059 JN086152	Marine	?-250m	

Thunnus albacares (3)	GU256528 NC_014061 JN086153	Marine	1-250m	1-100m
Thunnus maccoyii (3)	GU256523 NC_014101 JN086150	Marine	50-2743m	
Thunnus orientalis (2)	NC_008455 GU256524	Marine	1-200m	
Scarus forsteni (2)	FJ619271 NC_011928	Marine	3-30m	
Scarus ghobban (2)	FJ449707 NC_011599	Marine	3-36m	
Abudefduf vaigiensis (2)	AP006016 NC_009064	Marine	1-15m	
Halichoeres melanurus (2)	AP006018 NC_009066	Marine	1-?m	
Halichoeres tenuispinis (2)	EU082205 NC_011191	Marine	?-4m	
Odax cyanomelas (2)	AP009130 NC_009061	Marine	1-15m	
Anarhichas lupus (2)	EF427916 NC_009773	Marine	1-600m	18-110 m
Lycodes toyamensis (2)	AP004448 NC_004409	Marine		
Pholis crassispina (2)	AP004449 NC_004410	Marine	?-5m	
Pagrus major (2)	AP002949 NC_003196	Marine		
Pagrus auriga (2)	AB124801 NC_005146	Marine	?-170m	
Parargyrops edita (2)	EF107158 NC_008616	Fresh water		
Acanthopagrus latus (2)	EF506764	Marine	?-50m	

	NC_010977			
Sciaenops ocellatus (2)	JQ286004 NC_016867	Marine	10-?m	
Miichthys miiuy (2)	HM447240 NC_014351	Marine	15-100m	
Kuhlia mugil (2)	AP011065 NC_013142	Marine	3-18m	
Scorpiis lineolata (2)	AP011063 NC_013140	Marine	1-30m	
Labracoglossa argentiventris (2)	AP011062 NC_013139	Marine		
Kyphosus cinerascens (2)	AP011061 NC_013138	Marine	1-45m	
Girella punctata (2)	AP011060 NC_013137	Marine		
Microcanthus strigatus (2)	AP006009 NC_013182	Marine	1-140m	
Pterocaesio tile (2)	AP004447 NC_004408	Marine	?-60m	
Lutjanus argentimaculatus (2)	JN182927 NC_016661	Marine	10-120m	
Lutjanus russellii (2)	EF514208 NC_010963	Marine	10-80m	20-50m
Lutjanus sebae (2)	FJ824742 NC_012737	Marine	5-180m	
Lutjanus malabaricus (2)	FJ824741 NC_012736	Marine	12-100m	
Lutjanus bengalensis (2)	FJ171339 NC_011275	Marine	10-30m	
Lutjanus rivulatus (2)	AP006000 NC_009869	Marine	50-100m	
Lutjanus kasmira (2)	FJ416614	Marine	3-265m	30-150 m

	NC_011578			
Siniperca chuatsi (2)	JF972568 NC_015822	Fresh water	10-?m	
Siniperca kneri (2)	JN378751 NC_015987	Fresh water		
Coreoperca kawamebari (2)	AP005990 NC_009868	Fresh water		
Nannoperca obscura (2)	JF519733 NC_015545	Fresh water		
Nannoperca australis (2)	JF519732 NC_015542	Fresh water		
Epinephelus akaara (2)	EU043377 NC_011113	Marine		
Micropterus floridanus (2)	HQ391897 NC_014689	Fresh water		
Lepomis macrochirus (2)	JN389795 NC_015984	Fresh water		
Plectropomus leopardus (4)	DQ101270 NC_008449 JQ420073 JQ420074	Marine	3-100m	
Epinephelus coioides (2)	EU043376 NC_011111	Marine	?-100m	
Epinephelus septemfasciatus (2)	FJ594966 NC_013829	Marine	5-30m	
Anyperodon leucogrammicus (2)	GQ131336 NC_012709	Marine	1-80m	5-50m
Hypoplectrus gemma (2)	FJ848375 NC_013832	Marine		
Doederleinia berycoides (2)	AP009181 NC_009867	Marine	80-200m	
Lethrinus obsoletus (2)	AP009165 NC_009855	Marine	?-30m	

Monotaxis grandoculis (2)	AP009166 NC_010957	Marine	1-100m	5-30m
Parapristipoma trilineatum (2)	AP009168 NC_009857	Marine		
Hapalogenys nigripinnis (2)	HM754620 NC_014404	Marine		
Diagramma picta (2)	AP009167 NC_009856	Marine	1-170m	1-50m
Chaetodon auripes (2)	AP006004 NC_009870	Marine		
Heniochus diphreutes (2)	AP006005 NC_009871	Marine	15-210m	
Chaetodontoplus septentrionalis (2)	AP006007 NC_009873	Marine	5-15m	
Centropyge loricula (2)	AP006006 NC_009872	Marine	15-60m	
Sillago sihama (2)	JQ048935 NC_016672	Marine	?-60m	?-20m
Branchiostegus japonicus (2)	EU861052 NC_012904	Marine	30-200m	
Branchiostegus argentatus (2)	EU861054 NC_012907	Marine	51-65m	
Pennahia argentata (2)	HQ890946 NC_015202	Marine	20-140m	40-?m
Nibea albiflora (2)	HQ890947 NC_015205	Marine	25-80m	
Chrysochir aureus (2)	JQ692068 NC_016987	Marine		
Emmelichthys struhsakeri (2)	AP004446 NC_004407	Marine	180-428m	
Monodactylus argenteus (2)	AP009169 NC_009858	Marine		

Enoplosus armatus (2)	AP006008 NC_013181	Marine	?-90m	
Rhynchopelates oxyrhynchus (2)	AP011064 NC_013141	Marine		
Oplegnathus punctatus (2)	AP011066 NC_013143	Marine	3-135m	
Etheostoma radiosum (2)	AY341348 NC_005254	Fresh water		
Percina macrolepida (2)	DQ536430 NC_008111	Fresh water		
Arripis trutta (2)	AP006810 NC_015787	Marine	30-39m	
Morone saxatilis (2)	HM447585 NC_014353	Marine	30-?m	
Spicara maena (2)	AP009164 NC_009854	Marine	30-130m	
Lates calcarifer (2)	DQ010541 NC_007439	Marine	10-40m	
Labracinus cyclophthalmus (2)	AP009125 NC_009054	Marine	2-20m	10-15m
Toxotes chatareus (2)	AP006806 NC_013151	Fresh water		
Branchiostegus albus (2)	EU861053 NC_012905	Marine	30-100m	
Histioporus typus (2)	AP006807 NC_015786	Marine	40-421m	
Scarus rubroviolaceus (2)	FJ227899 NC_011343	Marine		
Scarus schlegeli (2)	FJ595020 NC_011936	Marine	1-50m	
Chlorurus sordidus (2)	AP006567 NC_006355	Marine	?-50m	

<i>Cymatogaster aggregata</i> (2)	AP009128 NC_009059	Marine;Fresh water	?-146m
<i>Ditrema temminckii</i> (2)	AP009129 NC_009060	Marine	
<i>Astronotus ocellatus</i> (2)	AP009127 NC_009058	Fresh water	
<i>Hypselecara temporalis</i> (2)	AP009506 NC_011168	Fresh water	
<i>Sarotherodon melanotheron</i> (2)	JF894132 NC_015611	Fresh water	3-?m
<i>Oreochromis</i> sp. KM-2006 (2)	AP009126 NC_009057	Fresh water	
<i>Oreochromis mossambicus</i> (2)	AY597335 NC_007231	Fresh water	1-12m
<i>Tylochromis polylepis</i> (2)	AP009509 NC_011171	Fresh water	
<i>Neolamprologus brichardi</i> (2)	AP006014 NC_009062	Fresh water	
<i>Paratilapia polleni</i> (2)	AP009508 NC_011170	Fresh water	
<i>Paretroplus maculatus</i> (2)	AP009504 NC_011177	Fresh water	
<i>Etroplus maculatus</i> (2)	AP009505 NC_011179	Fresh water	
<i>Ptychochromoides katria</i> (2)	AP009507 NC_011169	Fresh water	
<i>Pteragogus flagellifer</i> (2)	EF409976 NC_010205	Marine	
<i>Parajulis poecilepterus</i> (2)	EF192032 NC_009459	Marine	
<i>Cheilinus undulatus</i> (2)	GU296101 NC_013842	Marine	1-100m

Pseudolabrus eoethinus (2)	EU560728 NC_012055	Marine		
Halichoeres trimaculatus (2)	EU087704 NC_011199	Marine	2-30m	
Amphiprion ocellaris (2)	AP006017 NC_009065	Marine	1-15m	3-15m
Amphiprion bicinctus (2)	JQ030887 NC_016701	Marine	1-30m	
Auxis thazard (2)	AB105447 NC_005318	Marine	50-?m	
Thunnus tonggol (2)	JN086154 HQ425780	Marine	10-?m	
Euthynnus alletteratus (2)	AB099716 NC_004530	Marine	1-150m	
Scomberomorus cavalla (2)	DQ536428 NC_008109	Marine	5-140m	5-15m
Scomberomorus niphonius (2)	GU109281 NC_016420	Marine	?-200m	
Gasterochisma melampus (2)	JN086156 HQ425781	Marine	200-?m	
Xiphias gladius (2)	AB470301 NC_012677	Marine	?-800m	?-550m
Makaira mazara (2)	AB470304 NC_012680	Marine	?-200m	100-?m
Makaira indica (4)	AB470305 NC_012675 KJ510416 KJ510417	Marine	?-915m	?-200m
Kajikia audax (2)	NC_012678 AB470302	Marine	?-200m	
Tetrapturus angustirostris (2)	AB470303 NC_012679	Marine	?-1830m	
Istiophorus platypterus (2)	AB470306	Marine	?-200m	30-?m

	NC_012676			
Trichiurus japonicus (2)	EU339148 NC_011719	Marine	?-589m	100-350m
Notothenia coriiceps (2)	JF933906 NC_015653	Marine	?-550m	
Tridentiger bifasciatus (2)	JN244650 NC_015992	Marine		
Gillichthys seta (2)	FJ211846 NC_012908	Marine		
Gillichthys mirabilis (2)	FJ211845 NC_012906	Marine		
Acanthogobius hasta (3)	AY486321 NC_006131	Marine; Fresh water		
Gymnogobius petschiliensis (2)	JX186192 AY525784 NC_008743	Marine; Fresh water		
Glossogobius olivaceus (2)	JQ001860 NC_016664	Marine; Fresh water		
Oxuderces dentatus (2)	JN831381 NC_016194	Fresh water		
Boleophthalmus pectinirostris (2)	JN631352 NC_016195	Marine; Fresh water		
Trypauchen vagina (2)	JQ027694 NC_016693	Marine		
Rhyacichthys aspro (2)	AP004454 NC_004414	Marine		
Odontobutis platycephala (2)	DQ010651 NC_010199	Fresh water		
Eleotris acanthopoma (2)	AP004455 NC_004415	Marine; Fresh water		

Rachycentron canadum (2)	FJ154956 NC_011219	Marine	?-1200m	
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Antigonia capros (2)	AP002943 NC_003191	Marine	50-900m	100-300m
Capros aper (2)	AP009159 NC_010958	Marine	40-700m	
Petroscirtes breviceps (2)	AP004450 NC_004411	Marine	?-10m	
Salarias fasciatus (2)	AP004451 NC_004412	Marine	?-8m	
Arcos sp. KU-149 (2)	AP004452 NC_004413			
Aspasma minima (2)	AP004453 NC_008130	Marine		
Arctoscopus japonicus (2)	AP003090 NC_002812	Marine	?-550m	
Zanclus cornutus (2)	AP009162 NC_009852	Marine	3-182m	5-182m
Acanthurus leucosternon (2)	EU136032 NC_009830	Marine	?-25m	?-25m
Acanthurus lineatus (2)	NC_010108 EU273284	Marine	?-15m	1-3m
Zebrasoma flavescens (2)	AP006032 NC_009874	Marine	2-46m	3-46m
Naso lopezi (2)	AP009163 NC_009853	Marine	6-20m	
Siganus unimaculatus (2)	AP006031 NC_013148	Marine	?-30m	1-30m
Siganus fuscescens (2)	EF025185 NC_009572	Marine	?-50m	
Luvarus imperialis (2)	AP009161 NC_009851	Marine	?-200m	
Platax orbicularis (2)	AP006825 NC_013136	Marine	5-30m	

Channa argus (2)	JX978723 GU937112	Fresh water		
Channa maculata (2)	JX978724 NC_020011	Fresh water		
Chaenocephalus aceratus (2)	JF933907 NC_015654	Marine	5-770m	
Chionodraco myersi (2)	DQ526430 NC_010689	Marine	200-800m	
Pleuragramma antarctica (2)	JF933905 NC_015652	Marine	?-728m	
Cubiceps pauciradiatus (2)	AP006038 NC_013150	Marine	58-1000m	
Psenes cyanophrys (2)	AP011067 NC_013144	Marine	20-550m	
Pampus sp. LY-2009 (2)	EU357803 NC_011707			
Hyperoglyphe japonica (2)	AP006037 NC_013149	Marine	150-400m	
Sparus aurata (2)	NC_024236 LK022698	Marine	1-150m	1-30m
Lutjanus erythropterus (1)	GQ265897	Marine	5-100m	
Epinephelus moara (2)	JQ518290 NC_017891	Marine	20-200m	
Argyrosomus japonicus (2)	JQ728563 NC_017610	Marine		
Dendrophysa russelii (2)	JQ728562 NC_017606	Marine; Fresh water		
Kurtus gulliveri (2)	NC_022477 AP006030	Fresh water		
Anarhichas denticulatus (1)	EF427918	Marine	60-1700 m	100-90 0m
Anarhichas minor (1)	EF427917	Marine	25-600m	100-40 0m

Scartelaos histophorus (2)	JQ654459 NC_017888	Marine		
Bostrychus sinensis (1)	NC_017880	Marine; Fresh water		
Acanthopagrus schlegelii (2)	JQ746035 NC_018553	Marine	15-?m	
Acentrogobius pflaumii (2)	JX029961 NC_018064	Marine		
Astatotilapia calliptera (2)	JN628855 NC_018560	Fresh water		
Bahaba taipingensis (2)	JX232404 NC_018347	Marine		
Champsoccephalus gunnari (2)	GU217678 NC_018340	Marine	0-700m	30-250 m
Cheilochromis euchilus (2)	JN252050 NC_020672			
Chionodraco rastrospinosus (1)	DQ526431	Marine	0-1000m	200-40 0m
Cynotilapia afra (2)	JN628861 NC_018564	Fresh water		
Dimidiochromis compressiceps (2)	JN628856 NC_018561	Fresh water		
Diplotaxodon limnothrissa (2)	JN628851 NC_018556	Fresh water	20-220m	
Eleginops maclovinus (1)	DQ526429	Marine		
Epinephelus awoara (2)	JX109835 NC_018773	Marine	10-50m	
Epinephelus fuscoguttatus (2)	JX119192 NC_020046	Marine	1-60m	
Genyochromis mento (2)	JN628858 NC_018562	Fresh water	2-25m	
Glossogobius circumspectus (2)	JX536695 NC_018824	Fresh water		

Hapalogenys analis (2)	JX435822 NC_019646	Marine	20-100m	?-100m
Hyporthodus octofasciatus (2)	JX135579 NC_020047	Marine	150-300m	
Lateolabrax maculatus (2)	NC_018045 JQ860109	Marine; Fresh water	5-?m	
Luciogobius platycephalus (2)	JX971538 NC_019811	Marine		
Micropterus salmoides (2)	HQ391896 NC_014686	Fresh water	?-7m	
Nipponocypris sieboldii (2)	NC_008653 AB218898	Fresh water	2-61m	
Odontamblyopus rubicundus (2)	JX891626 NC_019647	Marine		
Opistognathus jacksoniensis (2)	JF911713 NC_017895	Marine	20-?m	30-50m
Pallidochromis tokolosh (1)	JN628859	Fresh water	Fresh water	
Perca flavescens (8)	JX629442- JX629448 NC_019572	Fresh water	?-56m	?-9m
Petrochromis trewavasae (1)	NC_018814	Fresh water		
Petrotilapia nigra (2)	JN628852 NC_018557	Fresh water	3-30m	
Pseudotropheus crabro (2)	JN628854 NC_018559	Fresh water	15-18m	
Repomucenus curvicornis (1)	NC_018567	Marine; Fresh water		
Rhamphochromis esox (2)	JN628860 NC_018563	Fresh water	2-65m	
Sicyopterus japonicus (2)	JX628620 NC_018826	Marine; Fresh water		
Stiphodon alcedo (1)	NC_018054	Fresh water		
Taeniolethrinops praeorbitalis (1)	JN628857	Fresh water		?-50m

Trematocranus placodon (2)	JN628850 NC_018555	Fresh water	?-32m
Tridentiger barbatus (2)	JX536694 NC_018823		
Tropheus moorii (1)	NC_018815	Fresh water	
Cypriniformes (330)			
Carassius auratus (3)	EF483931 AB006953 NC_002079	Fresh water	?-20m
Carassius auratus auratus (5)	GU086395-GU086397 AB111951 NC_006580	Fresh water	?-20m
Carassius gibelio (5)	GU138989 GU170401 NC_014177 JF496198 6JF496197 EU979305-EU979307	Fresh water	
Mylopharyngodon piceus (5)	NC_011141 DQ026435	Fresh water	5-30m
Myxocyprinus asiaticus (5)	NC_006401 AY526869 AB223007 AP006764 AY986503	Fresh water	
Rhodeus ocellatus (2)	DQ026430 NC_011211 JQ231115 HQ891005	Fresh water	
Ctenopharyngodon idella (4)	NC_010288 EU391390	Fresh water	?-30m
Carpoides carpio (4)	NC_005257 AY366087 AB126083 AP006763	Fresh water	

Rhodeus uyekii (3)	NC_007885 EF483937 DQ155662	Fresh water	
Hypophthalmichthys nobilis (3)	NC_010194 HM162839 EU343733	Fresh water	5-?m
Hypophthalmichthys molitrix (3)	NC_010156 JQ231114 EU315941	Fresh water	?-20m
Carassius auratus x Cyprinus carpio (3)	NC_006136 GU186888 AY694420		
Carassius auratus x Megalobrama amblycephala pentaploid hybrid (3)	NC_013433 GQ903707 HQ401008		
Coreoleuciscus splendidus (3)	DQ347951 NC_007783 EU848546	Fresh water	
Megalobrama amblycephala (3)	NC_010341 DQ026433 EU434747	Fresh water	5-20m
Pseudopungtungia nigra (3)	NC_011161 EU597300 EU332752	Fresh water	
Biwia zezera (3)	NC_008324 AB250108 AB250107	Fresh water	
Minytrema melanops (3)	DQ536432 AB242166 NC_008113	Fresh water	
Cobitis choii (3)	NC_010649 EU656112 EU333980	Fresh water	
Cobitis striata (3)	AB054125 NC_004695 AP010782	Fresh water	
Misgurnus anguillicaudatus (3)	NC_011209 HM856629 DQ026434	Fresh water	5-?m

Koreocobitis nakdongensis (3)	NC_015798	Fresh water	
	HM535625		
	JN607252		
Gyrinocheilus aymonieri (3)	AB242164	Fresh water	
	NC_008672		
	DQ026432		
Acheilognathus yamatsutae (2)	NC_013712	Fresh water	
	EF483936		
Acheilognathus macropterus (2)	NC_013711	Fresh water	
	EF483935		
Acheilognathus signifer (2)	NC_013702	Fresh water	
	EF483930		
Acheilognathus typus (2)	AB239602	Fresh water	
	NC_008668		
Acheilognathus koreensis (2)	EF483932	Fresh water	
	NC_013704		
Acheilognathus intermedia (2)	NC_013705	Fresh water	
	EF483933		
Acheilognathus somjinensis (2)	NC_014882	Fresh water	
	FJ515921		
Cyprinus carpio (2)	NC_001606	Fresh water	
	AP009047		
Cyprinella spiloptera (2)	DQ536422	Fresh water	
	NC_008103		
Cyprinella lutrensis (2)	AB070206	Fresh water	
	NC_008643		
Campostoma anomalum (2)	DQ536421	Fresh water	
	NC_008102		
Phoxinus eos (2)	AP009151	Fresh water	
	NC_015364		
Phoxinus steindachneri (2)	NC_015357	Fresh water	
	AP009148		
Notemigonus crysoleucas (2)	NC_008646	Fresh water	10-?m
	AB127393		
Labeo senegalensis (2)	NC_008657	Fresh water	
	AB238968		
Labeo bata (2)	NC_015193	Fresh water	
	AP011198		
Hypentelium nigricans (2)	NC_008676	Fresh water	
	AB242169		
Xyrauchen texanus (2)	NC_010234	Fresh water	
	EU265776		

Erimyzon oblongus (2)	NC_013064 AP011228	Fresh water	
Cycleptus elongatus (2)	NC_008645 AB126082	Fresh water	
Catostomus commersonii (2)	NC_008647 AB127394	Fresh water	?-30m
Moxostoma poecilurum (2)	NC_008674 AB242167	Fresh water	
Moxostoma congestum (2)	NC_013074 AP009317	Fresh water	
Ictiobus bubalus (2)	AP009316 NC_013071	Fresh water	
Cobitis sinensis (2)	NC_007229 AY526868	Fresh water	
Cobitis takatsuensis (2)	NC_015306 AP009306	Fresh water	
Niwaella delicata (2)	NC_015307 AP009308	Fresh water	
Acantopsis choirorhynchos (2)	AB242161 NC_008669	Fresh water	
Pangio anguillaris (2)	NC_008675 AB242168	Fresh water	
Misgurnus nikolskyi (2)	AB242171 NC_008678	Fresh water	
Leptobotia mantschurica (2)	NC_008677 AB242170	Fresh water	
Chromobotia macracanthus (2)	NC_008671 AB242163	Fresh water	
Lefua echigonia (2)	AB054126 NC_004696	Fresh water	
Barbatula toni (2)	NC_008670 AB242162	Fresh water	
Schistura balteata (2)	NC_008679 AB242172	Fresh water	
Vaillantella maassi (2)	NC_008680 AB242173	Fresh water	
Labeo batesii (2)	NC_008656 AB238967	Fresh water	
Catla catla (2)	NC_016892 JQ087872	Fresh water	5-?m
Alburnus alburnus (2)	NC_008659 AB239593	Fresh water	1-?m
Tinca tinca (2)	NC_008648 AB218686	Fresh water	1-?m

Opsariichthys bidens (2)	NC_008744 DQ367044	Fresh water	
Opsariichthys uncirostris (2)	AB218897 NC_008652	Fresh water	
Barbonymus gonionotus (2)	NC_008655 AB238966	Fresh water	15-?m
Tanichthys albonubes (2)	AP011397 NC_015539	Fresh water	
Chondrostoma lemmingii (2)	DQ536427 NC_008108	Fresh water	
Rasbora daniconius (2)	AP011285 NC_015527	Fresh water	
Rasbora vaterifloris (2)	AP011432 NC_015531	Fresh water	
Pseudorasbora parva (2)	NC_015614 JF802126	Fresh water	
Pseudorasbora pumila (2)	NC_008665 AB239599	Fresh water	
Carassius carassius (2)	AY714387 NC_006291	Fresh water	5-?m
Gymnocypris przewalskii (2)	NC_008661 AB239595	Fresh water	
Tribolodon nakamura (2)	NC_008651 AB218896	Fresh water	
Carassius auratus x Cyprinus carpio x Carassius cuvieri (2)	NC_006387 AY771781		
Carassius auratus x Megalobrama amblycephala tetraploid hybrid (2)	GQ903705 NC_013430		
Carassius auratus x Megalobrama amblycephala triploid hybrid (2)	GQ903706 NC_013431		
natural gynogenetic Carassius auratus red var. (2)	NC_012980 GQ303444		
Hemibarbus mylodon (2)	DQ345787 NC_007786	Fresh water	
Hemibarbus longirostris (2)	DQ347952 NC_007784	Fresh water	
Hemibarbus labeo (2)	DQ347953 NC_007785	Fresh water	
Hemibarbus barbus (2)	AB070241	Fresh water	

	NC_008644		
Rhynchocypris lagowskii (2)	NC_015354 AP009147	Fresh water	
Pseudaspius leptcephalus (2)	NC_008681 AP009058	Fresh water	
Chanodichthys mongolicus (2)	NC_008683 AP009060	Fresh water	
Aphyocypris chinensis (2)	AB218688 NC_008650	Fresh water	
Distoechodon tumirostris (2)	NC_011208 DQ026431	Fresh water	10-20m
Psilorhynchus homaloptera (2)	DQ026436 NC_011210	Fresh water	
Psilorhynchus sucatio (2)	AP011288 NC_015532	Fresh water	
Gobiobotia macrocephala (2)	NC_014877 FJ515918	Fresh water	
Gobiobotia brevibarba (2)	FJ515919 NC_014878	Fresh water	
Pungtungia herzi (2)	NC_008664 AB239598	Fresh water	
Sarcocheilichthys variegatus microoculus (2)	NC_004694 AB054124	Fresh water	
Rhodeus suigensis (2)	EF483934 NC_013709	Fresh water	
Gnathopogon elongatus (2)	AB218687 NC_008649	Fresh water	
Pelecus cultratus (2)	NC_008663 AB239597	Fresh water	20-?m
Ischikauia steenackeri (2)	NC_008667 AB239601	Fresh water	
Hemigrammocypripis rasborella (2)	NC_015548 AP011422	Fresh water	
Xenocypris argentea (2)	NC_008682 AP009059	Fresh water	
Xenocypris davidi (2)	GQ289558 NC_013072	Fresh water	
Puntius tetrazona (2)	NC_010110 EU287909	Fresh water	
Esomus metallicus (2)	NC_008660 AB239594	Fresh water	
Phenacobius mirabilis (2)	DQ536431 NC_008112	Fresh water	

Culter alburnus (2)	NC_013616 GU190362	Fresh water	
Pseudogobio esocinus (2)	AP009310 NC_013759	Fresh water	
Raiamas senegalensis (2)	AP010780 NC_013764	Fresh water	
Raiamas guttatus (2)	NC_015547 AP011222	Fresh water	
Danio dangila (2)	AP011235 NC_015525	Fresh water	
Sinocyclocheilus grahami (2)	GQ148557 NC_013189	Fresh water	
Sinocyclocheilus altishoulderus (2)	NC_013186 FJ984568	Fresh water	
Notropis stramineus (2)	DQ536429 NC_008110	Fresh water	
Yaoshanicus arcus (2)	NC_015540 AP011398	Fresh water	
diploid Megalobrama amblycephala x Xenocypris davidi (2)	GU949545 NC_013994		
diploid Xenocypris davidi x Megalobrama amblycephala (2)	HQ651067 NC_015838		
triploid Megalobrama amblycephala x Xenocypris davidi (2)	NC_013995 GU949546		
Barilius bendelisis (2)	AP011433 NC_015533	Fresh water	
Luciosoma bleekeri (2)	NC_015541 AP011399	Fresh water	
Horadandia atukorali (2)	AP011400 NC_015544	Fresh water	
Leptobarbus hoevenii (2)	NC_015528 AP011286	Fresh water	3-?m
Trigonostigma espei (2)	NC_015535 AP011449	Fresh water	
Salmostoma bacaila (2)	NC_015549 AP011223	Fresh water	
Pseudopungtungia tenuicorpus (2)	FJ515917 NC_014873	Fresh water	
Gila robusta (2)	DQ536424 NC_008105	Fresh water	

Gila conspersa (2)	AP009315 NC_013761	Fresh water	
Barbus barbus (2)	AB238965 NC_008654	Fresh water	10-?m
Barbus trimaculatus (2)	AB239600 NC_008666	Fresh water	
Gobio gobio (2)	AB239596 NC_008662	Fresh water	
Procypris rabaudi (2)	EU082030 NC_011192	Fresh water	
Mylocheilus caurinus (2)	AP010779 NC_013763	Fresh water	
Microdevario nana (2)	AP011402 NC_015546	Fresh water	
Aspidoparia morar (2)	AP011335 NC_015536	Fresh water	
Nicholsicypris normalis (2)	NC_015538 AP011396	Fresh water	
Microphysogobio koreensis (2)	FJ515920 NC_014880	Fresh water	
Paralabuca typus (2)	NC_015194 AP011211	Fresh water	
Macrochirichthys macrochirus (2)	NC_015551 AP011234	Fresh water	
Sinogastromyzon puliensis (2)	NC_011922 FJ605359	Fresh water	?-10m
Homaloptera leonardi (2)	AB242165 NC_008673	Fresh water	
Formosania lacustris (2)	NC_001727 AP010774	Fresh water	1-10m
Sewellia lineolata (2)	AP011292 NC_015534	Fresh water	
Labeo rohita (1)	JQ231111	Fresh water	5-?m
Labeo calbasu (1)	JQ231113	Fresh water	10-10m
Luciosoma setigerum (1)	AP011423	Fresh water	
Boraras maculatus (1)	AP011420	Fresh water	
Leptocypris sp. CBM ZF 11419 (1)	AP011428		
Danio rerio (1)	NC_002333	Fresh water	
Carassius cuvieri (1)	NC_010768	Fresh water	
Trigonostigma heteromorpha (1)	AP011421	Fresh water	
Cirrhinus mrigala (1)	JQ231112	Fresh water	5-?m

Danionella mirifica (1)	AP011424	Fresh water
Microrasbora erythromicron (1)	AP011419	Fresh water
Rasbora cephalotaenia (1)	AP011430	Fresh water
Paedocypris sp. Banka Is. (1)	AP011429	
Paedocypris progenetica (1)	AP011287	Fresh water
Triplophysa stoliczkai (1)	JQ663847	Fresh water
Koreocobitis rotundicaudata (1)	JN607253	Fresh water
	NC_008658	
Pethia ticto (2)	AB238969	Fresh water

Tetraodontiformes (208)

	NC_004299	
Takifugu rubripes (3)	AJ421455 AP006045	Marine;Fresh water
	AP009527	
Takifugu obscurus (3)	EF672695 NC_011626	Marine;Fresh water
	NC_007176	
Tetraodon nigroviridis (3)	DQ019313 AP006046	Fresh water
	AP009533	
Takifugu xanthopterus (2)	NC_011632	Marine
	AP009528	
Takifugu pardalis (2)	NC_011627	Marine
	GQ409967	
Takifugu fasciatus (2)	NC_013087	
	AP009526	
Takifugu niphobles (2)	NC_011625	Marine
	AP009531	
Takifugu snyderi (2)	NC_011630	Marine
	AP009529	
Takifugu porphyreus (2)	NC_011628	Marine
	AP009534	
Takifugu chinensis (2)	NC_011633	Marine
	AP009532	
Takifugu vermicularis (2)	NC_011631	Marine
	AP009530	
Takifugu stictonotus (2)	NC_011629	Marine
	AP009540	
Takifugu exascurus (2)		Marine

	NC_011622			
Takifugu chrysops (2)	AP009525 NC_011624	Marine		
Takifugu oblongus (2)	AP009535 NC_011634	Marine		
Takifugu ocellatus (2)	AP009536 NC_011635	Marine;Fresh water		
Takifugu poecilonotus (2)	AP009539 NC_011621	Marine;Fresh water		
Tetraodon biocellatus (2)	AP011921 NC_015358	Fresh water		
Tetraodon miurus (2)	AP011922 NC_015361	Fresh water		
Tetraodon mbu (2)	AP011923 NC_015363	Fresh water		
Mola mola (2)	NC_005836 AP006238	Marine	30-480m	
Masturus lanceolatus (2)	NC_005837 AP006239	Marine	?-670m	
Ranzania laevis (2)	NC_007887 AP006047	Marine	1-140m	
Lagocephalus sceleratus (2)	AP011932 NC_015340	Marine	18-100m	
Lagocephalus lunaris (2)	GQ461750 NC_013360	Marine		
Lagocephalus wheeleri (2)	AP009538 NC_011637	Marine		
Lagocephalus laevigatus (2)	AP011934 NC_015345	Marine	10-180m	
Lagocephalus lagocephalus (2)	AP011933 NC_015343	Marine	10-476m	10-100 m
Colomesus asellus (2)	AP011909 NC_015368	Fresh water		
Colomesus psittacus (2)	AP011910 NC_015370	Marine;Fresh water	?-40m	
Sphoeroides pachygaster (2)	AP006745 NC_010960	Marine	50-480m	50-250 m
Sphoeroides testudineus (2)	AP011916 NC_015346	Marine	?-48m	
Sphoeroides parvus (2)	AP011914 NC_015341	Marine		
Sphoeroides annulatus (2)	AP011915 NC_015344	Marine	?-11m	

Arothron hispidus (2)	AP011930 NC_015336	Marine	3-50m	
Arothron firmamentum (2)	AP006742 NC_010975	Marine	10-360m	
Arothron manilensis (2)	AP011929 NC_015371	Marine	2-20m	
Canthigaster coronata (2)	AP006743 NC_010978	Marine	6-165m	
Canthigaster jactator (2)	AP011911 NC_015372	Marine	1-30m	
Canthigaster valentini (2)	AP011912 NC_015337	Marine	1-55m	
Stephanolepis cirrifer (2)	NC_003177 AP002952	Marine		
Monacanthus chinensis (2)	NC_011925 AP009219	Marine	3-12m	
Brachaluteres ulvarum (2)	NC_011940 AP009215	Marine	25-30m	
Chaetodermis penicilligerus (2)	AP009216 NC_011951	Marine		
Meuschenia hippocrepis (2)	NC_011956 AP009218	Marine	?-120m	
Nelusetta ayraudi (2)	NC_011921 AP009220	Marine	?-360m	?-200m
Paraluteres prionurus (2)	NC_011929 AP009222	Marine	1-25m	
Pervagor janthinosoma (2)	NC_011932 AP009224	Marine	8-20m	
Acreichthys tomentosus (2)	NC_011950 AP009213	Marine	2-15m	
Rudarius ercodes (2)	NC_011924 AP009227	Marine		
Oxymonacanthus longirostris (2)	NC_011927 AP009221	Marine	4-30m	
Amanses scopas (2)	NC_011952 AP009214	Marine	3-18m	
Pseudalutarius nasicornis (2)	NC_011955 AP009226	Marine	1-55m	
Cantherhines pardalis (2)	NC_011325 AP009184	Marine	2-20m	
Aluterus scriptus (2)	NC_011323 AP009183	Marine	3-120m	3-20m
Thamnaconus modestus (2)	NC_011327 AP009185	Marine		

Eubalichthys mosaicus (2)	NC_011953 AP009217	Marine	-140m
Paramonacanthus choirocephalus (2)	NC_011931 AP009223	Marine	?-8m
Pseudomonacanthus peroni (2)	NC_011933 AP009225	Marine	
Acanthaluteres brownii (2)	NC_011947 AP009212	Marine	?-50m
Triodon macropterus (2)	NC_009859 AP009170	Marine	50-300m
Torquigener pleurogramma (2)	AP011926 NC_015367	Marine	?-30m
Torquigener hypselogeneion (2)	AP011927 NC_015332	Marine	18-22m
Tetractenos glaber (2)	AP011935 NC_015347	Marine	
Carinotetraodon lorteti (2)	AP011918 NC_015350	Fresh water	
Carinotetraodon salivator (2)	AP011919 NC_015352	Fresh water	1-2m
Auriglobus modestus (2)	AP011917 NC_015348	Fresh water	
Polyspina piosae (2)	AP011913 NC_015339	Marine	
Marilyna darwinii (2)	AP011937 NC_015351	Marine	
Monotrete cochinchinensis (2)	AP011925 NC_015366	Fresh water	
Chelonodon pleurospilus (2)	AP011928 NC_015369	Marine	
Chelonodon patoca (2)	AP009541 NC_011623	Marine;Fresh water	4-?m
Tylerius spinosissimus (2)	AP011939 NC_015356	Marine	250-435m
Canthigaster rivulata (2)	AP006744 NC_010979	Marine	?-350m
Omegophora armilla (2)	AP011936 NC_015349	Marine	?-146m
Pelagocephalus marki (2)	AP011938 NC_015353	Marine	
Chilomycterus reticulatus (2)	NC_011331 AP009188	Marine	20-100m
Triacanthodes anomalus (2)	NC_009861 AP009172	Marine	

Macrorhamphosodes uradoi (2)	NC_009860 AP009171	Marine	50-675m	
Triacanthus biaculeatus (2)	NC_009863 AP009174	Marine	?-60m	
Trixipichthys weberi (2)	NC_009862 AP009173	Marine	?-65m	
Ostracion immaculatus (2)	NC_009865 AP009176	Marine		
Lactoria diaphana (2)	NC_011330 AP009187	Marine	8-50m	
Kentrocapros aculeatus (2)	NC_009864 AP009175	Marine	100-200m	
Anoplocapros lenticularis (2)	NC_011319 AP009186	Marine	10-220m	
Balistapus undulatus (2)	NC_011946 AP009203	Marine	2-50m	
Balistoides conspicillum (2)	NC_011934 AP009205	Marine	1-75m	
Melichthys vidua (2)	NC_011937 AP009207	Marine	4-60m	
Pseudobalistes flavimarginatus (2)	NC_011939 AP009209	Marine	2-50m	
Xanthichthys auromarginatus (2)	NC_011945 AP009211	Marine	8-150m	24-147 m
Odonus niger (2)	NC_011938 AP009208	Marine	5-40m	
Abalistes stellaris (2)	NC_011943 AP009202	Marine		
Balistes vetula (2)	NC_011948 AP009204	Marine	2-275m	3-30m
Xenobalistes tumidipectoris (2)	NC_011321 AP009182	Marine		
Canthidermis maculata (2)	NC_011935 AP009206	Marine	1-110m	
Rhinecanthus aculeatus (2)	NC_011941 AP009210	Marine	?-50m	
Sufflamen fraenatum (2)	NC_004416 AP004456	Marine	8-186m	18-?m
Diodon holocanthus (2)	NC_009866 AP009177	Marine	2-200m	2-35m
Scobinichthys granulatus (2)	NC_011926 AP009228	Marine		
Arothron mappa (1)	AP011931	Marine	4-30m	

Leiodon cutcutia (2)	NC_015365 AP011924	Fresh water		
Pao palembangensis (2)	NC_015355 AP011920	Fresh water		
Torquigener brevipinnis (2)	AP009537 NC_011636	Marine	20-100m	
Salmoniformes (149)				
Coregonus lavaretus (81)	NC_002646 AB034824 JQ661382-JQ661397 JQ661419-JQ661481	Marine		
Coregonus oxyrinchus (21)	JQ661398-JQ661418	Marine;Fresh water		
Oncorhynchus masou formosanus (2)	DQ858456 NC_008745 ONHMTCG	Fresh water		
Oncorhynchus mykiss (6)	NC_001717 DQ288268-DQ288271	Marine;Fresh water	?-200m	
Coregonus clupeaformis (6)	JQ661482-JQ661487	Marine;Fresh water	18-128m	
Salmo salar (3)	U12143 NC_001960 AF133701	Marine;Fresh water	?-210m	?-10m
Oncorhynchus gorbuscha (2)	NC_010959 EF455489	Marine;Fresh water	?-250m	
Oncorhynchus kisutch (2)	NC_009263 EF126369	Marine;Fresh water	?-250m	
Oncorhynchus masou masou (2)	NC_008747 DQ864465	Marine;Fresh water	?-200m	
Oncorhynchus masou ishikawae (2)	NC_008746 DQ864464	Marine;Fresh water	?-200m	
Oncorhynchus masou 'Biwa' (2)	EF105342 NC_009262			
Oncorhynchus clarkii henshawi (2)	AY886762 NC_006897			
Oncorhynchus nerka (2)	NC_008615 EF055889	Marine;Fresh water	?-250m	

Oncorhynchus tshawytscha (2)	NC_002980 AF392054	Marine;Fresh water	?-375m
Salvelinus alpinus (2)	NC_000861 AF154851	Marine;Fresh water	30-70m
Salvelinus fontinalis (2)	NC_000860 AF154850	Marine;Fresh water	15-27m
Hucho taimen (2)	NC_016426 HQ897271	Fresh water	
Hucho bleekeri (2)	NC_015995 HM804473	Fresh water	
Thymallus thymallus (2)	NC_012928 FJ853655	Fresh water	15-?m
Thymallus arcticus (2)	NC_012929 FJ872559	Fresh water	30-?m
Oncorhynchus keta (1)	AP010773	Marine;Fresh water	?-250m
Salmo trutta trutta (1)	NC_010007	Marine;Fresh water	?-10m
Anguilliformes (64)			
Anguilla anguilla (1)	NC_006531	Marine;Fresh water	?-700m
Anguilla mossambica (1)	NC_006542	Marine;Fresh water	
Anguilla japonica (1)	NC_002707	Marine;Fresh water	1-400m
Anguilla marmorata (1)	NC_006540	Marine;Fresh water	1-400m
Anguilla reinhardtii (1)	NC_006546	Marine;Fresh water	?-1m
Anguilla bicolor pacifica (1)	NC_006535	Marine;Fresh water	
Anguilla bicolor bicolor (1)	NC_006534	Marine;Fresh water	
Anguilla australis australis (1)	NC_006532	Marine;Fresh water	
Anguilla australis schmidtii (1)	NC_006533	Fresh water	
Anguilla malgumora (1)	NC_006536	Marine;Fresh water	
Anguilla bengalensis labiata (1)	NC_006543	Marine;Fresh water	
Anguilla obscura (1)	NC_006545	Marine;Fresh water	
Anguilla interioris (1)	NC_006539	Marine;Fresh water	
Anguilla nebulosa nebulosa (1)	NC_006544	Marine;Fresh water	
Anguilla dieffenbachii (1)	NC_006538	Marine;Fresh water	
Anguilla luzonensis (2)	NC_013435 NC_011575	Marine;Fresh water	
Anguilla rostrata (1)	NC_006547	Marine;Fresh water	?-464m

Anguilla celebesensis (1)	NC_006537	Marine;Fresh water		
Anguilla megastoma (1)	NC_006541	Marine;Fresh water		
Conger myriaster (1)	NC_002761	Marine	320-830m	
Paraconger notialis (1)	NC_013630	Marine	25-50m	25-50m
Ariosoma shiroanago (1)	NC_013632	Marine		
Heteroconger hassi (1)	NC_013629	Marine	7-45m	
Nemichthys scolopaceus (1)	NC_013620	Marine	?-3656m	100-1000m
Avocettina infans (1)	NC_013624	Marine	?-4580m	1200-2000m
Labichthys carinatus (1)	NC_013626	Marine	?-2000m	
Serrivomer beanii (1)	NC_013627	Marine	?-5998m	
Serrivomer sector (1)	NC_013436	Marine	?-3243m	305-?m
Stemonidium hypomelas (1)	NC_013628	Marine	500-1229m	
Ilyophis brunneus (2)	NC_013634 AP010848	Marine	450-3120m	
Simenchelys parasitica (2)	NC_013605 AP010849	Marine	136-2620m	500-1800m
Synaphobranchus kaupii (1)	NC_005805	Marine	120-4800m	400-2200m
Coloconger cadenati (1)	NC_013606	Marine	270-600m	
Derichthys serpentinus (1)	NC_013611	Marine	?-2000m	200-700m
Nessorhamphus ingolfianus (1)	NC_013608	Marine	?-1800m	
Cynoponticus ferox (1)	NC_013617	Marine	10-100m	
Muraenesox bagio (1)	NC_013614	Marine	?-100m	
Ophisurus macrorhynchus (1)	NC_005802	Marine		
Myrichthys maculosus (1)	NC_013635	Marine	?-262m	
Gymnothorax kidako (1)	NC_004417	Marine	2-350m	
Rhinomuraena quaesita (1)	NC_013610	Marine	1-57m	
Anarchias sp. Ansp (1)	NC_013613			
Kaupichthys hyoprорoides (1)	NC_013607	Marine	1-95m	
	NC_013633			
Robinsia catherinae (2)	AP010846	Marine	140-243m	
Thalassenchelys sp. Tht2 (2)	NC_013618 AP010867		>1000m	
Myroconger compressus (1)	NC_013631	Marine		
Moringua edwardsi (1)	NC_013622	Marine		
Moringua microchir (1)	NC_013602	Marine	3-20m	
Pythonichthys microphthalmus (1)	NC_013601	Marine	40-150m	

Saccopharynx lavenbergi (2)	NC_005298 AB047825	Marine	2000-3000m	2000-3000m
Monognathus jespersenii (1)	NC_013612	Marine	?-3000m	
Cyema atrum (1)	NC_013609	Marine	330-5100m	
Eurypharynx pelecanoides (1)	NC_005299	Marine	500-7625m	1200-1400m
Hoplunnis punctata (1)	NC_013623	Marine		

Leptocephalus sp. 'type II larva' (1) NC_013615

Nettastoma parviceps (1)	NC_013625	Marine	60-1190m	
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Facciolella oxyrhyncha (1) NC_013621 Marine 30-731m

Protoanguilla palau (1) AP011809 Marine 35-?m

Clupeiformes (109)

Alosa sapidissima (2)	HQ331537 NC_014690	Marine;Fresh water	?-250m	
Alosa pseudoharengus (2)	NC_009576 AP009132	Marine;Fresh water	5-145m	56-110
Alosa alosa (2)	NC_009575 AP009131	Marine;Fresh water	?-300m	
Ethmalosa fimbriata (2)	NC_009582 AP009138	Marine;Fresh water	?-50m	
Brevoortia tyrannus (2)	NC_014266 AP009618	Marine	?-50m	
Clupea harengus (2)	NC_009577 AP009133	Marine	?-364m	?-200m
Clupea pallasii (2)	NC_009578 AP009134	Marine;Fresh water	?-475m	
Sardinops melanostictus (2)	NC_002616 AB032554	Marine	?-200m	
Sardina pilchardus (2)	NC_009592 AP009233	Marine;Fresh water	10-100m	25-100m
Sardinella maderensis (2)	NC_009587 AP009143	Marine	?-80m	
Sprattus sprattus (2)	NC_009593 AP009234	Marine	10-150m	
Clupeonella cultriventris (2)	NC_015109 AP009615	Marine;Fresh water	10-13m	
Etrumeus teres (1)	NC_009583	Marine	?-150m	
Spratelloides delicatulus (2)	NC_009588 AP009144	Marine	?-50m	

Spratelloides gracilis (2)	NC_009589 AP009145	Marine	10-?m
Jenkinsia lamprotaenia (2)	NC_006917 AP006230	Marine	?-50m
Jenkinsia sp. CL54 (2)	NC_015076 AP009496		
Dorosoma cepedianum (2)	DQ536426 NC_008107	Marine;Fresh water	?-33m
Dorosoma petenense (2)	NC_009580 AP009136	Marine;Fresh water	?-15m
Nematalosa japonica (2)	NC_009586 AP009142	Marine	
Engraulis japonicus (2)	NC_003097 AB040676	Marine	?-400m
Engraulis encrasicolus (2)	NC_009581 AP009137	Marine	?-400m
Amazonsprattus scintilla (2)	NC_014265 AP009617	Fresh water	
Lycengraulis grossidens (2)	NC_014279 AP011563	Marine;Fresh water	?-40m
Anchoviella sp. LBP 2297 (2)	NC_014269 AP011557		
Coilia nasus (2)	NC_009579 AP009135	Marine;Fresh water	?-50m
Coilia lindmani (2)	NC_014271 AP011558	Fresh water	
Coilia reynaldi (2)	NC_014276 AP011559	Marine;Fresh water	?-50m
Thryssa baelama (2)	NC_014264 AP009616	Marine	?-50m
Lycothrissa crocodilus (2)	NC_014277 AP011562	Fresh water	
Chirocentrus dorab (2)	NC_006913 AP006229	Marine	?-120m
Ilisha elongata (2)	NC_009585 AP009141	Marine	5-?m
Ilisha africana (2)	NC_009584 AP009140	Marine	?-25m
Pellona flavipinnis (2)	NC_014268 AP009619	Fresh water	
Odaxothrissa vittata (1)	NC_009590	Fresh water	
Pellonula leonensis (2)	NC_009591 AP009232	Marine;Fresh water	

Denticeps clupeioides (2)	NC_007889 AP007276	Fresh water	
Sundasalanx mekongensis (2)	NC_006919 AP006232	Fresh water	
Stolephorus chinensis (1)	AP011566	Marine	?-50m
Stolephorus waitei (1)	AP011567	Marine;Fresh water	?-50m
Konosirus punctatus (1)	NC_016694	Marine	
Escualosa thoracata (1)	NC_016706	Marine;Fresh water	?-50m
Sprattus muelleri (1)	NC_016669	Marine	28-110m
Sprattus antipodum (1)	NC_016673	Marine	?-72m
Gudusia chapra (1)	NC_016715	Fresh water	
Harengula jaguana (1)	NC_016667	Marine	?-22m 1-5m
Ethmidium maculatum (1)	NC_016710	Marine	?-50m
Clupeoides borneensis (1)	NC_016709	Fresh water	
Clupeoides sp. Chao Phraya (1)	NC_016714		
Ehirava fluviatilis (1)	NC_016717	Marine;Fresh water	
Potamalosa richmondia (1)	NC_016674	Marine;Fresh water	
Microthrissa congica (1)	NC_016695	Fresh water	
Odaxothrissa losera (2)	NC_016678 AP011595		
Rhynchocypris percnurus (2)	NC_015360 AP009149		
Hyperlophus vittatus (1)	NC_016671	Marine	10-13m
Clupeichthys perakensis (1)	NC_016705	Fresh water	
Clupeichthys aesaransensis (1)	NC_016702	Fresh water	
Sundasalanx praecox (1)	NC_016725	Fresh water	
Sundasalanx sp. Chao Phraya (1)	NC_016663		
Tenuaosa ilisha (1)	NC_016682	Marine;Fresh water	?-200m
Tenuaosa toli (2)	NC_016700 AP011600		
Tenuaosa thibaudeau (1)	NC_016719	Fresh water	
Setipinna melanochir (1)	AP011565	Marine;Fresh water	
Clupeichthys goniognathus (1)	NC_016721	Fresh water	
Etrumeus micropus (1)	AP009139	Marine	
Microthrissa royauxi (2)	NC_016683 AP011596	Fresh water	
Pellonula vorax (1)	AP009231	Marine; Fresh water	
Potamothrissa obtusirostris (1)	NC_016698	Fresh water	
Pseudopentaceros richardsoni	NC_020016	Fresh water	

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Osmeriformes (93)

	NC_002734		
Plecoglossus altivelis (7)	AB047553 EU124679- EU124683	Marine;Fresh water	10-?m
Galaxias maculatus (2)	NC_004594 AP004104	Marine;Fresh water	
Galaxias gollumoides (2)	NC_015239 HM106487	Fresh water	
Galaxias sp. 'southern' (2)	NC_015240 HM106488		
Galaxiella nigrostriata (2)	NC_008448 AP006853	Fresh water	
Retropinna retropinna (2)	NC_004598 AP004108	Marine;Fresh water	
Hypomesus nipponensis (2)	NC_015242 HM106489	Fresh water	
Salangichthys microdon (2)	NC_004599 AP004109	Marine;Fresh water	
Salanx ariakensis (2)	NC_006918 AP006231	Marine;Fresh water	
Mallotus villosus (2)	NC_015244 HM106491	Marine;Fresh water	?-725m
Osmerus mordax (2)	NC_015246 HM106493	Marine;Fresh water	?-425m
Alepocephalus tenebrosus (2)	NC_004590 AP004100	Marine	46-5500m
Alepocephalus australis (2)	NC_013566 AP009571	Marine	1000-2600m
Alepocephalus umbriceps (2)	NC_013572 AP009575	Marine	500-2000m
Alepocephalus agassizii (2)	NC_013564 AP009570	Marine	600-2500m
Alepocephalus bairdii (2)	NC_013567 AP009572	Marine	365-1700m
Alepocephalus bicolor (2)	NC_011012 AP009399	Marine	439-1080m
Alepocephalus productus (2)	NC_013570 AP009574	Marine	1150-3500m
Bathyprion danae (2)	NC_011015 AP009400	Marine	100-3200m

Narcetes erimelas (2)	NC_011008 AP009405	Marine	1300-2600m	
Nansenia ardesiaca (2)	NC_004596 AP004106	Marine	260-553m	
Lipolagus ochotensis (2)	NC_004591 AP004101	Marine	?-6100m	
Opisthoproctus soleatus (2)	NC_004600 AP004110	Marine	300-800 m	500-70 0m
Glossanodon semifasciatus (2)	NC_004595 AP004105	Marine	70-430m	
Sagamichthys abei (2)	NC_011010 AP009495	Marine	37-1500m	
Maulisia maui (2)	NC_011007 AP009404	Marine	400-1200m	
Normichthys operosus (2)	NC_011009 AP009406	Marine	?-1000m	
Platytroctes apus (2)	NC_004597 AP004107	Marine	385-5393m	
Leptochilichthys agassizii (2)	NC_011006 AP009403	Marine	2000-3100m	
Bathytroctes macrolepis (2)	NC_013575 AP009577	Marine	2500-58 50m	2800-3 300m
Bathytroctes michaelisarsii (2)	NC_013579 AP009579	Marine	2010-5057m	
Bathytroctes breviceps (2)	NC_013574 AP009576	Marine	1650-1650m	
Bathytroctes microlepis (2)	NC_011017 AP009401	Marine	?-4900m	?-1800 m
Conocara murrayi (2)	NC_013583 AP009581	Marine	1200-26 03m	2000-2 600m
Conocara macropterum (2)	NC_013581 AP009580	Marine	800-220 0m	1200-1 800m
Leptoderma lubricum (2)	NC_013557 AP009583	Marine	?-1700m	
Leptoderma retropinna (2)	NC_013559 AP009584	Marine	600-1100m	
Leptoderma macrophthalmum (2)	AP011500 NC_015100	Marine	2107-2063m	
Narcetes stomias (2)	NC_013560 AP009585	Marine	1500-23 00m	1800-2 100m
Talismania bifurcata (2)	NC_013562 AP009587	Marine	300-2000m	
Bajacalifornia megalops (2)	NC_013577 AP009578	Marine	150-320 0m	800-14 00m

Herwigia krefftii (2)	NC_013555	Marine	1000-3200m	
	AP009582			
Alepocephalus longiceps (1)	AP009573	Marine	1240-1300m	
	AP009494			
Bathylaco nigricans (1)		Marine	450-437	1750-2
			6m	200m
Rinoctes nasutus (1)	AP009586	Marine	2000-41	3650-?
			56m	m
Xenodermichthys copei (1)	AP009588	Marine	100-265	100-12
			0m	30m

Gadiformes (73)

	EU877710-EU877741			
Gadus morhua (33)	NC_002081	Marine	?-600m	150-200m

	AB094061			
Gadus chalcogrammus (11)	NC_004449	Marine	?-1280m	
	AB182300-AB182308			

Gadus ogac (2)	DQ356941	Marine	?-200m	
	NC_012323			
Melanogrammus aeglefinus (2)	NC_007396	Marine	10-450m	10-200m
	DQ020497			m
Merlangius merlangus (2)	NC_007395	Marine	10-200m	30-100m
	DQ020496			m
Boreogadus saida (2)	NC_010121	Marine	?-400m	
	DQ356936			
Physiculus japonicus (2)	NC_004377	Marine	150-350m	
	AP004409			
Lota lota (2)	NC_004379	Fresh water	1-700m	
	AP004412			

Trachyrincus murrayi (2)	NC_008224	Marine	?-1630m	
	AP008990			
Bathygadus antrodes (2)	NC_008222	Marine	792-1200m	
	AP008988			

Ventrifossa garmani (2)	NC_008225	Marine	200-720m	350-550m
	AP008991			
Coelorinchus kishinouyei (2)	NC_003169	Marine	250-450m	
	AP002929			

Squalogadus modificatus (2)	NC_008223	Marine	600-1740m	
	AP008989			

Bregmaceros nectabanus (2)	NC_008124	Marine	?-350m	
	AP004411			

Micromesistius poutassou (1)	NC_015102	Marine	150-300	300-400
			0m	0m

Pollachius pollachius (1)	NC_015097	Marine	?-200m	40-100
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Pollachius virens (1)	NC_015094	Marine	37-364m	m
Arctogadus glacialis (1)	NC_010122	Marine	?-1000m	
Merluccius merluccius (1)	NC_015120	Marine	30-1075	70-400
			m	m

Siluriformes (72)

	HQ907992	
Silurus meridionalis (3)	HM746661 NC_014866	Fresh water
Silurus asotus (2)	NC_015806 AP012022	Fresh water
Silurus lanzhouensis (2)	NC_015650 JF895472	Fresh water
Heteropneustes fossilis (2)	NC_015827 AP012013	Fresh water
Pangasianodon gigas (2)	NC_006381 AY762971	Fresh water
Pangasius larnaudii (2)	NC_015839 AP012018	Fresh water
Liobagrus obesus (2)	NC_008232 DQ321752	Fresh water
Pelteobagrus fulvidraco (2)	NC_015888 HM641815 HM746659	Fresh water
Pelteobagrus nitidus (3)	NC_014859 KC822643 HM746660	Fresh water
Pelteobagrus vachellii (3)	NC_014862 KT202282	Fresh water
Pseudobagrus brevicorpus (2)	HM355585 NC_015625	Fresh water
Pseudobagrus tokiensis (2)	NC_004697 AB054127	Fresh water
Leiocassis longirostris (2)	NC_014586 GU596454	Fresh water
Auchenoglanis occidentalis (2)	NC_015809 AP012005	Fresh water
Cranoglanis boudierius (2)	NC_008280 AY898626	Fresh water
Corydoras rabauti (2)	NC_004698 AB054128	Fresh water
Pimelodus pictus (2)	NC_015797 AP012019	Fresh water

Synodontis schoutedeni (2)	NC_015808 AP012023	Fresh water	
Diplomystes nahuelbutaensis (2)	NC_015823 AP012011	Fresh water	
Malapterurus electricus (2)	NC_015833 AP012016	Fresh water	
Amphilius sp. NM-2010 (2)	NC_015746 AP012002		
Bunocephalus coracoideus (2)	NC_015811 AP012006	Fresh water	
Clarias sp. NM-2010 (2)	NC_015749 AP012010		
Centromochlus perugiae (2)	NC_015748 AP012024	Fresh water	
Tetranematichthys quadrifilis (2)	NC_015743 AP012025	Fresh water	
Amblydoras gonzalezi (2)	NC_015745 AP012001	Fresh water	
Ictalurus punctatus (2)	NC_003489 AF482987	Fresh water	15-?m
Pareutropius debauwi (2)	NC_015837 AP012017	Fresh water	
Pterygoplichthys disjunctivus (2)	NC_015747 AP012021	Fresh water	
Silurus glanis (1)	NC_014261	Fresh water	?-30m
Hara jerdoni (1)	AP012012	Fresh water	
Trichomycterus areolatus (1)	AP012026	Fresh water	
Helogenes marmoratus (1)	AP012014	Fresh water	
Astroblepus sp. NM-2010 (1)	AP012004		
Chaca bankanensis (1)	AP012008	Fresh water	
Plotosus japonicus (1)	AP012020	Marine	
Cetopsidium sp. NM-2010 (1)	AP012007		
Chrysichthys sp. NM-2010 (1)	AP012009		
Liobagrus reinii (1)	AP012015	Fresh water	
Ariopsis seemanni (1)	AP012003	Marine; Fresh water	

Osteoglossiformes (67)

	AP009611		
Gnathonemus petersii (3)	AP008928 NC_012717	Fresh water	
	AP009612		
Brevimyrus niger (3)	AP008929 NC_012705	Fresh water	

Gymnarchus niloticus (3)	AP009610	Fresh water
	AP008930	
	NC_012707	
Notopterus notopterus (3)	AP008925	Fresh water
	AP008924	
	NC_012713	
Xenomystus nigri (3)	AP009503	Fresh water
	NC_012715	
	AP008927	
Arapaima gigas (3)	AP009497	Fresh water
	NC_010570	
	EF523611	
Pantodon buchholzi (3)	NC_003096	Fresh water
	AP011564	
	AB043068	
Hiodon alosoides (2)	AP004356	Fresh water
	NC_005145	
Hiodon tergisus (2)	NC_015082	Fresh water
	AP009499	
Paramormyrops gabonensis (2)	NC_015107	Fresh water
	AP009614	
Petrocephalus soudanensis (2)	NC_015092	Fresh water
	AP009502	
Petrocephalus microphthalmus (2)	NC_015098	Fresh water
	AP009609	
Genyomyrus donnyi (2)	NC_015086	Fresh water
	AP009500	
Marcusenius senegalensis (2)	NC_015090	Fresh water
	AP011575	
Chitala ornata (2)	AP008923	Fresh water
	NC_012712	
Chitala blanci (2)	AP008921	Fresh water
	NC_012710	
Chitala lopis (2)	AP008922	Fresh water
	NC_012711	
Papyrocranus congoensis (2)	AP008926	Fresh water
	NC_012714	
Osteoglossum bicirrhosum (2)	NC_003095	Fresh water
	AB043025	

Scleropages formosus (2)	NC_007012 DQ023143	Fresh water	
Heterotis niloticus (2)	NC_015081 AP009498	Fresh water	
Pollimyrus adspersus (1)	AP011582	Fresh water	
Ivindomyrus marcheii (1)	AP011574	Fresh water	
Mormyrops anguilloides (1)	AP011576	Fresh water	
Boulengeromyrus knoepffleri (1)	AP011568	Fresh water	
Hyperopisus bebe (1)	AP011572	Fresh water	
Paramormyrops sp. CU 6239 (1)	AP011578		
Paramormyrops sp. CU 6246 (1)	AP011580		
Paramormyrops sp. CU 6227 (1)	AP011579		
Paramormyrops sp. CU 6230 (1)	AP011581		
Brienomyrus brachyistius (1)	AP011569	Fresh water	
Campylomormyrus numenius (1)	AP011571	Fresh water	
Isichthys henryi (1)	AP011573	Fresh water	
Mormyrus rume (1)	AP011577	Fresh water	
Stomatorhinus cf. ater CU 6164 (1)	AP011583		
Cyphomyrus discorhynchus (2)	NC_015105 AP009613	Fresh water	
Nimbochromis linni (2)	NC_018558 JN628853	Fresh water	
Lophiiformes (62)			
Chaunax tosaensis (2)	NC004382 AP004416	Marine	
Chaunax abei (2)	NC004381 AP004415	Marine	90-500m
Chaunax pictus (2)	NC013883 AB282833	Marine	200-978m
Lophius americanus (2)	NC004380 AP004414	Marine	?-668m
Sladenia gardineri (2)	NC013873 AB282827		
Lophiomus setigerus (2)	NC008125 AP004413	Marine	30-800m

Lophiodes caularis (2)	NC013872 AB282826	Marine	15-311m	
Melanocetus murrayi (2)	NC004384 AP004418	Marine	100-637 0m	1000-2 500m
Melanocetus johnsoni (2)	NC013866 AB282838	Marine	100-450 0m	100-15 00m
Neoceratias spinifer (2)	NC013864 AB282837	Marine	?-1200m	
Himantolophus albinus (2)	NC013867 AB282839	Marine	845-?m	
Himantolophus groenlandicus (2)	NC013868 AB282840	Marine	830-?m	
Bufoceratias thele (2)	NC013869 AB282841	Marine	?-1500m	
Diceratias pileatus (2)	NC013870 AB282842	Marine	640-1430m	
Oneirodes thompsoni (2)	NC013871 AB282843	Marine	100-201 4m	400-60 0m
Thaumatichthys pagidostomus (2)	NC013875 AB282847	Marine	1392-1393m	
Ceratias uranoscopus (2)	NC013882 AB282851	Marine	?-2091m	500-10 00m
Cryptopsaras couesii (2)	NC013880 AB282850	Marine	?-3085m	500-12 50m
Rhynchactis macrothrix (2)	NC013863 AB282853	Marine	?-2000m	
Gigantactis vanhoeffeni (2)	NC013885 AB282852	Marine	300-5300m	
Tetrabrachium ocellatum (2)	NC013879 AB282831	Marine	?-51m	
Coelophrys breviceudata (2)	NC013886 AB282834	Marine	1024-1024m	
Haplophryne mollis (2)	NC013865 AB282856	Marine	?-2250m	
Caulophryne pelagica (2)	NC016020 AB282836	Marine	?-2500m	
Histrio histrio (1)	AB282829	Marine	?-50m	?-2m
Antennarius striatus (1)	AB282830	Marine	10-219m	?-40m
Antennatus coccineus (1)	AB282828	Marine	?-104m	?-30m
Zalieutes elater (1)	AB282835	Marine	18-113m	
Haliutaea stellata (1)	AP005977	Marine	50-400m	
Malthopsis jordani (1)	AP005978	Marine	185-520m	
Chaenophryne melanorhabdus (1)	AB282845	Marine	?-1250m	

Puck pinnata (1)	AB282844	Marine	
Bertella idiomorpha (1)	AB282846	Marine	?-3475m
Centrophryne spinulosus (1)	AB282849	Marine	
Acentrophryne dolichonema (1)	AB282855	Marine	201-1105m
Linophryne bicornis (1)	AB282854	Marine	
Caulophryne jordani (1)	AP004417	Marine	100-1510m
Lasiognathus sp. NMMBP 9030 (1)	AB282848		
Beloniformes (41)			
	AB498065		
	AB498066		
Oryzias latipes (15)	AP004421 AP008938-AP008948 NC_004387	Fresh water	
	AB498067		
Oryzias javanicus (3)	GU013790 NC_012981	Fresh water	
	AB498069		
Oryzias dancena (3)	GU013789 NC_012976	Fresh water	
	AB498064		
Oryzias luzonensis (2)	NC_012979	Fresh water	
	AB498068		
Oryzias minutillus (2)	NC_012975	Fresh water	
	GU013788		
Oryzias sinensis (2)	NC_013434	Fresh water	
	AP002933		
Exocoetus volitans (2)	NC_003184	Marine	?-20m
	AB182653		
Cypselurus hiraii (2)	NC_007403	Marine	
	AB370892		
Hyporhamphus sajori (2)	NC_011173	Marine;Fresh water	30-?m
	AP002932		
Cololabis saira (2)	NC_003183	Marine	?-230m
	AB373007		
Ablennes hians (2)	NC_011180	Marine	?-3m
	AB498070		
Oryzias celebensis (1)		Fresh water	
Oryzias marmoratus (1)	AP005981	Fresh water	
	NC_011172		
Oryzias sarasinorum (2)	AB370891	Fresh water	

Characiformes (39)

Pygocentrus nattereri (2)	AP012000 NC_015840	Fresh water
Myleus sp. NM-2010 (2)	AP011997 NC_015751	
Hydrolycus scomberoides (2)	AP011989 NC_015813	Fresh water
Chalceus macrolepidotus (2)	AB054130 NC_004700	Fresh water
Phenacogrammus interruptus (2)	AB054129 NC_004699	Fresh water
Micralestes sp. NM-2010 (2)	AP011996 NC_015753	
Distichodus sexfasciatus (2)	AB070242 NC_015836	Fresh water
Chilodus punctatus (2)	AP011984 NC_015801	Fresh water
Hemiodopsis gracilis (2)	AP011990 NC_015816	Fresh water
Apareiodon affinis (2)	AP011998 NC_015834	Fresh water
Lebiasina astrigata (2)	AP011995 NC_015750	Fresh water
Ichthyborus sp. NM-2010 (2)	AP011993 NC_015752	
Citharinus congicus (2)	AP011985 NC_015805	Fresh water
Hepsetus odoe (2)	AP011991 NC_015819	Fresh water
Acestrorhynchus sp. NM-2010 (2)	AP011981 NC_015755	
Astyanax mexicanus (1)	AP011982	Fresh water
Paracheirodon innesi (1)	AP011999	Fresh water
Boulengerella maculata (1)	AB070207	Fresh water
Ctenolucius hujeta (1)	AP011987	Fresh water
Hoplias malabaricus (1)	AP011992	Fresh water
Crenuchus spilurus (1)	AP011986	Fresh water
Curimatopsis evelynae (1)	AP011988	Fresh water
Leporinus affinis (1)	AP011994	Fresh water
Carnegiella strigata (1)	AP011983	Fresh water
Cyprinodontiformes (34)		
	FJ445398-FJ445403	
Fundulus heteroclitus (7)	NC_012312	Marine;Fresh water

Xiphophorus hellerii (3)	FJ226476 FJ234985 NC_013089 FJ445396	Fresh water	
Fundulus grandis (3)	FJ445397 NC_012377 FJ445394	Fresh water	
Fundulus diaphanus (3)	FJ445395 NC_012361	Fresh water	
Xiphophorus maculatus (2)	AP005982 NC_011379	Fresh water	
Gambusia affinis (2)	AP004422 NC_004388	Fresh water	
Fundulus olivaceus (2)	AP006776 NC_011380	Fresh water	
Jordanella floridae (2)	AP006778 NC_011387	Fresh water	
Cyprinodon rubrofluviatilis (2)	EF442803 NC_009125	Fresh water	
Xenotoca eiseni (2)	AP006777 NC_011381	Fresh water	
Kryptolebias marmoratus (2)	NC_003290 AF283503	Fresh water	
Aplocheilichthys panchax (2)	AB373005 NC_011176	Fresh water	
Nothobranchius furzeri (2)	EU650204 NC_011814	Fresh water	
Pleuronectiformes (22)			
Paralichthys olivaceus (2)	AB028664 NC_002386 EU366230	Marine	10-200m
Cynoglossus semilaevis (3)	GQ380409 NC_012825	Marine;Fresh water	
Scophthalmus maximus (2)	EU419747 NC_013183	Marine	20-70m
Verasper moseri (2)	EF025506 NC_008461	Marine	1-900m
Verasper variegatus (2)	DQ403797 NC_007939	Marine	
Kareius bicoloratus (2)	AP002951 NC_003176	Marine;Fresh water	?-150m
Platichthys stellatus (2)	EF424428 NC_010966	Marine;Fresh water	?-375m

<i>Solea senegalensis</i> (2)	AB270760 NC_008327	Marine	12-65m
<i>Cynoglossus abbreviatus</i> (2)	GQ380410 NC_014881	Marine	20-85m
Reinhardtius hippoglossoides (1)	NC_009711	Marine	1-2000m
Hippoglossus hippoglossus (1)	NC_009709	Marine	50-2000m
Hippoglossus stenolepis (1)	NC_009710	Marine	?-1200m

Stephanoberyciformes (29)

Cetostoma regani (3)	AP004423 AP010882 NC_004389	Marine	?-2250m
Barbourisia rufa (2)	AP010879 NC_012046	Marine	120-2000m
Rondeletia loricata (2)	AP002937 NC_003186	Marine	100-3500m
Gyrinomimus myersi (2)	AP010884 NC_012050	Marine	1280-2791m
<i>Gyrinomimus</i> sp. UW 113191 (2)	AP010883 NC_012049		
Procetichthys krefftii (2)	AP010880 NC_012047	Marine	?-2200m
<i>Cetomimus</i> sp. AMS I34481001 (2)	AP010881 NC_012048		
Danacetichthys galathenus (2)	AP002936 NC_003185	Marine	?-1330m
Parataeniophorus gulosus (2)	AP010886 NC_012044	Marine	?-1400m
<i>Eutaeniophorus</i> sp. 033-Miya (2)	NC_004390 AP004424		
<i>Eutaeniophorus festivus</i> (2)	AP010885 NC_012043	Marine	?-200m
Ataxolepis apus (2)	AP010887 NC_012045	Marine	1464-1464m
Scopelogadus mizolepis (2)	AP002934 NC_003171	Marine	300-3385m
Poromitra oscitans (2)	AP002935 NC_003172	Marine	645-5320m

Gasterosteiformes (24)

<i>Aulostomus chinensis</i> (2)	AP009197 NC_010269	Marine	3-122m
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Gasterosteus aculeatus (2)	AP002944 NC_003174	Marine;Fresh water	?-100m	
Gasterosteus wheatlandi (2)	AB445129 NC_011570	Marine		
Pungitius pungitius (2)	AB445130 NC_011571	Marine;Fresh water	?-110m	70-77m
Pungitius kaibarae (2)	EU332749 NC_014893	Marine;Fresh water		
Pungitius sinensis (2)	EU332748 NC_014889	Marine;Fresh water		
Apeltes quadracus (2)	AB445126 NC_011580	Marine;Fresh water	?-3m	
Spinachia spinachia (2)	AB445128 NC_011582	Marine		
Culaea inconstans (2)	AB445125 NC_011577	Fresh water	?-55m	
Aulichthys japonicus (2)	AB445127 NC_011569	Marine		
Aulorhynchus flavidus (2)	AP009196 NC_010268	Marine	?-30m	
Hypoptychus dybowskii (2)	AP004437 NC_004400	Marine		

Beryciformes (25)

Beryx splendens (3)	AP002939 DQ996312 NC_003188	Marine	25-1300 m	400-60 0m
Diretmus argenteus (2)	AP004427 NC_008127	Marine	?-2000m	500-70 0m
Diretmoides veriginae (2)	AP004426 NC_008126	Marine	340-1300m	
Anoplogaster cornuta (2)	AP004425 NC_004391	Marine	2-4992m	500-20 00
Hoplostethus japonicus (2)	AP002938 NC_003187	Marine	336-605m	
Monocentris japonicus (2)	AP004429 NC_004392	Marine	10-200m	
Anomalops katoptron (2)	AP004428 NC_008128	Marine	2-400m	
Beryx decadactylus (2)	AP004430 NC_004393	Marine	110-100 0m	200-40 0m
Beryx mollis (2)	DQ993168 NC_013845	Marine	100-500m	

Ostichthys japonicus (2)	AP004431 NC_004394	Marine		
Myripristis berndti (2)	AP002940 NC_003189	Marine	1-50m	3-15m
Sargocentron rubrum (2)	AP004432 NC_004395	Marine	1-84m	

Polypteriformes (22)

	AP004350			
Erpetoichthys calabaricus (4)	AY442348 HM143925 NC_005251	Fresh water		
Polypterus ornatipinnis (2)	AP004351 NC_001778	Fresh water		
Polypterus endlicherii (1)	HM143931	Fresh water		
Polypterus senegalus senegalus (2)	AP004352 NC_004418	Fresh water		
Polypterus retropinnis (1)	HM143937	Fresh water		
Polypterus endlicherii congius (1)	HM143929	Fresh water	?-10m	
Polypterus bichir bichir (1)	HM143927	Fresh water		
Polypterus bichir lapradei (1)	HM143928	Fresh water		
Polypterus sp. Koliba (1)	HM143933			
Polypterus palmas buettikoferi (1)	HM143935	Fresh water		
Polypterus palmas polli (1)	HM143936	Fresh water		
Polypterus weeksii (1)	HM143939	Fresh water		
Polypterus delhezi (1)	HM143930	Fresh water		
Polypterus ansorgii (1)	HM143926	Fresh water		
Polypterus sp. golden dust (1)	HM143932			
Polypterus mokelembembe (1)	HM143934	Fresh water		
Polypterus teugelsi (1)	HM143938	Fresh water		

Acipenseriformes (20)

	AP004353			
Polyodon spathula (4)	AY442349 AY510086 NC_004419	Fresh water	2-?m	
Acipenser transmontanus (2)	AB042837 NC_004743	Marine;Fresh water	1-122m	
Acipenser sinensis (2)	EU719645 NC_012646	Marine;Fresh water		
Acipenser gueldenstaedtii (2)	FJ392605 NC_012576	Marine;Fresh water	1-?m	

Acipenser dabryanus (2)	AY510085 NC_005451	Fresh water	
Scaphirhynchus cf. albus (2)	AP004354 AP004354		
Huso huso (2)	AY442351 NC_005252	Marine;Fresh water	70-180m
Psephurus gladius (2)	AY571339 NC_005834	Fresh water	
Acipenser baerii (1)	JQ045341	Marine;Fresh water	1-?m
Acipenser stellatus (1)	NC_005795	Marine;Fresh water	10-100m

Gonorynchiformes (18)

Cromeria nilotica (1)	AP011560 AB070243	Fresh water	
Phractolaemus ansorgii (3)	AP007280 NC_007892	Fresh water	
Chanos chanos (2)	AB054133 NC_004693	Marine;Fresh water	1-30m
Grasseichthys gabonensis (2)	AP007277 NC_007890	Fresh water	
Parakneria cameronensis (2)	AP007279 NC_007891	Fresh water	
Kneria sp. SL-2004 (2)	AP007278 NC_007882		
Gonorynchus abbreviatus (2)	AP009402 NC_011018	Marine	50-100m
Gonorynchus greyi (2)	AB054134 NC_004702	Marine	?-160m
Cromeria occidentalis (2)	NC_007881 AP007275	Fresh water	

Syngnathiformes (18)

Aeoliscus strigatus (2)	AP009198 NC_010270	Marine	1-20m	
Macroramphosus scolopax (2)	AP005988 NC_010265	Marine	25-600m	50-350m
Pegasus volitans (2)	AP005984 NC_010271	Marine	1-73m	9-27m
Eurypegasus draconis (2)	AP005983 NC_010264	Marine	3-91m	35-90m
Microphis brachyurus (2)	AP005986 NC_010273	Marine;Fresh water		

Hippocampus kuda (2)	AP005985 NC_010272	Marine	?-68m	
Indostomus paradoxus (2)	AP004438 NC_004401	Fresh water		
Solenostomus cyanopterus (2)	AB277725 NC_010267	Marine	?-25m	?-25m
Fistularia commersonii (2)	AP005987 NC_010274	Marine	?-132m	

Scorpaeniformes (18)

Scalicus amiscus (2)	AP004441 NC_004403			
Aptocyclus ventricosus (2)	AP004443 NC_008129	Marine	?-1700m	
Clinocottus analis (2)	FJ848374 NC_013828	Marine	?-18m	
Cottus poecilopus (2)	EU332750 NC_014849	Fresh water	?-15m	
Cottus reinii (2)	AP004442 NC_004404	Fresh water		
Cottus hangiongensis (2)	EU332751 NC_014851 NC_005450	Marine;Fresh water		
Sebastes schlegelii (2)	AY491978	Marine	3-100m	
Helicolenus hilgendorfi (2)	AP002948 NC_003195	Marine	150-500m	
Sebastiscus marmoratus (2)	GU452728 NC_013812	Marine		

Zeiformes (12)

Parazen pacificus (2)	AP004433 NC_004396	Marine	145-500m	
Allocttus niger (2)	AP004435 NC_004398	Marine	560-1300m	
Neocyttus rhomboidalis (2)	AP004436 NC_004399	Marine	200-1240m	450-800m
Zenopsis nebulosus (2)	AP002942 NC_003173	Marine	30-800m	50-600m
Zeus faber (2)	AP002941 NC_003190	Marine	5-400m	50-150m
Zenion japonicum (2)	AP004434 NC_004397	Marine	200-400m	

Ophidiiformes (12)

Bassozetus zenkevitchi (2)	AP004405 NC_004374	Marine	?-6930m
Lamprogrammus niger (2)	AP004410 NC_004378	Marine	741-2000m ?-1500m
Sirembo imberbis (2)	AP004406 NC_008123	Marine	100-200m
Carapus bermudensis (2)	AP004404 NC_004373	Marine	1-235m
Cataetys rubrirostris (2)	AP004407 NC_004375	Marine	300-1000m
Diplacanthopoma brachysoma (2)	AP004408 NC_004376	Marine	460-1670m

Gymnotiformes (10)

Gymnorhamphichthys sp.	AP011980	
NM-2010 (2)	NC_015754	
Eigenmannia sp.	AB054131	
CBM-ZF-10620 (2)	NC_004701	
Apteronotus albifrons (2)	AB054132 NC_004692	Fresh water
Electrophorus electricus (1)	AP011978	Fresh water
Gymnotus carapo (1)	AP011979	Fresh water
Brachyhypopomus occidentalis (2)	AP011570 NC_015078	Fresh water

Atheriniformes (10)

Melanotaenia lacustris (2)	NC_004385 AP004419	Fresh water
Odontesthes sp. Odsp-001 (2)	NC_011175 AB370894	
Menidia menidia (2)	NC_011174 AB370893	Marine
Hypoatherina tsurugae (2)	NC_004386 AP004420	Marine
Iso hawaiiensis (2)	NC_011178 AB373006	Marine

Aulopiformes (10)

Harpadon microchir (2)	NC_003161 AP002919	Marine
Saurida undosquamis (2)	NC_003162 AP002920	Marine
Synodus variegatus (2)	NC_007228 AY524977	Marine

Aulopus japonicus (2)	NC_002674 AB047821	Marine	85-510m	
Chlorophthalmus agassizi (2)	NC_003160 AP002918	Marine	50-1000m	
Lampriformes (9)				
Stylephorus chordatus (3)	NC_009948 AB280687 AB280688	Marine		
Lampris guttatus (2)	NC_003165 AP002924	Marine	100-500 m	?-366m
Zu cristatus (2)	NC_003167 AP002926	Marine	?-90m	
Trachipterus trachipterus (2)	NC_003166 AP002925	Marine	100-600m	

Elopiformes (8)

Elops hawaiiensis (2)	AB051070 NC_005798 AP004807	Marine;Fresh water	1-30m	
Elops saurus (2)	NC_005803	Marine	?-50m	
Megalops atlanticus (2)	NC_005804 AP004808	Marine;Fresh water	?-30m	?-15m
Megalops cyprinoides (2)	AB051110 NC_005799	Marine;Fresh water	50-?m	

Semionotiformes (7)

Lepisosteus oculatus (3)	NC_004744 AB042861 AY442350	Fresh water		
Lepisosteus osseus (2)	DQ536423 NC_008104	Fresh water		
Atractosteus spatula (2)	NC_008131 AP004355	Fresh water		

Myctophiformes (6)

Diaphus splendidus (2)	NC_003164 AP002923	Marine	?-8000m	
Myctophum affine (2)	NC_003163 AP002922	Marine	?-600m	
Neoscopelus microchir (2)	NC_003180 AP002921	Marine	250-700m	

Stomiiformes (5)

Chauliodus sloani (2)	NC_003159	Marine	200-470	494-10
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	AP002915		0m	00m
Sigmops gracilis (2)	NC_002574 AB016274	Marine	?-4389m	?-800m
Diplophos taenia (1)	NC_002647	Marine	?-1594m	450-610m

Synbranchiiformes (5)

Monopterus albus (2)	NC_003192 AP002945	Fresh water	3-?m
Mastacembelus favus (2)	NC_003193 AP002946	Fresh water	
Synbranchus marmoratus (1)	AP004439	Fresh water	

Esociformes (4)

Dallia pectoralis (2)	NC_004592 AP004102	Fresh water	
Esox lucius (2)	NC_004593 AP004103	Fresh water	?-30m 1-5m

Dactylopteriformes (4)

Dactyloptena peterseni (2)	NC_003194 AP002947	Marine	50-210m
Dactyloptena tiltoni (2)	NC_004402 AP004440	Marine	119-565m

Percopsiformes (4)

Aphredoderus sayanus (2)	NC_004372 AP004403	Fresh water	
Percopsis transmontana (2)	NC_003168 AP002928	Fresh water	

Polymixiiformes (4)

Polymixia japonica (2)	NC_002648 AB034826	Marine	160-628m
Polymixia lowei (2)	NC_003181 AP002927	Marine	50-600m 150-600m

Ateleopodiformes (4)

Ijimaia dofleini (2)	NC_003179 AP002917	Marine	?-1281m
Ateleopus japonicus (2)	NC_003178 AP002916	Marine	140-600m

Notacanthiformes (4)

Notacanthus chemnitzii (2)	AP002975 NC_005144	Marine	125-328 5m	125-10 00m
Aldrovandia affinis (2)	NC_005801 AP002974	Marine	730-2560m	

Elassomatidae (4)

Elassoma zonatum (2)	NC_011388 AP006813	Fresh water		
Elassoma evergladei (2)	NC_003175 AP002950	Fresh water		

Amiiformes (3)

Amia calva (3)	AB042952 AY442347 NC_004742	Fresh water		
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Mugiliformes (3)

Mugil cephalus (3)	NC_003182 AP002931 AP002930	Marine	?-120m	?-10m
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Batrachoidiformes (3)

Porichthys myriaster (2)	NC_006920 AP006739			
Batrachomoeus trispinosus (1)	AP006738	Marine		

Albuliformes (3)

Albula glossodonta (2)	NC_005800 AP002973	Marine		
Pterothrissus gissu (1)	NC_005796	Marine	?-1000m	

Carangimorpha (12)

Trachurus japonicus (3)	NC_002813 AP003092 AP003091	Marine	?-275m	50-275 m
Trachurus trachurus (2)	NC_006818 AB108498	Marine	?-1050m	100-20 0m
Carangoides armatus (2)	NC_004405 AP004444	Marine		

Caranx melampygus (2)	NC_004406 AP004445	Marine	?-190m	
Seriola quinqueradiata (1)	NC_016868	Marine	100-?m	
Seriola lalandi (1)	NC_016869	Marine	3-825m	
Seriola dumerili (1)	NC_016870	Marine	1-360m	18-72m
Scombriformes (11)				
Scomber japonicus (2)	NC_013723 AB488405	Marine	?-300m	50-200 m
Scomber australasicus (2)	NC_013725 AB488407	Marine	87-200m	
Scomber colias (2)	NC_013724 AB488406	Marine		
Scomber scombrus (1)	NC_006398	Marine	?-1000m	?-200m
Rastrelliger brachysoma (2)	NC_013485 EU555283	Marine	15-200m	
Rastrelliger kanagurta (2)	NC_019624 JX524134	Marine	20-90m	

Supplementary Table 2: Selective pressure analyses for the 13 genes in Anguilliformes.

1. ATP6

Model	Parameter Estimated ^a					p	lnL	2ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0500					118	-15891.25		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-15710.48	0 P=1	
	proportion	0.93146	0.06854	0.00000	0.00000				
	background w	0.04116	1.00000	0.04116	1.00000				
	foreground w	0.04116	1.00000	1.00000	1.00000				
Branch a ω _a = 1	site class	0	1	2a	2b	120	-15710.48		
	proportion	0.93146	0.06854	0.00000	0.00000				
	background w	0.04116	1.00000	0.04116	1.00000				
	foreground w	0.04116	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-15710.48	0 P=1	
	proportion	0.93146	0.06854	0.00000	0.00000				
	background w	0.04116	1.00000	0.04116	1.00000				
	foreground w	0.04116	1.00000	1.00000	1.00000				
Branch b ω _b = 1	site class	0	1	2a	2b	120	-15710.48		
	proportion	0.93146	0.06854	0.00000	0.00000				
	background w	0.04116	1.00000	0.04116	1.00000				
	foreground w	0.04116	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-15706.18	0 P=1	
	proportion	0.79528	0.05865	0.13604	0.01003				
	background w	0.04030	1.00000	0.04030	1.00000				
	foreground w	0.04030	1.00000	1.00000	1.00000				
Branch c ω _c = 1	site class	0	1	2a	2b	120	-15706.18		
	proportion	0.79528	0.05865	0.13604	0.01003				
	background w	0.04030	1.00000	0.04030	1.00000				
	foreground w	0.04030	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-15710.48	0 P=1	
	proportion	0.93146	0.06854	0.00000	0.00000				
	background w	0.04116	1.00000	0.04116	1.00000				
	foreground w	0.04116	1.00000	1.00000	1.00000				
Branch d ω _d = 1	site class	0	1	2a	2b	120	-15710.48		
	proportion	0.93146	0.06854	0.00000	0.00000				
	background w	0.04116	1.00000	0.04116	1.00000				
	foreground w	0.04116	1.00000	1.00000	1.00000				

2. ATP8

Model	Parameter Estimated ^a					p	lnL	2ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
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One ratio	$\omega = 0.1171$					118	-3895.55		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-3868.33	0 $P=1$	
	proportion	0.85251	0.12912	0.01596	0.00242				
	background w	0.10413	1.00000	0.10413	1.00000				
	foreground w	0.10413	1.00000	1.00000	1.00000				
Branch a $\omega_a = 1$	site class	0	1	2a	2b	120	-3868.33		
	proportion	0.85251	0.12912	0.01596	0.00242				
	background w	0.10413	1.00000	0.10413	1.00000				
	foreground w	0.10413	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-3868.34	0 $P=1$	
	proportion	0.86862	0.13138	0.00000	0.00000				
	background w	0.10432	1.00000	0.10432	1.00000				
	foreground w	0.10432	1.00000	1.00000	1.00000				
Branch b $\omega_b = 1$	site class	0	1	2a	2b	120	-3868.34		
	proportion	0.86862	0.13138	0.00000	0.00000				
	background w	0.10432	1.00000	0.10432	1.00000				
	foreground w	0.10432	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-3868.13	0 $P=1$	
	proportion	0.67102	0.10151	0.19758	0.02989				
	background w	0.10280	1.00000	0.10280	1.00000				
	foreground w	0.10280	1.00000	1.00000	1.00000				
Branch c $\omega_c = 1$	site class	0	1	2a	2b	120	-3868.13		
	proportion	0.67102	0.10151	0.19758	0.02989				
	background w	0.10280	1.00000	0.10280	1.00000				
	foreground w	0.10280	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-3868.34	0 $P=1$	
	proportion	0.86862	0.13138	0.00000	0.00000				
	background w	0.10432	1.00000	0.10432	1.00000				
	foreground w	0.10432	1.00000	1.00000	1.00000				
Branch d $\omega_d = 1$	site class	0	1	2a	2b	120	-3868.34		
	proportion	0.86862	0.13138	0.00000	0.00000				
	background w	0.10432	1.00000	0.10432	1.00000				
	foreground w	0.10432	1.00000	1.00000	1.00000				

3. Coxl

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0187					118	-26843.53		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-26725.73	0 P=1	
	proportion	0.98849	0.01151	0.00000	0.00000				
	background w	0.01634	1.00000	0.01634	1.00000				
	foreground w	0.01634	1.00000	1.00000	1.00000				

Branch a $\omega_b = 1$	site class	0	1	2a	2b	120	-26725.73		
	proportion	0.98849	0.01151	0.00000	0.00000				
	background w	0.01634	1.00000	0.01634	1.00000				
	foreground w	0.01634	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-26724.98	0 $P=1$	
	proportion	0.96527	0.01129	0.02317	0.00027				
	background w	0.01622	1.00000	0.01622	1.00000				
	foreground w	0.01622	1.00000	1.00000	1.00000				
Branch b $\omega_b = 1$	site class	0	1	2a	2b	120	-26724.98		
	proportion	0.96526	0.01129	0.02317	0.00027				
	background w	0.01622	1.00000	0.01622	1.00000				
	foreground w	0.01622	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-26725.64	0 $P=1$	
	proportion	0.97934	0.01141	0.00915	0.00011				
	background w	0.01630	1.00000	0.01630	1.00000				
	foreground w	0.01630	1.00000	1.00000	1.00000				
Branch c $\omega_b = 1$	site class	0	1	2a	2b	120	-26725.64		
	proportion	0.97934	0.01141	0.00915	0.00011				
	background w	0.01630	1.00000	0.01630	1.00000				
	foreground w	0.01630	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-26725.73	0 $P=1$	
	proportion	0.98849	0.01151	0.00000	0.00000				
	background w	0.01634	1.00000	0.01634	1.00000				
	foreground w	0.01634	1.00000	1.00000	1.00000				
Branch d $\omega_b = 1$	site class	0	1	2a	2b	120	-26725.73		
	proportion	0.98849	0.01151	0.00000	0.00000				
	background w	0.01634	1.00000	0.01634	1.00000				
	foreground w	0.01634	1.00000	1.00000	1.00000				

4. CoxII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0301					118	-11727.45		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-11700.41	0.7 P=0.40	
	proportion	0.96603	0.01759	0.01608	0.00029				
	background w	0.02772	1.00000	0.02772	1.00000				
	foreground w	0.02772	1.00000	3.36860	3.36860				
Branch a ω _b = 1	site class	0	1	2a	2b	120	-11700.76		
	proportion	0.94605	0.01723	0.03607	0.00066				
	background w	0.02770	1.00000	0.02770	1.00000				
	foreground w	0.02770	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-11699.22	0	

	proportion	0.79755	0.01465	0.18441	0.00339			$P=1$	
	background w	0.02739	1.00000	0.02739	1.00000				
	foreground w	0.02739	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b			$P=1$	
$\omega_b = 1$	proportion	0.79755	0.01465	0.18441	0.00339	120	-11699.22		
	background w	0.02739	1.00000	0.02739	1.00000				
	foreground w	0.02739	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b			0 $P=1$	
	proportion	0.95608	0.01738	0.02607	0.00047	121	-11703.24		
	background w	0.02794	1.00000	0.02794	1.00000				
	foreground w	0.02794	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b			$P=1$	
$\omega_b = 1$	proportion	0.95608	0.01738	0.02607	0.00047	120	-11703.24		
	background w	0.02794	1.00000	0.02794	1.00000				
	foreground w	0.02794	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b			0 $P=1$	
	proportion	0.98218	0.01782	0.00000	0.00000	121	-11703.53		
	background w	0.02809	1.00000	0.02809	1.00000				
	foreground w	0.02809	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b			$P=1$	
$\omega_b = 1$	proportion	0.98218	0.01782	0.00000	0.00000	120	-11703.53		
	background w	0.02809	1.00000	0.02809	1.00000				
	foreground w	0.02809	1.00000	1.00000	1.00000				

5. CoxIII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0258					118	-13881.43		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-13765.88	0 P=1	
	proportion	0.94925	0.05075	0.00000	0.00000				
	background w	0.01818	1.00000	0.01818	1.00000				
	foreground w	0.01818	1.00000	1.00000	1.00000				
Branch a ω _b = 1	site class	0	1	2a	2b	120	-13765.88		
	proportion	0.94925	0.05075	0.00000	0.00000				
	background w	0.01818	1.00000	0.01818	1.00000				
	foreground w	0.01818	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-13765.88	0 P=1	
	proportion	0.94925	0.05075	0.00000	0.00000				
	background w	0.01818	1.00000	0.01818	1.00000				
	foreground w	0.01818	1.00000	1.00000	1.00000				
Branch b ω _b = 1	site class	0	1	2a	2b	120	-13765.88		
	proportion	0.94925	0.05075	0.00000	0.00000				
	background w	0.01818	1.00000	0.01818	1.00000				

	foreground w	0.01818	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-13765.88	0 $P=1$	
	proportion	0.94925	0.05075	0.00000	0.00000				
	background w	0.01818	1.00000	0.01818	1.00000				
	foreground w	0.01818	1.00000	1.00000	1.00000				
Branch c $\omega_b = 1$	site class	0	1	2a	2b	120	-13765.88		
	proportion	0.94925	0.05075	0.00000	0.00000				
	background w	0.01818	1.00000	0.01818	1.00000				
	foreground w	0.01818	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-13765.88	0 $P=1$	
	proportion	0.94925	0.05075	0.00000	0.00000				
	background w	0.01818	1.00000	0.01818	1.00000				
	foreground w	0.01818	1.00000	1.00000	1.00000				
Branch d $\omega_b = 1$	site class	0	1	2a	2b	120	-13765.88		
	proportion	0.94925	0.05075	0.00000	0.00000				
	background w	0.01818	1.00000	0.01818	1.00000				
	foreground w	0.01818	1.00000	1.00000	1.00000				

6. CytB

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0301					118	-24182.00				
Branch-site Model											
Branch a	site class	0	1	2a	2b	121	-24101.70	0 P=1			
	proportion	0.97300	0.02700	0.00000	0.00000						
	background w	0.02760	1.00000	0.02760	1.00000						
	foreground w	0.02760	1.00000	1.00000	1.00000						
Branch a ω _b = 1	site class	0	1	2a	2b	120	-24101.70			0 P=1	
	proportion	0.97300	0.02700	0.00000	0.00000						
	background w	0.02760	1.00000	0.02760	1.00000						
	foreground w	0.02760	1.00000	1.00000	1.00000						
Branch b	site class	0	1	2a	2b	121	-24099.69	1.02 P=0.31			
	proportion	0.96557	0.02660	0.00762	0.00021						
	background w	0.02748	1.00000	0.02748	1.00000						
	foreground w	0.02748	1.00000	10.74283	10.74283						
Branch b ω _b = 1	site class	0	1	2a	2b	120	-24100.72			1.02 P=0.31	
	proportion	0.94580	0.02610	0.02735	0.00075						
	background w	0.02749	1.00000	0.02749	1.00000						
	foreground w	0.02749	1.00000	1.00000	1.00000						
Branch c	site class	0	1	2a	2b	121	-24091.51	0.52 P=0.47	74 N 0.999 153 V 0.831		
	proportion	0.80934	0.02286	0.16319	0.00461						
	background w	0.02703	1.00000	0.02703	1.00000						
	foreground w	0.02703	1.00000	4.15272	4.15272						

Branch c $\omega_b = 1$	site class	0	1	2a	2b	120	-24091.77		
	proportion	0.68021	0.01926	0.29226	0.00828				
	background w	0.02706	1.00000	0.02706	1.00000				
	foreground w	0.02706	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-24101.70	0 $P=1$	
	proportion	0.97300	0.02700	0.00000	0.00000				
	background w	0.02760	1.00000	0.02760	1.00000				
	foreground w	0.02760	1.00000	1.00000	1.00000				
Branch d $\omega_b = 1$	site class	0	1	2a	2b	120	-24101.70		
	proportion	0.97300	0.02700	0.00000	0.00000				
	background w	0.02760	1.00000	0.02760	1.00000				
	foreground w	0.02760	1.00000	1.00000	1.00000				

7. ND1

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0353					118	-20913.06		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-20778.10	0 <i>P</i> =1	
	proportion	0.96543	0.03457	0.00001	0.00000				
	background w	0.03102	1.00000	0.03102	1.00000				
	foreground w	0.03102	1.00000	1.00000	1.00000				
Branch a ω _b = 1	site class	0	1	2a	2b	120	-20778.10		
	proportion	0.96543	0.03457	0.00000	0.00000				
	background w	0.03102	1.00000	0.03102	1.00000				
	foreground w	0.03102	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-20777.20	0.84 <i>P</i> =0.36	
	proportion	0.95662	0.03438	0.00869	0.00031				
	background w	0.03092	1.00000	0.03092	1.00000				
	foreground w	0.03092	1.00000	4.84030	4.84030				
Branch b ω _b = 1	site class	0	1	2a	2b	120	-20777.62		
	proportion	0.94289	0.03387	0.02243	0.00081				
	background w	0.03093	1.00000	0.03093	1.00000				
	foreground w	0.03093	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-20770.74	13.06 <i>P</i> <0.001	246 I 0.996
	proportion	0.95770	0.03003	0.01190	0.00037				
	background w	0.03125	1.00000	0.03125	1.00000				
	foreground w	0.03125	1.00000	999.00000	999.00000				
Branch c ω _b = 1	site class	0	1	2a	2b	120	-20777.27		
	proportion	0.92914	0.03005	0.03952	0.00128				
	background w	0.03121	1.00000	0.03121	1.00000				
	foreground w	0.03121	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-20778.10	0	

	proportion	0.96543	0.03457	0.00001	0.00000			$P=1$	
	background w	0.03102	1.00000	0.03102	1.00000				
	foreground w	0.03102	1.00000	1.00000	1.00000				
Branch d $\omega_b = 1$	site class	0	1	2a	2b				
	proportion	0.96543	0.03457	0.00000	0.00000	120	-20778.10		
	background w	0.03102	1.00000	0.03102	1.00000				
	foreground w	0.03102	1.00000	1.00000	1.00000				

8. ND2

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0740					118	-27711.69		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-27527.26	0 P=1	
	proportion	0.92981	0.07019	0.00000	0.00000				
	background w	0.06727	1.00000	0.06727	1.00000				
	foreground w	0.06727	1.00000	1.00000	1.00000				
Branch a ω _b = 1	site class	0	1	2a	2b	120	-27527.26		
	proportion	0.92982	0.07018	0.00000	0.00000				
	background w	0.06727	1.00000	0.06727	1.00000				
	foreground w	0.06727	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-27527.15	0 P=1	
	proportion	0.90472	0.06819	0.02519	0.00190				
	background w	0.06714	1.00000	0.06714	1.00000				
	foreground w	0.06714	1.00000	1.00000	1.00000				
Branch b ω _b = 1	site class	0	1	2a	2b	120	-27527.15		
	proportion	0.90472	0.06819	0.02519	0.00190				
	background w	0.06714	1.00000	0.06714	1.00000				
	foreground w	0.06714	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-27522.57	8.76 P=0.003	204 N 0.995
	proportion	0.91963	0.06920	0.01039	0.00078				
	background w	0.06712	1.00000	0.06712	1.00000				
	foreground w	0.06712	1.00000	998.99949	998.99949				
Branch c ω _b = 1	site class	0	1	2a	2b	120	-27526.95		
	proportion	0.90785	0.06839	0.02210	0.00166				
	background w	0.06712	1.00000	0.06712	1.00000				
	foreground w	0.06712	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-27526.22	0 P=1	
	proportion	0.82782	0.06255	0.10193	0.00770				
	background w	0.06689	1.00000	0.06689	1.00000				
	foreground w	0.06689	1.00000	1.00000	1.00000				
Branch d ω _b = 1	site class	0	1	2a	2b	120	-27526.22		
	proportion	0.82782	0.06255	0.10193	0.00770				
	background w	0.06689	1.00000	0.06689	1.00000				

	foreground w	0.06689	1.00000	1.00000	1.00000				
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9. ND3

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0518					118	-8179.46		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-8113.62	0 $P=1$	
	proportion	0.89313	0.10687	0.00000	0.00000				
	background w	0.04267	1.00000	0.04267	1.00000				
	foreground w	0.04267	1.00000	1.00000	1.00000				
Branch a $\omega_b = 1$	site class	0	1	2a	2b	120	-8113.62		
	proportion	0.89313	0.10687	0.00000	0.00000				
	background w	0.04267	1.00000	0.04267	1.00000				
	foreground w	0.04267	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-8113.62	0 $P=1$	
	proportion	0.89313	0.10687	0.00000	0.00000				
	background w	0.04267	1.00000	0.04267	1.00000				
	foreground w	0.04267	1.00000	1.00000	1.00000				
Branch b $\omega_b = 1$	site class	0	1	2a	2b	120	-8113.62		
	proportion	0.89313	0.10687	0.00000	0.00000				
	background w	0.04267	1.00000	0.04267	1.00000				
	foreground w	0.04267	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-8113.62	0.1 $P=0.75$	
	proportion	0.89313	0.10687	0.00000	0.00000				
	background w	0.04267	1.00000	0.04267	1.00000				
	foreground w	0.04267	1.00000	1.00000	1.00000				
Branch c $\omega_b = 1$	site class	0	1	2a	2b	120	-8113.67		
	proportion	0.76892	0.09186	0.12437	0.01486				
	background w	0.04255	1.00000	0.04255	1.00000				
	foreground w	0.04255	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-8113.62	0 $P=1$	
	proportion	0.89313	0.10687	0.00000	0.00000				
	background w	0.04267	1.00000	0.04267	1.00000				
	foreground w	0.04267	1.00000	1.00000	1.00000				
Branch d $\omega_b = 1$	site class	0	1	2a	2b	120	-8113.62		
	proportion	0.89313	0.10687	0.00000	0.00000				
	background w	0.04267	1.00000	0.04267	1.00000				
	foreground w	0.04267	1.00000	1.00000	1.00000				

10. ND4

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
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One ratio	$\omega = 0.0430$					118	-31480.13		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-31070.92	0 $P=1$	
	proportion	0.94541	0.05459	0.00000	0.00000				
	background w	0.03445	1.00000	0.03445	1.00000				
	foreground w	0.03445	1.00000	1.00000	1.00000				
Branch a $\omega_b = 1$	site class	0	1	2a	2b	120	-31070.92		
	proportion	0.94541	0.05459	0.00000	0.00000				
	background w	0.03445	1.00000	0.03445	1.00000				
	foreground w	0.03445	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-31070.92	0 $P=1$	
	proportion	0.94541	0.05459	0.00000	0.00000				
	background w	0.03445	1.00000	0.03445	1.00000				
	foreground w	0.03445	1.00000	1.00000	1.00000				
Branch b $\omega_b = 1$	site class	0	1	2a	2b	120	-31070.92		
	proportion	0.94541	0.05459	0.00000	0.00000				
	background w	0.03445	1.00000	0.03445	1.00000				
	foreground w	0.03445	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-31070.92	0 $P=1$	
	proportion	0.94541	0.05459	0.00000	0.00000				
	background w	0.03445	1.00000	0.03445	1.00000				
	foreground w	0.03445	1.00000	1.00000	1.00000				
Branch c $\omega_b = 1$	site class	0	1	2a	2b	120	-31070.92		
	proportion	0.94541	0.05459	0.00000	0.00000				
	background w	0.03445	1.00000	0.03445	1.00000				
	foreground w	0.03445	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-31070.87	0 $P=1$	
	proportion	0.93738	0.05408	0.00807	0.00047				
	background w	0.03441	1.00000	0.03441	1.00000				
	foreground w	0.03441	1.00000	1.00000	1.00000				
Branch d $\omega_b = 1$	site class	0	1	2a	2b	120	-31070.87		
	proportion	0.93738	0.05408	0.00807	0.00047				
	background w	0.03441	1.00000	0.03441	1.00000				
	foreground w	0.03441	1.00000	1.00000	1.00000				

11. ND4L

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0635					118	-7150.00		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-7112.97	0 <i>P</i> =1	
	proportion	0.95183	0.04817	0.00000	0.00000				
	background w	0.05793	1.00000	0.05793	1.00000				
	foreground w	0.05793	1.00000	1.00000	1.00000				

Branch a $\omega_b = 1$	site class	0	1	2a	2b	120	-7112.97		
	proportion	0.95183	0.04817	0.00000	0.00000				
	background w	0.05793	1.00000	0.05793	1.00000				
	foreground w	0.05793	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-7112.97	0 $P=1$	
	proportion	0.95183	0.04817	0.00000	0.00000				
	background w	0.05793	1.00000	0.05793	1.00000				
	foreground w	0.05793	1.00000	1.00000	1.00000				
Branch b $\omega_b = 1$	site class	0	1	2a	2b	120	-7112.97		
	proportion	0.95183	0.04817	0.00000	0.00000				
	background w	0.05793	1.00000	0.05793	1.00000				
	foreground w	0.05793	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-7112.97	0 $P=1$	
	proportion	0.95183	0.04817	0.00000	0.00000				
	background w	0.05793	1.00000	0.05793	1.00000				
	foreground w	0.05793	1.00000	1.00000	1.00000				
Branch c $\omega_b = 1$	site class	0	1	2a	2b	120	-7112.97		
	proportion	0.95183	0.04817	0.00000	0.00000				
	background w	0.05793	1.00000	0.05793	1.00000				
	foreground w	0.05793	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-7112.97	0 $P=1$	
	proportion	0.95183	0.04817	0.00000	0.00000				
	background w	0.05794	1.00000	0.05794	1.00000				
	foreground w	0.05794	1.00000	1.00000	1.00000				
Branch d $\omega_b = 1$	site class	0	1	2a	2b	120	-7112.97		
	proportion	0.95183	0.04817	0.00000	0.00000				
	background w	0.05793	1.00000	0.05793	1.00000				
	foreground w	0.05793	1.00000	1.00000	1.00000				

12. ND5

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0559					118	-41913.41		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-41324.81	0 <i>P</i> =1	
	proportion	0.91818	0.08182	0.00000	0.00000				
	background w	0.04420	1.00000	0.04420	1.00000				
	foreground w	0.04420	1.00000	1.00000	1.00000				
Branch a ω _b = 1	site class	0	1	2a	2b	120	-41324.81		
	proportion	0.91818	0.08182	0.00000	0.00000				
	background w	0.04420	1.00000	0.04420	1.00000				
	foreground w	0.04420	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-41323.95	0.32	

	proportion	0.91063	0.07926	0.00930	0.00081			$P=0.57$	
	background w	0.04411	1.00000	0.04411	1.00000				
	foreground w	0.04411	1.00000	6.63014	6.63014				
Branch b $\omega_b = 1$	site class	0	1	2a	2b	120	-41324.11	$P=0.20$	
	proportion	0.88887	0.07798	0.03047	0.00267				
	background w	0.04409	1.00000	0.04409	1.00000				
	foreground w	0.04409	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-41323.58	1.62 $P=0.20$	
	proportion	0.91559	0.08161	0.00257	0.00023				
	background w	0.04411	1.00000	0.04411	1.00000				
	foreground w	0.04411	1.00000	9.99723	9.99723				
Branch c $\omega_b = 1$	site class	0	1	2a	2b	120	-41324.39	$P=1$	
	proportion	0.91239	0.08130	0.00579	0.00052				
	background w	0.04414	1.00000	0.04414	1.00000				
	foreground w	0.04414	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-41324.81	$P=1$	
	proportion	0.91818	0.08182	0.00000	0.00000				
	background w	0.04420	1.00000	0.04420	1.00000				
	foreground w	0.04420	1.00000	1.00000	1.00000				
Branch d $\omega_b = 1$	site class	0	1	2a	2b	120	-41324.81	$P=1$	
	proportion	0.91818	0.08182	0.00000	0.00000				
	background w	0.04420	1.00000	0.04420	1.00000				
	foreground w	0.04420	1.00000	1.00000	1.00000				

13. ND6

Model	Parameter Estimated ^a					p	lnL	$2\Delta\ln L^b$ <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0489					118	-12966.71		
Branch-site Model									
Branch a	site class	0	1	2a	2b	121	-12861.41	0 <i>P</i> =1	
	proportion	0.92747	0.07253	0.00000	0.00000				
	background w	0.04719	1.00000	0.04719	1.00000				
	foreground w	0.04719	1.00000	1.00000	1.00000				
Branch a $\omega_b = 1$	site class	0	1	2a	2b	120	-12861.41		
	proportion	0.92747	0.07253	0.00000	0.00000				
	background w	0.04719	1.00000	0.04719	1.00000				
	foreground w	0.04719	1.00000	1.00000	1.00000				
Branch b	site class	0	1	2a	2b	121	-12861.41		
	proportion	0.92747	0.07253	0.00000	0.00000				
	background w	0.04719	1.00000	0.04719	1.00000				
	foreground w	0.04719	1.00000	1.00000	1.00000				
Branch b $\omega_b = 1$	site class	0	1	2a	2b	120	-12861.41		
	proportion	0.92747	0.07253	0.00000	0.00000				
	background w	0.04719	1.00000	0.04719	1.00000				

	foreground w	0.04719	1.00000	1.00000	1.00000				
Branch c	site class	0	1	2a	2b	121	-12861.41	0 $P=1$	
	proportion	0.92747	0.07253	0.00000	0.00000				
	background w	0.04719	1.00000	0.04719	1.00000				
	foreground w	0.04719	1.00000	1.00000	1.00000				
Branch c $\omega_b = 1$	site class	0	1	2a	2b	120	-12861.41		
	proportion	0.92747	0.07253	0.00000	0.00000				
	background w	0.04719	1.00000	0.04719	1.00000				
	foreground w	0.04719	1.00000	1.00000	1.00000				
Branch d	site class	0	1	2a	2b	121	-12860.63	0 $P=1$	
	proportion	0.00000	0.00000	0.92746	0.07254				
	background w	0.04690	1.00000	0.04690	1.00000				
	foreground w	0.04690	1.00000	1.00000	1.00000				
Branch d $\omega_b = 1$	site class	0	1	2a	2b	120	-12860.63		
	proportion	0.00001	0.00000	0.92745	0.07254				
	background w	0.04690	1.00000	0.04690	1.00000				
	foreground w	0.04690	1.00000	1.00000	1.00000				

^a The proportion of sites estimated to have ω

^b Twice the difference in log-likelihood values was calculated following a chi-squared (χ^2)

^c Posterior probability > 0.99 of having $\omega > 1$

^d The residues were identified by Bayes Empirical Bayes analysis

Supplementary Table 3: Selective pressure analyses for the 13 genes in Beryciformes and Stephanoberyciformes.

1. ATP6

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0599					53	-7930.15		
Branch-site Model									
Branch e	site class	0	1	2a	2b	56	-7869.03	0 $P=1$	
	proportion	0.84989	0.04079	0.10431	0.00501				
	background w	0.05047	1.00000	0.05047	1.00000				
	foreground w	0.05047	1.00000	1.05095	1.05095				
Branch e $\omega_a =1$	site class	0	1	2a	2b	55	-7869.03		
	proportion	0.87195	0.04185	0.08226	0.00395				
	background w	0.05047	1.00000	0.05047	1.00000				
	foreground w	0.05047	1.00000	1.00000	1.00000				
Branch f	site class	0	1	2a	2b	56	-7851.36	1 $P=0.32$	
	proportion	0.76300	0.03965	0.18760	0.00975				
	background w	0.04643	1.00000	0.04643	1.00000				
	foreground w	0.04643	1.00000	1.75640	1.75640				
Branch f $\omega_b =1$	site class	0	1	2a	2b	55	-7851.86		
	proportion	0.72481	0.03770	0.22575	0.01174				
	background w	0.04633	1.00000	0.04633	1.00000				
	foreground w	0.04633	1.00000	1.00000	1.00000				
Branch g	site class	0	1	2a	2b	56	-7862.45	5.8 P=0.016	179 S 0.992
	proportion	0.93986	0.04526	0.01420	0.00068				
	background w	0.04945	1.00000	0.04945	1.00000				
	foreground w	0.04945	1.00000	80.57827	80.57827				
Branch g $\omega_c =1$	site class	0	1	2a	2b	55	-7865.35		
	proportion	0.90604	0.04357	0.04807	0.00231				
	background w	0.04929	1.00000	0.04929	1.00000				
	foreground w	0.04929	1.00000	1.00000	1.00000				

2. ATP8

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.1521					53	-1984.43		
Branch-site Model									
Branch e	site class	0	1	2a	2b	56	-1965.04	0 <i>P</i> =1	
	proportion	0.71969	0.28031	0.00000	0.00000				
	background w	0.09810	1.00000	0.09810	1.00000				
	foreground w	0.09810	1.00000	1.00000	1.00000				
Branch e	site class	0	1	2a	2b	55	-1965.04		

$\omega_a=1$	proportion	0.71968	0.28032	0.00000	0.00000						
	background w	0.09810	1.00000	0.09810	1.00000						
	foreground w	0.09810	1.00000	1.00000	1.00000						
Branch f	site class	0	1	2a	2b	56	-1962.04	4.72 P=0.030	49 E 0.974		
	proportion	0.73885	0.19312	0.05393	0.01410						
	background w	0.10957	1.00000	0.10957	1.00000						
	foreground w	0.10957	1.00000	39.68379	39.68379						
Branch f $\omega_b=1$	site class	0	1	2a	2b	55	-1964.40				
	proportion	0.66777	0.22320	0.08172	0.02731						
	background w	0.10026	1.00000	0.10026	1.00000						
	foreground w	0.10026	1.00000	1.00000	1.00000						
Branch g	site class	0	1	2a	2b	56	-1965.04	0 P=1			
	proportion	0.71969	0.28031	0.00000	0.00000						
	background w	0.09810	1.00000	0.09810	1.00000						
	foreground w	0.09810	1.00000	1.00000	1.00000						
Branch g $\omega_c=1$	site class	0	1	2a	2b	55	-1965.04				
	proportion	0.71969	0.28031	0.00000	0.00000						
	background w	0.09810	1.00000	0.09810	1.00000						
	foreground w	0.09810	1.00000	1.00000	1.00000						

3. Cox1

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0269					53	-13890.08		
Branch-site Model									
Branch e	site class	0	1	2a	2b	56	-13813.67	0 P=1	
	proportion	0.96504	0.03160	0.00325	0.00011				
	background w	0.01965	1.00000	0.01965	1.00000				
	foreground w	0.01965	1.00000	1.00000	1.00000				
Branch e ω _a =1	site class	0	1	2a	2b	55	-13813.67		
	proportion	0.96505	0.03160	0.00325	0.00011				
	background w	0.01965	1.00000	0.01965	1.00000				
	foreground w	0.01965	1.00000	1.00000	1.00000				
Branch f	site class	0	1	2a	2b	56	-13796.27	0.02 P=0.89	
	proportion	0.90842	0.03291	0.05662	0.00205				
	background w	0.01722	1.00000	0.01722	1.00000				
	foreground w	0.01722	1.00000	1.13624	1.13624				
Branch f ω _b =1	site class	0	1	2a	2b	55	-13796.28		
	proportion	0.90406	0.03274	0.06099	0.00221				
	background w	0.01720	1.00000	0.01720	1.00000				
	foreground w	0.01720	1.00000	1.00000	1.00000				
Branch g	site class	0	1	2a	2b	56	-13813.68	0 P=1	
	proportion	0.96832	0.03168	0.00000	0.00000				

	background w	0.01969	1.00000	0.01969	1.00000				
	foreground w	0.01969	1.00000	1.00000	1.00000				
Branch g	site class	0	1	2a	2b				
$\omega_c = 1$	proportion	0.96832	0.03168	0.00000	0.00000	55	-13813.68		
	background w	0.01969	1.00000	0.01969	1.00000				
	foreground w	0.01969	1.00000	1.00000	1.00000				

4. CoxII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d				
One ratio	ω =0.0561					53	-6391.13						
Branch-site Model													
Branch e	site class	0	1	2a	2b	56	-6350.96	0 P=1					
	proportion	0.93697	0.03000	0.03201	0.00102								
	background w	0.04782	1.00000	0.04782	1.00000								
	foreground w	0.04782	1.00000	1.00000	1.00000								
Branch e ω _a =1	site class	0	1	2a	2b	55	-6350.96			0 P=1			
	proportion	0.93697	0.03000	0.03201	0.00102								
	background w	0.04782	1.00000	0.04782	1.00000								
	foreground w	0.04782	1.00000	1.00000	1.00000								
Branch f	site class	0	1	2a	2b	56	-6300.37	4.24 P=0.039	54 Y 0.997 56 L 0.997 57 D 0.996 61 I 0.991 68 L 0.994 107 S 0.998 126 Q 0.996 130 S 0.998 187 S 0.998 215 P 0.998 216 L 0.994 223 S 0.996 224 S 0.998 229 D 0.998				
	proportion	0.67086	0.02265	0.29649	0.01001								
	background w	0.03798	1.00000	0.03798	1.00000								
	foreground w	0.03798	1.00000	2.19846	2.19846								
Branch f ω _b =1	site class	0	1	2a	2b	55	-6302.49			4.24 P=0.039	54 Y 0.997 56 L 0.997 57 D 0.996 61 I 0.991 68 L 0.994 107 S 0.998 126 Q 0.996 130 S 0.998 187 S 0.998 215 P 0.998 216 L 0.994 223 S 0.996 224 S 0.998 229 D 0.998		
	proportion	0.60024	0.02037	0.36694	0.01245								
	background w	0.03767	1.00000	0.03767	1.00000								
	foreground w	0.03767	1.00000	1.00000	1.00000								
Branch g	site class	0	1	2a	2b	56	-6351.08					0 P=1	
	proportion	0.96878	0.03122	0.00000	0.00000								
	background w	0.04812	1.00000	0.04812	1.00000								
	foreground w	0.04812	1.00000	1.00000	1.00000								
Branch g ω _c =1	site class	0	1	2a	2b	55	-6351.08						
	proportion	0.96878	0.03122	0.00000	0.00000								
	background w	0.04812	1.00000	0.04812	1.00000								
	foreground w	0.04812	1.00000	1.00000	1.00000								

5. CoxIII

Model	Parameter Estimated ^a					p	lnL	$2 \Delta \ln L^b$	Positively
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				<i>P</i> value ^c	Selected Sites (BEB Analysis) ^d
One ratio	$\omega = 0.0336$	53	-7082.38		
Branch-site Model					
Branch e	site class	0	1	2a	2b
	proportion	0.95899	0.04101	0.00000	0.00000
	background w	0.02453	1.00000	0.02453	1.00000
	foreground w	0.02453	1.00000	1.00000	1.00000
Branch e $\omega_a = 1$	site class	0	1	2a	2b
	proportion	0.95899	0.04101	0.00000	0.00000
	background w	0.02453	1.00000	0.02453	1.00000
	foreground w	0.02453	1.00000	1.00000	1.00000
Branch f	site class	0	1	2a	2b
	proportion	0.92020	0.04110	0.03705	0.00165
	background w	0.02247	1.00000	0.02247	1.00000
	foreground w	0.02247	1.00000	17.01597	17.01597
Branch f $\omega_b = 1$	site class	0	1	2a	2b
	proportion	0.85766	0.03834	0.09956	0.00445
	background w	0.02225	1.00000	0.02225	1.00000
	foreground w	0.02225	1.00000	1.00000	1.00000
Branch g	site class	0	1	2a	2b
	proportion	0.95408	0.03888	0.00676	0.00028
	background w	0.02433	1.00000	0.02433	1.00000
	foreground w	0.02433	1.00000	6.81078	6.81078
Branch g $\omega_c = 1$	site class	0	1	2a	2b
	proportion	0.94716	0.03867	0.01361	0.00056
	background w	0.02434	1.00000	0.02434	1.00000
	foreground w	0.02434	1.00000	1.00000	1.00000

6. CytB

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0357					53	-11764.12		
Branch-site Model									
Branch e	site class	0	1	2a	2b	56	-11692.68	0 <i>P</i> =1	
	proportion	0.97072	0.02928	0.00000	0.00000				
	background w	0.03096	1.00000	0.03096	1.00000				
	foreground w	0.03096	1.00000	1.00000	1.00000				
Branch e ω_a =1	site class	0	1	2a	2b	55	-11692.68		
	proportion	0.97072	0.02928	0.00000	0.00000				
	background w	0.03096	1.00000	0.03096	1.00000				
	foreground w	0.03096	1.00000	1.00000	1.00000				
Branch f	site class	0	1	2a	2b	56	-11689.25	0.14 <i>P</i> =0.71	
	proportion	0.94755	0.02841	0.02334	0.00070				

	background w	0.03044	1.00000	0.03044	1.00000						
	foreground w	0.03044	1.00000	1.45204	1.45204						
Branch f $\omega_b=1$	site class	0	1	2a	2b	55	-11689.32				
	proportion	0.94089	0.02825	0.02996	0.00090						
	background w	0.03039	1.00000	0.03039	1.00000						
	foreground w	0.03039	1.00000	1.00000	1.00000						
Branch g	site class	0	1	2a	2b	56	-11689.48	0 $P=1$			
	proportion	0.92902	0.02748	0.04225	0.00125						
	background w	0.03013	1.00000	0.03013	1.00000						
	foreground w	0.03013	1.00000	1.00000	1.00000						
Branch g $\omega_c=1$	site class	0	1	2a	2b	55	-11689.48			0 $P=1$	
	proportion	0.92902	0.02748	0.04225	0.00125						
	background w	0.03013	1.00000	0.03013	1.00000						
	foreground w	0.03013	1.00000	1.00000	1.00000						

7. ND1

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0341					53	-10596.35				
Branch-site Model											
Branch e	site class	0	1	2a	2b	56	-10571.89	1.92 P=0.17			
	proportion	0.81170	0.01899	0.16544	0.00387						
	background w	0.03082	1.00000	0.03082	1.00000						
	foreground w	0.03082	1.00000	2.54310	2.54310						
Branch e ω _a =1	site class	0	1	2a	2b	55	-10570.93				
	proportion	0.97712	0.02288	0.00000	0.00000						
	background w	0.03089	1.00000	0.03089	1.00000						
	foreground w	0.03089	1.00000	1.00000	1.00000						
Branch f	site class	0	1	2a	2b	56	-10567.87	0 P=1			
	proportion	0.87543	0.01980	0.10245	0.00232						
	background w	0.02969	1.00000	0.02969	1.00000						
	foreground w	0.02969	1.00000	1.00000	1.00000						
Branch f ω _b =1	site class	0	1	2a	2b	55	-10567.87				
	proportion	0.87543	0.01980	0.10245	0.00232						
	background w	0.02969	1.00000	0.02969	1.00000						
	foreground w	0.02969	1.00000	1.00000	1.00000						
Branch g	site class	0	1	2a	2b	56	-10570.93	0 P=1			
	proportion	0.97712	0.02288	0.00000	0.00000						
	background w	0.03088	1.00000	0.03088	1.00000						
	foreground w	0.03088	1.00000	1.00000	1.00000						
Branch g ω _c =1	site class	0	1	2a	2b	55	-10570.93				
	proportion	0.97712	0.02288	0.00000	0.00000						
	background w	0.03088	1.00000	0.03088	1.00000						
	foreground w	0.03088	1.00000	1.00000	1.00000						

8. ND2

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0693					53	-12904.82				
Branch-site Model											
Branch e	site class	0	1	2a	2b	56	-12806.40	0.24 $P=0.62$			
	proportion	0.89358	0.05717	0.04629	0.00296						
	background w	0.05821	1.00000	0.05821	1.00000						
	foreground w	0.05821	1.00000	1.00000	1.00000						
Branch e $\omega_a=1$	site class	0	1	2a	2b	55	-12806.52				
	proportion	0.93991	0.06009	0.00000	0.00000						
	background w	0.05845	1.00000	0.05845	1.00000						
	foreground w	0.05845	1.00000	1.00000	1.00000						
Branch f	site class	0	1	2a	2b	56	-12799.02	0 $P=1$			
	proportion	0.80716	0.05142	0.13295	0.00847						
	background w	0.05630	1.00000	0.05630	1.00000						
	foreground w	0.05630	1.00000	1.00000	1.00000						
Branch f $\omega_b=1$	site class	0	1	2a	2b	55	-12799.02				
	proportion	0.80716	0.05143	0.13295	0.00847						
	background w	0.05630	1.00000	0.05630	1.00000						
	foreground w	0.05630	1.00000	1.00000	1.00000						
Branch g	site class	0	1	2a	2b	56	-12806.52	0.4 $P=0.53$			
	proportion	0.93991	0.06009	0.00000	0.00000						
	background w	0.05845	1.00000	0.05845	1.00000						
	foreground w	0.05845	1.00000	1.00000	1.00000						
Branch g $\omega_c=1$	site class	0	1	2a	2b	55	-12806.32				
	proportion	0.93062	0.05970	0.00910	0.00058						
	background w	0.05817	1.00000	0.05817	1.00000						
	foreground w	0.05817	1.00000	1.00000	1.00000						

9. ND3

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0658					53	-4191.01		
Branch-site Model									
Branch e	site class	0	1	2a	2b	56	-4087.90	1.36 P=0.24	
	proportion	0.72472	0.11473	0.13861	0.02194				
	background w	0.03215	1.00000	0.03215	1.00000				
	foreground w	0.03215	1.00000	1.00000	1.00000				
Branch e ω _a =1	site class	0	1	2a	2b	55	-4087.22		
	proportion	0.86275	0.13725	0.00000	0.00000				
	background w	0.03236	1.00000	0.03236	1.00000				
	foreground w	0.03236	1.00000	1.00000	1.00000				

Branch f	site class	0	1	2a	2b	56	-4083.08	0 $P=1$	
	proportion	0.75756	0.12533	0.10049	0.01662				
	background w	0.02852	1.00000	0.02852	1.00000				
	foreground w	0.02852	1.00000	1.00000	1.00000				
Branch f $\omega_b=1$	site class	0	1	2a	2b	55	-4083.08		
	proportion	0.75756	0.12533	0.10049	0.01662				
	background w	0.02852	1.00000	0.02852	1.00000				
	foreground w	0.02852	1.00000	1.00000	1.00000				
Branch g	site class	0	1	2a	2b	56	-4087.22	0 $P=1$	
	proportion	0.86275	0.13725	0.00000	0.00000				
	background w	0.03236	1.00000	0.03236	1.00000				
	foreground w	0.03236	1.00000	1.00000	1.00000				
Branch g $\omega_c=1$	site class	0	1	2a	2b	55	-4087.22		
	proportion	0.86275	0.13725	0.00000	0.00000				
	background w	0.03236	1.00000	0.03236	1.00000				
	foreground w	0.03236	1.00000	1.00000	1.00000				

10. ND4

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0618					53	-16106.77		
Branch-site Model									
Branch e	site class	0	1	2a	2b	56	-15961.08	0 P=1	
	proportion	0.91295	0.04574	0.03934	0.00197				
	background w	0.05039	1.00000	0.05039	1.00000				
	foreground w	0.05039	1.00000	1.00000	1.00000				
Branch e ω _a =1	site class	0	1	2a	2b	55	-15961.08		
	proportion	0.91308	0.04575	0.03920	0.00196				
	background w	0.05039	1.00000	0.05039	1.00000				
	foreground w	0.05039	1.00000	1.00000	1.00000				
Branch f	site class	0	1	2a	2b	56	-15957.68	0.08 P=0.78	
	proportion	0.91431	0.04677	0.03703	0.00189				
	background w	0.04967	1.00000	0.04967	1.00000				
	foreground w	0.04967	1.00000	1.35491	1.35491				
Branch f ω _b =1	site class	0	1	2a	2b	55	-15957.72		
	proportion	0.90344	0.04623	0.04788	0.00245				
	background w	0.04961	1.00000	0.04961	1.00000				
	foreground w	0.04961	1.00000	1.00000	1.00000				
Branch g	site class	0	1	2a	2b	56	-15961.36	0 P=1	
	proportion	0.95189	0.04811	0.00000	0.00000				
	background w	0.05065	1.00000	0.05065	1.00000				
	foreground w	0.05065	1.00000	1.00000	1.00000				
Branch g	site class	0	1	2a	2b	55	-15961.36		

$\omega_c = 1$	proportion	0.95180	0.04810	0.00010	0.00000				
	background w	0.05065	1.00000	0.05065	1.00000				
	foreground w	0.05065	1.00000	1.00000	1.00000				

11. ND4L

Model	Parameter Estimated ^a					p	lnL	$2 \Delta \ln L^b$ <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.04331					53	-2986.03		
Branch-site Model									
Branch e	site class	0	1	2a	2b	56	-2947.27	0 <i>P</i> =1	
	proportion	0.77203	0.04866	0.16868	0.01063				
	background w	0.03282	1.00000	0.03282	1.00000				
	foreground w	0.03282	1.00000	1.00000	1.00000				
Branch e ω_a =1	site class	0	1	2a	2b	55	-2947.27		
	proportion	0.77203	0.04866	0.16868	0.01063				
	background w	0.03282	1.00000	0.03282	1.00000				
	foreground w	0.03282	1.00000	1.00000	1.00000				
Branch f	site class	0	1	2a	2b	56	-2945.24	0 <i>P</i> =1	
	proportion	0.74705	0.05088	0.18919	0.01288				
	background w	0.02898	1.00000	0.02898	1.00000				
	foreground w	0.02898	1.00000	1.00000	1.00000				
Branch f ω_b =1	site class	0	1	2a	2b	55	-2945.24		
	proportion	0.74705	0.05088	0.18919	0.01288				
	background w	0.02898	1.00000	0.02898	1.00000				
	foreground w	0.02898	1.00000	1.00000	1.00000				
Branch g	site class	0	1	2a	2b	56	-2948.25	0 <i>P</i> =1	
	proportion	0.93982	0.06018	0.00000	0.00000				
	background w	0.03369	1.00000	0.03369	1.00000				
	foreground w	0.03369	1.00000	1.00000	1.00000				
Branch g ω_c =1	site class	0	1	2a	2b	55	-2948.25		
	proportion	0.93982	0.06018	0.00000	0.00000				
	background w	0.03369	1.00000	0.03369	1.00000				
	foreground w	0.03369	1.00000	1.00000	1.00000				

12. ND5

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0687					53	-21363.00		
Branch-site Model									
Branch e	site class	0	1	2a	2b	56	-21109.21	0 P=1	
	proportion	0.92484	0.07516	0.00000	0.00000				
	background w	0.05164	1.00000	0.05164	1.00000				
	foreground w	0.05164	1.00000	1.00000	1.00000				
Branch e	site class	0	1	2a	2b	55	-21109.21		

$\omega_a=1$	proportion	0.92484	0.07516	0.00000	0.00000				
	background w	0.05164	1.00000	0.05164	1.00000				
	foreground w	0.05164	1.00000	1.00000	1.00000				
Branch f	site class	0	1	2a	2b	56	-21089.95	14.4 P<0.001	342C 0.997 349S 0.986 443I 0.984 444N 0.997
	proportion	0.89077	0.06471	0.04150	0.00301				
	background w	0.05118	1.00000	0.05118	1.00000				
	foreground w	0.05118	1.00000	101.61172	101.61172				
Branch f $\omega_b=1$	site class	0	1	2a	2b	55	-21097.15		
	proportion	0.85810	0.06471	0.07178	0.00541				
	background w	0.05052	1.00000	0.05052	1.00000				
	foreground w	0.05052	1.00000	1.00000	1.00000				
Branch g	site class	0	1	2a	2b	56	-21109.21	0.08 P=0.78	
	proportion	0.92484	0.07516	0.00000	0.00000				
	background w	0.05164	1.00000	0.05164	1.00000				
	foreground w	0.05164	1.00000	2.78619	2.78619				
Branch g $\omega_c=1$	site class	0	1	2a	2b	55	-21109.17		
	proportion	0.92300	0.07499	0.00186	0.00015				
	background w	0.05159	1.00000	0.05159	1.00000				
	foreground w	0.05159	1.00000	1.00000	1.00000				

13. ND6

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0492					53	-6511.11		
Branch-site Model									
Branch e	site class	0	1	2a	2b	56	-6475.97	0 P=1	
	proportion	0.87929	0.04378	0.07327	0.00365				
	background w	0.04493	1.00000	0.04493	1.00000				
	foreground w	0.04493	1.00000	1.00000	1.00000				
Branch e ω _a =1	site class	0	1	2a	2b	55	-6475.97		
	proportion	0.85289	0.04247	0.09968	0.00496				
	background w	0.04493	1.00000	0.04493	1.00000				
	foreground w	0.04493	1.00000	1.00000	1.00000				
Branch f	site class	0	1	2a	2b	56	-6443.19	49.18 P<0.001	3 Y 0.999 4 V 0.950 5 M 0.991 10 F 0.998 17 V 0.957 18 A 0.960 22 N 0.985 36 A 0.999 44 V 0.998 46 H 0.995 49 S 0.993
	proportion	0.44121	0.02188	0.51154	0.02537				
	background w	0.04117	1.00000	0.04117	1.00000				
	foreground w	0.04117	1.00000	3.16308	3.16308				
Branch f ω _b =1	site class	0	1	2a	2b	55	-6467.78		
	proportion	0.00000	0.00000	0.95510	0.04490				
	background w	0.04291	1.00000	0.04291	1.00000				
	foreground w	0.04291	1.00000	1.00000	1.00000				

									68 A 0.970 81 S 0.964 82 W 0.996 86 S 0.999 87 R 0.997 88 M 0.980 89 G 0.991 90 Y 0.999 91 V 0.997 94 Y 0.998 110 Y 0.999 111 E 1.000 114 W 0.998 132L 0.998 134V 0.999 175iG 0.999
Branch g	site class	0	1	2a	2b	56	-6475.97	0 <i>P</i> =1	
	proportion	0.95015	0.04740	0.00234	0.00012				
	background w	0.04488	1.00000	0.04488	1.00000				
	foreground w	0.04488	1.00000	1.00000	1.00000				
Branch g ω_c =1	site class	0	1	2a	2b	55	-6475.97		
	proportion	0.95015	0.04740	0.00234	0.00012				
	background w	0.04488	1.00000	0.04488	1.00000				
	foreground w	0.04488	1.00000	1.00000	1.00000				

^a The proportion of sites estimated to have ω

^b Twice the difference in log-likelihood values was calculated following a chi-squared (χ^2)

^c Posterior probability > 0.99 of having $\omega > 1$

^d The residues were identified by Bayes Empirical Bayes analysis

Supplementary Table 4: Selective pressure analyses for the 13 genes in Ophidiiformes.

1. ATP6

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0655					12	-3427.87				
Branch-site Model											
Branch h	site class	0	1	2a	2b	15	-3412.35	6.52 P=0.011			
	proportion	0.83321	0.04239	0.11837	0.00602						
	background w	0.05416	1.00000	0.05416	1.00000						
	foreground w	0.05416	1.00000	999.00000	999.00000						
Branch h ω _a = 1	site class	0	1	2a	2b	14	-3415.61			6.52 P=0.011	
	proportion	0.00000	0.00000	0.94385	0.05615						
	background w	0.05809	1.00000	0.05809	1.00000						
	foreground w	0.05809	1.00000	1.00000	1.00000						

2. ATP8

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0822					12	-856.71		
Branch-site Model									
Branch h	site class	0	1	2a	2b	15	-855.25	0.66 P=0.42	
	proportion	0.68491	0.00000	0.31509	0.00000				
	background w	0.07236	1.00000	0.07236	1.00000				
	foreground w	0.07236	1.00000	481.56590	481.56590				
Branch h ω _a = 1	site class	0	1	2a	2b	14	-855.58		
	proportion	0.71824	0.00000	0.28176	0.00000				
	background w	0.07382	1.00000	0.07382	1.00000				
	foreground w	0.07382	1.00000	1.00000	1.00000				

3. CoxI

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0165					12	-5331.74				
Branch-site Model											
Branch h	site class	0	1	2a	2b	15	-5311.15	0.94 P=0.33			
	proportion	0.97762	0.00838	0.01388	0.00012						
	background w	0.01385	1.00000	0.01385	1.00000						
	foreground w	0.01385	1.00000	3.32788	3.32788						
Branch h ω _a = 1	site class	0	1	2a	2b	14	-5311.62				
	proportion	0.97004	0.00831	0.02147	0.00018						
	background w	0.01373	1.00000	0.01373	1.00000						
	foreground w	0.01373	1.00000	1.00000	1.00000						

4. CoxII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0307					12	-2558.79		
Branch-site Model									
Branch h	site class	0	1	2a	2b	15	-2555.52	0.12 P=0.73	
	proportion	0.97868	0.01548	0.00575	0.00009				
	background w	0.02720	1.00000	0.02720	1.00000				
	foreground w	0.02720	1.00000	1.68869	1.68869				
Branch h ω _a = 1	site class	0	1	2a	2b	14	-2555.58		
	proportion	0.98426	0.01574	0.00000	0.00000				
	background w	0.02738	1.00000	0.02738	1.00000				
	foreground w	0.02738	1.00000	1.00000	1.00000				

5. CoxIII

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0238					12	-2777.17		
Branch-site Model									
Branch h	site class	0	1	2a	2b	15	-2766.76	0 <i>P</i> =1	
	proportion	0.00000	0.00000	0.96679	0.03321				
	background w	0.01718	1.00000	0.01718	1.00000				
	foreground w	0.01718	1.00000	1.00000	1.00000				
Branch h $\omega_a = 1$	site class	0	1	2a	2b	14	-2766.76		
	proportion	0.00000	0.00000	0.96679	0.03321				
	background w	0.01718	1.00000	0.01718	1.00000				
	foreground w	0.01718	1.00000	1.00000	1.00000				

6. CytB

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0272					12	-4928.38		
Branch-site Model									
Branch h	site class	0	1	2a	2b	15	-4913.17	0.14 P=0.71	
	proportion	0.86877	0.02131	0.10729	0.00263				
	background w	0.02310	1.00000	0.02310	1.00000				
	foreground w	0.02310	1.00000	12.47132	12.47132				
Branch h ω _a = 1	site class	0	1	2a	2b	14	-4913.24		
	proportion	0.88965	0.02205	0.08616	0.00214				
	background w	0.02317	1.00000	0.02317	1.00000				
	foreground w	0.02317	1.00000	1.00000	1.00000				

7. ND1

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
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One ratio	$\omega = 0.0276$					12	-4153.15		
Branch-site Model									
Branch h	site class	0	1	2a	2b	15	-4116.35	0.98 $P=0.32$	
	proportion	0.92996	0.06312	0.00648	0.00044				
	background w	0.02005	1.00000	0.02005	1.00000				
	foreground w	0.02005	1.00000	14.40980	14.40980				
Branch h $\omega_a = 1$	site class	0	1	2a	2b	14	-4116.84		
	proportion	0.92618	0.06585	0.00744	0.00053				
	background w	0.02011	1.00000	0.02011	1.00000				
	foreground w	0.02011	1.00000	1.00000	1.00000				

8. ND2

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0435					12	-5377.08				
Branch-site Model											
Branch h	site class	0	1	2a	2b	15	-5340.41	1.06 P=0.30			
	proportion	0.84231	0.07151	0.07944	0.00674						
	background w	0.03378	1.00000	0.03378	1.00000						
	foreground w	0.03378	1.00000	5.45510	5.45510						
Branch h ω _a = 1	site class	0	1	2a	2b	14	-5340.94			1.06 P=0.30	
	proportion	0.85223	0.07233	0.06954	0.00590						
	background w	0.03338	1.00000	0.03338	1.00000						
	foreground w	0.03338	1.00000	1.00000	1.00000						

9. ND3

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0227					12	-1508.93				
Branch-site Model											
Branch h	site class	0	1	2a	2b	15	-1499.02	0 P=1			
	proportion	0.00000	0.00000	0.92427	0.07573						
	background w	0.01065	1.00000	0.01065	1.00000						
	foreground w	0.01065	1.00000	1.00000	1.00000						
Branch h ω _a = 1	site class	0	1	2a	2b	14	-1499.02			0 P=1	
	proportion	0.00010	0.00001	0.92417	0.07572						
	background w	0.01065	1.00000	0.01065	1.00000						
	foreground w	0.01065	1.00000	1.00000	1.00000						

10. ND4

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0355					12	-6004.53		
Branch-site Model									
Branch h	site class	0	1	2a	2b	15	-5984.90	1.3	

	proportion	0.00000	0.00000	0.96715	0.03285			$P=0.25$	
	background w	0.02950	1.00000	0.02950	1.00000				
	foreground w	0.02950	1.00000	138.16853	138.16853				
Branch h	site class	0	1	2a	2b				
$\omega_a = 1$	proportion	0.83661	0.02743	0.13164	0.00432	14	-5985.55		
	background w	0.03355	1.00000	0.03355	1.00000				
	foreground w	0.03355	1.00000	1.00000	1.00000				

11. ND4L

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0244					12	-1245.78		
Branch-site Model									
Branch h	site class	0	1	2a	2b	15	-1243.16	0.04 P=0.84	
	proportion	0.00000	0.00000	0.98578	0.01422				
	background w	0.02353	1.00000	0.02353	1.00000				
	foreground w	0.02353	1.00000	999.00000	999.00000				
Branch h ω _a = 1	site class	0	1	2a	2b	14	-1243.18		
	proportion	0.00000	0.00000	0.98580	0.01420				
	background w	0.02344	1.00000	0.02344	1.00000				
	foreground w	0.02344	1.00000	1.00000	1.00000				

12. ND5

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0538					12	-8310.33		
Branch-site Model									
Branch h	site class	0	1	2a	2b	15	-8216.16	0.12 P=0.73	
	proportion	0.38781	0.03224	0.53545	0.04451				
	background w	0.03376	1.00000	0.03376	1.00000				
	foreground w	0.03376	1.00000	999.00000	999.00000				
Branch h ω _a = 1	site class	0	1	2a	2b	14	-8216.22		
	proportion	0.00000	0.00000	0.92326	0.07674				
	background w	0.03384	1.00000	0.03384	1.00000				
	foreground w	0.03384	1.00000	1.00000	1.00000				

13. ND6

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0377					12	-2508.04		
Branch-site Model									
Branch h	site class	0	1	2a	2b	15	-2495.35	5.54 P=0.019	
	proportion	0.86204	0.05362	0.07940	0.00494				
	background w	0.02950	1.00000	0.02950	1.00000				
	foreground w	0.02950	1.00000	999.00000	999.00000				

Branch h	site class	0	1	2a	2b				
$\omega_a = 1$	proportion	0.00000	0.00000	0.94807	0.05193	14	-2498.12		
	background w	0.03001	1.00000	0.03001	1.00000				
	foreground w	0.03001	1.00000	1.00000	1.00000				

^a The proportion of sites estimated to have ω

^b Twice the difference in log-likelihood values was calculated following a chi-squared (χ^2)

^c Posterior probability > 0.99 of having $\omega > 1$

^d The residues were identified by Bayes Empirical Bayes analysis

Supplementary Table 5: Selective pressure analyses for the 13 genes in Osmeriformes and Stomiiformes.

1. ATP6

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	0.0403					86	-12019.85				
Branch-site Model											
Branch i	site class	0	1	2a	2b	89	-11955.86	0			
	proportion	0.94624	0.05376	0.00000	0.00000						
	background w	0.03159	1.00000	0.03159	1.00000						
	foreground w	0.03159	1.00000	1.00000	1.00000						
Branch i $\omega_a = 1$	site class	0	1	2a	2b	88	-11955.86				
	proportion	0.94624	0.05376	0.00000	0.00000						
	background w	0.03159	1.00000	0.03159	1.00000						
	foreground w	0.03159	1.00000	1.00000	1.00000						
Branch j	site class	0	1	2a	2b	89	-11952.75	3.34 P=0.068	172G 0.980 175 S 0.519		
	proportion	0.92780	0.05330	0.01787	0.00103						
	background w	0.03146	1.00000	0.03146	1.00000						
	foreground w	0.03146	1.00000	690.28875	690.28875						
Branch j $\omega_b = 1$	site class	0	1	2a	2b	88	-11954.42				
	proportion	0.90975	0.05191	0.03626	0.00207						
	background w	0.03129	1.00000	0.03129	1.00000						
	foreground w	0.03129	1.00000	1.00000	1.00000						

2. ATP8

Model	Parameter Estimated ^a					p	lnL	2ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	0.0994					86	-2650.91				
Branch-site Model											
Branch i	site class	0	1	2a	2b	89	-2641.39	0			
	proportion	0.91131	0.08869	0.00000	0.00000						
	background w	0.08815	1.00000	0.08815	1.00000						
	foreground w	0.08815	1.00000	1.00000	1.00000						
Branch i ω _a =1	site class	0	1	2a	2b	88	-2641.39			0.08 P=0.78	
	proportion	0.91131	0.08869	0.00000	0.00000						
	background w	0.08815	1.00000	0.08815	1.00000						
	foreground w	0.08815	1.00000	1.00000	1.00000						
Branch j	site class	0	1	2a	2b	89	-2641.25	0.08 P=0.78			
	proportion	0.00000	0.00000	0.92093	0.07907						
	background w	0.08844	1.00000	0.08844	1.00000						
	foreground w	0.08844	1.00000	92.28273	92.28273						
Branch j ω _b =1	site class	0	1	2a	2b	88	-2641.29			0.08 P=0.78	
	proportion	0.00000	0.00000	0.91877	0.08123						
	background w	0.08836	1.00000	0.08836	1.00000						

	foreground w	0.08836	1.00000	1.00000	1.00000				
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3. Coxl

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	0.0178					86	-21297.85		
Branch-site Model									
Branch i	site class	0	1	2a	2b	89	-21241.58	0 P=1	
	proportion	0.98896	0.01104	0.00000	0.00000				
	background w	0.01561	1.00000	0.01561	1.00000				
	foreground w	0.01561	1.00000	1.00000	1.00000				
Branch i ω _a =1	site class	0	1	2a	2b	88	-21241.58	0 P=1	
	proportion	0.98896	0.01104	0.00000	0.00000				
	background w	0.01561	1.00000	0.01561	1.00000				
	foreground w	0.01561	1.00000	1.00000	1.00000				
Branch j	site class	0	1	2a	2b	89	-21241.58	0 P=1	
	proportion	0.80480	0.00899	0.18416	0.00206				
	background w	0.01561	1.00000	0.01561	1.00000				
	foreground w	0.01561	1.00000	4.09075	4.09075				
Branch j ω _b =1	site class	0	1	2a	2b	88	-21241.58	0 P=1	
	proportion	0.90962	0.01016	0.07934	0.00089				
	background w	0.01561	1.00000	0.01561	1.00000				
	foreground w	0.01561	1.00000	1.00000	1.00000				

4. CoxII

Model	Parameter Estimated ^a					p	lnL	$2\Delta\ln L^b$ <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	0.0328					86	-9169.45		
Branch-site Model									
Branch i	site class	0	1	2a	2b	89	-9126.45	0 <i>P</i> =1	
	proportion	0.88962	0.01569	0.09304	0.00164				
	background w	0.02727	1.00000	0.02727	1.00000				
	foreground w	0.02727	1.00000	1.00000	1.00000				
Branch i $\omega_a=1$	site class	0	1	2a	2b	88	-9126.45		
	proportion	0.88962	0.01569	0.09304	0.00164				
	background w	0.02727	1.00000	0.02727	1.00000				
	foreground w	0.02727	1.00000	1.00000	1.00000				
Branch j	site class	0	1	2a	2b	89	-9129.03	0.02 <i>P</i> =0.89	
	proportion	0.00000	0.00000	0.98278	0.01722				
	background w	0.02839	1.00000	0.02839	1.00000				
	foreground w	0.02839	1.00000	14.15526	14.15526				
Branch j $\omega_b=1$	site class	0	1	2a	2b	88	-9129.04		
	proportion	0.00000	0.00000	0.98277	0.01723				
	background w	0.02839	1.00000	0.02839	1.00000				

	foreground w	0.02839	1.00000	1.00000	1.00000				
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5. CoxIII

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	0.0303					86	-11342.06				
Branch-site Model											
Branch i	site class	0	1	2a	2b	89	-11198.58	4.58 P=0.032	31 L 0.994		
	proportion	0.94420	0.05121	0.00435	0.00024						
	background w	0.02029	1.00000	0.02029	1.00000						
	foreground w	0.02029	1.00000	199.31269	199.31269						
Branch i $\omega_a = 1$	site class	0	1	2a	2b	88	-11200.87				
	proportion	0.94043	0.05057	0.00854	0.00046						
	background w	0.02033	1.00000	0.02033	1.00000						
	foreground w	0.02033	1.00000	1.00000	1.00000						
Branch j	site class	0	1	2a	2b	89	-11202.16	0 P=1			
	proportion	0.92303	0.04985	0.02573	0.00139						
	background w	0.02034	1.00000	0.02034	1.00000						
	foreground w	0.02034	1.00000	1.00000	1.00000						
Branch j $\omega_b = 1$	site class	0	1	2a	2b	88	-11202.16				
	proportion	0.92303	0.04985	0.02573	0.00139						
	background w	0.02034	1.00000	0.02034	1.00000						
	foreground w	0.02034	1.00000	1.00000	1.00000						

6. CytB

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	0.0486					86	-19811.22				
Branch-site Model											
Branch i	site class	0	1	2a	2b	89	-19664.54	4.72 P=0.0298	12 K 0.990		
	proportion	0.93772	0.05392	0.00790	0.00045						
	background w	0.04187	1.00000	0.04187	1.00000						
	foreground w	0.04187	1.00000	12.21007	12.21007						
Branch i ω _a =1	site class	0	1	2a	2b	88	-19666.90				
	proportion	0.92719	0.05329	0.01846	0.00106						
	background w	0.04183	1.00000	0.04183	1.00000						
	foreground w	0.04183	1.00000	1.00000	1.00000						
Branch j	site class	0	1	2a	2b	89	-19665.42	-0.04	123 T 0.968 372 I 0.957		
	proportion	0.93053	0.05364	0.01496	0.00086						
	background w	0.04191	1.00000	0.04191	1.00000						
	foreground w	0.04191	1.00000	5.14313	5.14313						
Branch j ω _b =1	site class	0	1	2a	2b	88	-19666.40				
	proportion	0.90752	0.05230	0.03799	0.00219						
	background w	0.04188	1.00000	0.04188	1.00000						

	foreground w	0.04188	1.00000	1.00000	1.00000				
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7. ND1

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	0.0287					86	-15652.39		
Branch-site Model									
Branch i	site class	0	1	2a	2b	89	-15548.17	0 <i>P</i> =1	
	proportion	0.96952	0.03048	0.00000	0.00000				
	background w	0.02338	1.00000	0.02338	1.00000				
	foreground w	0.02338	1.00000	1.00000	1.00000				
Branch i ω_a =1	site class	0	1	2a	2b	88	-15548.17		
	proportion	0.96952	0.03048	0.00000	0.00000				
	background w	0.02338	1.00000	0.02338	1.00000				
	foreground w	0.02338	1.00000	1.00000	1.00000				
Branch j	site class	0	1	2a	2b	89	-15548.17	0 <i>P</i> =1	
	proportion	0.96952	0.03048	0.00000	0.00000				
	background w	0.02338	1.00000	0.02338	1.00000				
	foreground w	0.02338	1.00000	1.00000	1.00000				
Branch j ω_b =1	site class	0	1	2a	2b	88	-15548.17		
	proportion	0.96952	0.03048	0.00000	0.00000				
	background w	0.02338	1.00000	0.02338	1.00000				
	foreground w	0.02338	1.00000	1.00000	1.00000				

8. ND2

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	0.0669					86	-20896.95		
Branch-site Model									
Branch i	site class	0	1	2a	2b	89	-20723.90	1 P=0.32	
	proportion	0.91828	0.06976	0.01111	0.00084				
	background w	0.05435	1.00000	0.05435	1.00000				
	foreground w	0.05435	1.00000	2.26117	2.26117				
Branch i ω _a =1	site class	0	1	2a	2b	88	-20724.40		
	proportion	0.92715	0.07285	0.00000	0.00000				
	background w	0.05445	1.00000	0.05445	1.00000				
	foreground w	0.05445	1.00000	1.00000	1.00000				
Branch j	site class	0	1	2a	2b	89	-20694.94	22.38 P<0.001	2 H 0.996 8 C 0.977 12 A 0.961 41 L 0.995 75 L 1.000 100 L 0.976 150 D 0.987
	proportion	0.78543	0.05866	0.14508	0.01083				
	background w	0.05324	1.00000	0.05324	1.00000				
	foreground w	0.05324	1.00000	999.00000	999.00000				
Branch j ω _b =1	site class	0	1	2a	2b	88	-20706.13		
	proportion	0.73542	0.05585	0.19400	0.01473				
	background w	0.05318	1.00000	0.05318	1.00000				

	foreground w	0.05318	1.00000	1.00000	1.00000				224 C 0.997 229 G 0.983 244 L 1.000 246 P 0.977 267 I 0.995 268 D 0.998 271 V 1.000 285 S 0.996 304 S 0.999 311 K 0.998 322 G 0.968 330 S 0.996
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9. ND3

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	0.0560					86	-6080.65		
Branch-site Model									
Branch i	site class	0	1	2a	2b	89	-5957.50	0 <i>P</i> =1	
	proportion	0.81936	0.18064	0.00000	0.00000				
	background w	0.02102	1.00000	0.02102	1.00000				
	foreground w	0.02102	1.00000	1.00000	1.00000				
Branch i ω_a =1	site class	0	1	2a	2b	88	-5957.50	0 <i>P</i> =1	
	proportion	0.81936	0.18064	0.00000	0.00000				
	background w	0.02102	1.00000	0.02102	1.00000				
	foreground w	0.02102	1.00000	1.00000	1.00000				
Branch j	site class	0	1	2a	2b	89	-5957.50	0 <i>P</i> =1	
	proportion	0.66993	0.14769	0.14943	0.03294				
	background w	0.02102	1.00000	0.02102	1.00000				
	foreground w	0.02102	1.00000	1.09013	1.09013				
Branch j ω_b =1	site class	0	1	2a	2b	88	-5957.50	0 <i>P</i> =1	
	proportion	0.66492	0.14659	0.15445	0.03405				
	background w	0.02102	1.00000	0.02102	1.00000				
	foreground w	0.02102	1.00000	1.00000	1.00000				

10. ND4

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	0.0432					86	-24293.39		
Branch-site Model									
Branch i	site class	0	1	2a	2b	89	-24195.20	0 <i>P</i> =1	
	proportion	0.96035	0.03965	0.00000	0.00000				
	background w	0.03752	1.00000	0.03752	1.00000				
	foreground w	0.03752	1.00000	1.00000	1.00000				
Branch i	site class	0	1	2a	2b	88	-24195.20		

$\omega_a = 1$	proportion	0.96035	0.03965	0.00000	0.00000				
	background w	0.03752	1.00000	0.03752	1.00000				
	foreground w	0.03752	1.00000	1.00000	1.00000				
Branch j	site class	0	1	2a	2b	89	-24185.81	3.58	256 N 0.983 345 M 0.990
	proportion	0.91946	0.03709	0.04176	0.00168				
	background w	0.03707	1.00000	0.03707	1.00000				
	foreground w	0.03707	1.00000	4.28674	4.28674				
Branch j $\omega_b = 1$	site class	0	1	2a	2b	88	-24187.60	$P=0.058$	
	proportion	0.88984	0.03623	0.07104	0.00289				
	background w	0.03698	1.00000	0.03698	1.00000				
	foreground w	0.03698	1.00000	1.00000	1.00000				

11. ND4L

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	0.0359					86	-4600.04				
Branch-site Model											
Branch i	site class	0	1	2a	2b	89	-4562.04	0 P=1			
	proportion	0.95180	0.04820	0.00000	0.00000						
	background w	0.02982	1.00000	0.02982	1.00000						
	foreground w	0.02982	1.00000	1.00000	1.00000						
Branch i ω _a =1	site class	0	1	2a	2b	88	-4562.04			0 P=1	
	proportion	0.95180	0.04820	0.00000	0.00000						
	background w	0.02982	1.00000	0.02982	1.00000						
	foreground w	0.02982	1.00000	1.00000	1.00000						
Branch j	site class	0	1	2a	2b	89	-4561.89	0 P=1			
	proportion	0.90996	0.04637	0.04156	0.00212						
	background w	0.02942	1.00000	0.02942	1.00000						
	foreground w	0.02942	1.00000	1.00000	1.00000						
Branch j ω _b =1	site class	0	1	2a	2b	88	-4561.89			0 P=1	
	proportion	0.90996	0.04637	0.04156	0.00212						
	background w	0.02942	1.00000	0.02942	1.00000						
	foreground w	0.02942	1.00000	1.00000	1.00000						

12. ND5

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	0.0514					86	-32238.87		
Branch-site Model									
Branch i	site class	0	1	2a	2b	89	-31944.51	0 P=1	
	proportion	0.95280	0.04720	0.00000	0.00000				
	background w	0.04202	1.00000	0.04202	1.00000				
	foreground w	0.04202	1.00000	1.00000	1.00000				
Branch i	site class	0	1	2a	2b	88	-31944.51		

$\omega_a=1$	proportion	0.95280	0.04720	0.00000	0.00000					
	background w	0.04202	1.00000	0.04202	1.00000					
	foreground w	0.04202	1.00000	1.00000	1.00000					
Branch j	site class	0	1	2a	2b	89	-31935.98	5.18 P=0.023		
	proportion	0.83032	0.04198	0.12155	0.00615					
	background w	0.04132	1.00000	0.04132	1.00000				17L 0.999	
	foreground w	0.04132	1.00000	9.05791	9.05791				424 T 0.971	
Branch j $\omega_b=1$	site class	0	1	2a	2b	88	-31938.57			555 L 0.957
	proportion	0.00055	0.00003	0.95113	0.04830				589G 0.954	
	background w	0.04133	1.00000	0.04133	1.00000					
	foreground w	0.04133	1.00000	1.00000	1.00000					

13. ND6

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	0.0586					86	-9473.88				
Branch-site Model											
Branch i	site class	0	1	2a	2b	89	-9381.84	15.06 P<0.001	105 F 0.995 107 G 0.998 113 P 0.998		
	proportion	0.89609	0.06435	0.03691	0.00265						
	background w	0.04709	1.00000	0.04709	1.00000						
	foreground w	0.04709	1.00000	29.70776	29.70776						
Branch i $\omega_a=1$	site class	0	1	2a	2b	88	-9389.37				
	proportion	0.85865	0.06159	0.07442	0.00534						
	background w	0.04689	1.00000	0.04689	1.00000						
	foreground w	0.04689	1.00000	1.00000	1.00000						
Branch j	site class	0	1	2a	2b	89	-9394.84	2.32 <i>P</i> =0.13			
	proportion	0.91341	0.06666	0.01857	0.00136						
	background w	0.04838	1.00000	0.04838	1.00000						
	foreground w	0.04838	1.00000	26.33134	26.33134						
Branch j $\omega_b=1$	site class	0	1	2a	2b	88	-9396.00				
	proportion	0.87965	0.06398	0.05255	0.00382						
	background w	0.04827	1.00000	0.04827	1.00000						
	foreground w	0.04827	1.00000	1.00000	1.00000						

^a The proportion of sites estimated to have ω

^b Twice the difference in log-likelihood values was calculated following a chi-squared (χ^2)

^c Posterior probability > 0.99 of having $\omega > 1$

^d The residues were identified by Bayes Empirical Bayes analysis

Supplementary Table 6: Selective pressure analyses for the 13 genes in Perciformes.

1. ATP6

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0368					14	-968.14		
Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-968.14	0 P=1	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.03675	1.00000	0.03675	1.00000				
	foreground w	0.03675	1.00000	1.06005	1.06005				
Branch k $\omega_a = 1$	site class	0	1	2a	2b	16	-968.14		
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.03675	1.00000	0.03675	1.00000				
	foreground w	0.03675	1.00000	1.00000	1.00000				
One ratio	ω =0.0304					16	-2720.92		
Branch-site Model									
Branch l	site class	0	1	2a	2b	19	-2717.12	0 P=1	
	proportion	0.98255	0.01745	0.00000	0.00000				
	background w	0.02596	1.00000	0.02596	1.00000				
	foreground w	0.02596	1.00000	1.00000	1.00000				
Branch l $\omega_a = 1$	site class	0	1	2a	2b	18	-2717.12		
	proportion	0.98255	0.01745	0.00000	0.00000				
	background w	0.02596	1.00000	0.02596	1.00000				
	foreground w	0.02596	1.00000	1.00000	1.00000				
One ratio	ω =0.0145					12	-1884.80		
Branch-site Model									
Branch m	site class	0	1	2a	2b	15	-1872.28	0 P=1	
	proportion	0.96274	0.03726	0.00000	0.00000				
	background w	0.00656	1.00000	0.00656	1.00000				
	foreground w	0.00656	1.00000	1.00000	1.00000				
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-1872.28		
	proportion	0.96274	0.03726	0.00000	0.00000				
	background w	0.00656	1.00000	0.00656	1.00000				
	foreground w	0.00656	1.00000	1.00000	1.00000				

2. ATP8

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0001					14	-198.23		
Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-198.23	0 P=1	
	proportion	0.56800	0.22275	0.15031	0.05894				
	background w	0.24647	1.00000	0.24647	1.00000				

	foreground w	0.24647	1.00000	1.06630	1.06630				
Branch k $\omega_a = 1$	site class	0	1	2a	2b	16	-198.23		
	proportion	0.70797	0.29196	0.00005	0.00002				
	background w	0.00000	1.00000	0.00000	1.00000				
	foreground w	0.00000	1.00000	1.00000	1.00000				
One ratio	ω =0.1021					18	-607.55		
Branch-site Model									
Branch l	site class	0	1	2a	2b	21	-604.55	0 $P=1$	
	proportion	0.94166	0.05834	0.00000	0.00000				
	background w	0.07604	1.00000	0.07604	1.00000				
	foreground w	0.07604	1.00000	1.00000	1.00000				
Branch l $\omega_a = 1$	site class	0	1	2a	2b	20	-604.55		
	proportion	0.94166	0.05834	0.00000	0.00000				
	background w	0.07604	1.00000	0.07604	1.00000				
	foreground w	0.07604	1.00000	1.00000	1.00000				
One ratio	ω =0.0832					12	-409.37		
Branch-site Model									
Branch m	site class	0	1	2a	2b	15	-409.37	0 $P=1$	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.08315	1.00000	0.08315	1.00000				
	foreground w	0.08315	1.00000	1.00000	1.00000				
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-409.37		
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.08315	1.00000	0.08315	1.00000				
	foreground w	0.08315	1.00000	1.00000	1.00000				

3. Coxl

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0604					14	-2161.85		
Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-2159.09	0 P=1	
	proportion	0.95156	0.04790	0.00052	0.00003				
	background w	0.00000	1.00000	0.00000	1.00000				
	foreground w	0.00000	1.00000	1.00000	1.00000				
Branch k ω _a = 1	site class	0	1	2a	2b	16	-2159.09		
	proportion	0.84101	0.04233	0.11107	0.00559				
	background w	0.00000	1.00000	0.00000	1.00000				
	foreground w	0.00000	1.00000	1.00000	1.00000				
One ratio	ω = 0.0151					18	-5486.16		
Branch-site Model									
Branch l	site class	0	1	2a	2b	21	-5481.18	0 P=1	
	proportion	0.99642	0.00358	0.00000	0.00000				
	background w	0.01364	1.00000	0.01364	1.00000				

	foreground w	0.01364	1.00000	1.00000	1.00000				
Branch l $\omega_a = 1$	site class	0	1	2a	2b	20	-5481.18		
	proportion	0.99642	0.00358	0.00000	0.00000				
	background w	0.01364	1.00000	0.01364	1.00000				
	foreground w	0.01364	1.00000	1.00000	1.00000				
One ratio	$\omega = 0.0113$					12	-3817.42		
Branch-site Model									
Branch m	site class	0	1	2a	2b	15	-3816.71	0 $P=1$	
	proportion	0.97838	0.00000	0.02162	0.00000				
	background w	0.01071	1.00000	0.01071	1.00000				
	foreground w	0.01071	1.00000	1.00000	1.00000				
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-3816.71		
	proportion	0.97838	0.00000	0.02162	0.00000				
	background w	0.01071	1.00000	0.01071	1.00000				
	foreground w	0.01071	1.00000	1.00000	1.00000				

4. CoxII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0572					14	-947.15		
Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-947.15	0.02 P= 0.89	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.05725	1.00000	0.05725	1.00000				
	foreground w	0.05725	1.00000	1.05899	1.05899				
Branch k ω _a = 1	site class	0	1	2a	2b	16	-947.14		
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.05731	1.00000	0.05731	1.00000				
	foreground w	0.05731	1.00000	1.00000	1.00000				
One ratio	ω =0.0206					18	-2298.65		
Branch-site Model									
Branch l	site class	0	1	2a	2b	21	-2296.82	0 P=1	
	proportion	0.98944	0.01056	0.00000	0.00000				
	background w	0.01667	1.00000	0.01667	1.00000				
	foreground w	0.01667	1.00000	1.00000	1.00000				
Branch l ω _a = 1	site class	0	1	2a	2b	20	-2296.82		
	proportion	0.98944	0.01056	0.00000	0.00000				
	background w	0.01667	1.00000	0.01667	1.00000				
	foreground w	0.01667	1.00000	1.00000	1.00000				
One ratio	ω =0.0087					12	-1558.01		
Branch-site Model									
Branch m	site class	0	1	2a	2b	15	-1558.01	0 P=1	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.00870	1.00000	0.00870	1.00000				

	foreground w	0.00870	1.00000	1.00000	1.00000				
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-1558.01		
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.00870	1.00000	0.00870	1.00000				
	foreground w	0.00870	1.00000	1.00000	1.00000				

5. CoxIII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0598					14	-1123.14		
Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-1123.14	0 P=1	
	proportion	0.99998	0.00000	0.00002	0.00000				
	background w	0.05983	1.00000	0.05983	1.00000				
	foreground w	0.05983	1.00000	1.10996	1.10996				
Branch k ω _a = 1	site class	0	1	2a	2b	16	-1123.14		
	proportion	0.99999	0.00000	0.00001	0.00000				
	background w	0.05983	1.00000	0.05983	1.00000				
	foreground w	0.05983	1.00000	1.00000	1.00000				
One ratio	ω =0.0217					8	-2867.18		
Branch-site Model									
Branch l	site class	0	1	2a	2b	21	-2860.72	0 P=1	
	proportion	0.68791	0.00651	0.30272	0.00286				
	background w	0.01800	1.00000	0.01800	1.00000				
	foreground w	0.01800	1.00000	1.00000	1.00000				
Branch l ω _a = 1	site class	0	1	2a	2b	20	-2860.72		
	proportion	0.68791	0.00651	0.30272	0.00286				
	background w	0.01800	1.00000	0.01800	1.00000				
	foreground w	0.01800	1.00000	1.00000	1.00000				
One ratio	ω =0.0187					12	-2037.56		
Branch-site Model									
Branch m	site class	0	1	2a	2b	15	-2025.19	0 P=1	
	proportion	0.98245	0.01755	0.00000	0.00000				
	background w	0.01397	1.00000	0.01397	1.00000				
	foreground w	0.01397	1.00000	1.00000	1.00000				
Branch m ω _a = 1	site class	0	1	2a	2b	14	-2025.19		
	proportion	0.98245	0.01755	0.00000	0.00000				
	background w	0.01397	1.00000	0.01397	1.00000				
	foreground w	0.01397	1.00000	1.00000	1.00000				

6. CytB

Model	Parameter Estimated ^a					p	lnL	$2\Delta\ln L^b$ P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	$\omega = 0.0201$					14	-1595.84		

Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-1595.84	0 <i>P</i> =1	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.02008	1.00000	0.02008	1.00000				
	foreground w	0.02008	1.00000	1.06219	1.06219				
Branch k $\omega_a = 1$	site class	0	1	2a	2b	16	-1595.84		
	proportion	0.99999	0.00000	0.00001	0.00000				
	background w	0.02008	1.00000	0.02008	1.00000				
	foreground w	0.02008	1.00000	1.00000	1.00000				
One ratio	$\omega = 0.0080$					12	-3006.98		
Branch-site Model									
Branch m	site class	0	1	2a	2b	15	-2987.97	0 <i>P</i> =1	
	proportion	0.97835	0.02165	0.00000	0.00000				
	background w	0.00403	1.00000	0.00403	1.00000				
	foreground w	0.00403	1.00000	1.00000	1.00000				
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-2987.97		
	proportion	0.97835	0.02165	0.00000	0.00000				
	background w	0.00403	1.00000	0.00403	1.00000				
	foreground w	0.00403	1.00000	1.00000	1.00000				

7. ND1

Model	Parameter Estimated ^a					p	lnL	2ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0285					14	-1657.67		
Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-1643.17	0 P=1	
	proportion	0.98136	0.01864	0.00000	0.00000				
	background w	0.00000	1.00000	0.00000	1.00000				
	foreground w	0.00000	1.00000	1.00000	1.00000				
Branch k ω _a = 1	site class	0	1	2a	2b	16	-1643.17		
	proportion	0.98136	0.01864	0.00000	0.00000				
	background w	0.00000	1.00000	0.00000	1.00000				
	foreground w	0.00000	1.00000	1.00000	1.00000				
One ratio	ω =0.0154					18	-4132.89		
Branch-site Model									
Branch l	site class	0	1	2a	2b	21	-4122.38	0 P=1	
	proportion	0.98368	0.01632	0.00000	0.00000				
	background w	0.01021	1.00000	0.01021	1.00000				
	foreground w	0.01021	1.00000	7.89625	7.89625				
Branch l ω _a = 1	site class	0	1	2a	2b	20	-4122.38		
	proportion	0.00000	0.00000	0.98368	0.01632				
	background w	0.01021	1.00000	0.01021	1.00000				
	foreground w	0.01021	1.00000	1.00000	1.00000				
One ratio	ω =0.0095					12	-2700.62		

Branch-site Model							
Branch m	site class	0	1	2a	2b	15	-2686.40
	proportion	0.96035	0.03965	0.00000	0.00000		
	background w	0.00343	1.00000	0.00343	1.00000		
	foreground w	0.00343	1.00000	1.00000	1.00000		
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-2686.40
	proportion	0.96035	0.03965	0.00000	0.00000		
	background w	0.00343	1.00000	0.00343	1.00000		
	foreground w	0.00343	1.00000	1.00000	1.00000		

8. ND2

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0547					14	-1784.74		
Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-1779.50	0 P=1	
	proportion	0.94431	0.05569	0.00000	0.00000				
	background w	0.00361	1.00000	0.00361	1.00000				
	foreground w	0.00361	1.00000	1.00000	1.00000				
Branch k $\omega_a = 1$	site class	0	1	2a	2b	16	-1779.50		
	proportion	0.94431	0.05569	0.00000	0.00000				
	background w	0.00361	1.00000	0.00361	1.00000				
	foreground w	0.00361	1.00000	1.00000	1.00000				
One ratio	ω =0.0422					18	-4725.73		
Branch-site Model									
Branch l	site class	0	1	2a	2b	21	-4704.78	0 P=1	
	proportion	0.97327	0.02673	0.00000	0.00000				
	background w	0.03424	1.00000	0.03424	1.00000				
	foreground w	0.03424	1.00000	1.00000	1.00000				
Branch l $\omega_a = 1$	site class	0	1	2a	2b	20	-4704.78		
	proportion	0.97327	0.02673	0.00000	0.00000				
	background w	0.03424	1.00000	0.03424	1.00000				
	foreground w	0.03424	1.00000	1.00000	1.00000				
One ratio	ω =0.0422					12	-3263.51		
Branch-site Model									
Branch m	site class	0	1	2a	2b	15	-3248.10	0 P=1	
	proportion	0.95245	0.04755	0.00000	0.00000				
	background w	0.02536	1.00000	0.02536	1.00000				
	foreground w	0.02536	1.00000	1.00000	1.00000				
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-3248.10		
	proportion	0.95245	0.04755	0.00000	0.00000				
	background w	0.02536	1.00000	0.02536	1.00000				
	foreground w	0.02536	1.00000	1.00000	1.00000				

9. ND3

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0532					14	-501.56				
Branch-site Model											
Branch k	site class	0	1	2a	2b	17	-501.35	0 <i>P</i> =1			
	proportion	0.88038	0.06967	0.04629	0.00366						
	background w	0.00000	1.00000	0.00000	1.00000						
	foreground w	0.00000	1.00000	1.00000	1.00000						
Branch k $\omega_a = 1$	site class	0	1	2a	2b	16	-501.35				
	proportion	0.80333	0.06357	0.12334	0.00976						
	background w	0.00000	1.00000	0.00000	1.00000						
	foreground w	0.00000	1.00000	1.00000	1.00000						
One ratio	ω =0.0311					12	-969.26				
Branch-site Model											
Branch m	site class	0	1	2a	2b	15	-962.29	0 <i>P</i> =1			
	proportion	0.90626	0.09374	0.00000	0.00000						
	background w	0.01411	1.00000	0.01411	1.00000						
	foreground w	0.01411	1.00000	1.00000	1.00000						
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-962.29				
	proportion	0.90626	0.09374	0.00000	0.00000						
	background w	0.01411	1.00000	0.01411	1.00000						
	foreground w	0.01411	1.00000	1.00000	1.00000						

10. ND4

Model	Parameter Estimated ^a					p	lnL	2ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0308					14	-2359.75		
Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-2359.75	0 P=1	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.03082	1.00000	0.03082	1.00000				
	foreground w	0.03082	1.00000	1.00000	1.00000				
Branch k ω _a = 1	site class	0	1	2a	2b	16	-2359.75		
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.03082	1.00000	0.03082	1.00000				
	foreground w	0.03082	1.00000	1.00000	1.00000				
One ratio	ω =0.0454					18	-6059.05		
Branch-site Model									
Branch l	site class	0	1	2a	2b	21	-6027.58	0 P=1	
	proportion	0.96914	0.03086	0.00000	0.00000				
	background w	0.03564	1.00000	0.03564	1.00000				
	foreground w	0.03564	1.00000	1.00000	1.00000				
Branch l ω _a = 1	site class	0	1	2a	2b	20	-6027.58		
	proportion	0.96914	0.03086	0.00000	0.00000				

	background w	0.03564	1.00000	0.03564	1.00000						
	foreground w	0.03564	1.00000	1.00000	1.00000						
One ratio	ω =0.0276					12	-4043.47				
Branch-site Model											
Branch m	site class	0	1	2a	2b	15	-4013.96	0 $P=1$			
	proportion	0.94286	0.05714	0.00000	0.00000						
	background w	0.01113	1.00000	0.01113	1.00000						
	foreground w	0.01113	1.00000	1.00000	1.00000						
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-4013.96			0 $P=1$	
	proportion	0.94286	0.05714	0.00000	0.00000						
	background w	0.01113	1.00000	0.01113	1.00000						
	foreground w	0.01113	1.00000	1.00000	1.00000						

11. ND4L

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.1641					14	-467.50				
Branch-site Model											
Branch k	site class	0	1	2a	2b	17	-467.50	0 P=1			
	proportion	0.99999	0.00000	0.00001	0.00000						
	background w	0.16413	1.00000	0.16413	1.00000						
	foreground w	0.16413	1.00000	1.07646	1.07646						
Branch k ω _a = 1	site class	0	1	2a	2b	16	-467.50			0 P=1	
	proportion	0.99999	0.00000	0.00001	0.00000						
	background w	0.16413	1.00000	0.16413	1.00000						
	foreground w	0.16413	1.00000	1.00000	1.00000						
One ratio	ω =0.0420					18	-1133.98				
Branch-site Model											
Branch l	site class	0	1	2a	2b	21	-1130.04	0 P=1			
	proportion	0.96732	0.03268	0.00000	0.00000						
	background w	0.03169	1.00000	0.03169	1.00000						
	foreground w	0.03169	1.00000	1.00000	1.00000						
Branch l ω _a = 1	site class	0	1	2a	2b	20	-1130.04			0 P=1	
	proportion	0.96732	0.03268	0.00000	0.00000						
	background w	0.03169	1.00000	0.03169	1.00000						
	foreground w	0.03169	1.00000	1.00000	1.00000						
One ratio	ω =0.0403					12	-746.41				
Branch-site Model											
Branch m	site class	0	1	2a	2b	15	-744.05	0 P=1			
	proportion	0.92871	0.07129	0.00000	0.00000						
	background w	0.01814	1.00000	0.01814	1.00000						
	foreground w	0.01814	1.00000	1.00000	1.00000						
Branch m ω _a = 1	site class	0	1	2a	2b	14	-744.05			0 P=1	
	proportion	0.92870	0.07130	0.00000	0.00000						

	background w	0.01814	1.00000	0.01814	1.00000				
	foreground w	0.01814	1.00000	1.00000	1.00000				

12. ND5

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0575					14	-3098.61		
Branch-site Model									
Branch k	site class	0	1	2a	2b	17	-3089.29	2.98 P= 0.08	
	proportion	0.94231	0.05588	0.00171	0.00010				
	background w	0.00196	1.00000	0.00196	1.00000				
	foreground w	0.00196	1.00000	999.00000	999.00000				
Branch k $\omega_a = 1$	site class	0	1	2a	2b	16	-3090.78		
	proportion	0.87186	0.05200	0.07186	0.00429				
	background w	0.00277	1.00000	0.00277	1.00000				
	foreground w	0.00277	1.00000	1.00000	1.00000				
One ratio	ω =0.0512					18	-7929.81		
Branch-site Model									
Branch l	site class	0	1	2a	2b	21	-7868.87	0 P=1	
	proportion	0.90146	0.04538	0.05061	0.00255				
	background w	0.03556	1.00000	0.03556	1.00000				
	foreground w	0.03556	1.00000	1.00000	1.00000				
Branch l $\omega_a = 1$	site class	0	1	2a	2b	20	-7868.87		
	proportion	0.90146	0.04538	0.05061	0.00255				
	background w	0.03556	1.00000	0.03556	1.00000				
	foreground w	0.03556	1.00000	1.00000	1.00000				
One ratio	ω =0.0280					12	-5283.39		
Branch-site Model									
Branch m	site class	0	1	2a	2b	15	-5251.13	1.62 P=0.203	
	proportion	0.92971	0.05045	0.01882	0.00102				
	background w	0.01198	1.00000	0.01198	1.00000				
	foreground w	0.01198	1.00000	1.00000	1.00000				
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-5251.94		
	proportion	0.94837	0.05163	0.00000	0.00000				
	background w	0.01309	1.00000	0.01309	1.00000				
	foreground w	0.01309	1.00000	1.00000	1.00000				

13. ND6

Model	Parameter Estimated ^a				p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0539				14	-830.72		
Branch-site Model								
Branch k	site class	0	1	2a	2b	17	-830.72	0.18 P=0.67
	proportion	1.00000	0.00000	0.00000	0.00000			

	background w	0.05395	1.00000	0.05395	1.00000				
	foreground w	0.05395	1.00000	1.00000	1.00000				
Branch k $\omega_a = 1$	site class	0	1	2a	2b	16	-830.81		
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.05392	1.00000	0.05392	1.00000				
	foreground w	0.05392	1.00000	1.00000	1.00000				
One ratio	$\omega = 0.0412$					18	-2381.69		
Branch-site Model									
Branch l	site class	0	1	2a	2b	21	-2368.74	0 $P=1$	
	proportion	0.93045	0.06955	0.00000	0.00000				
	background w	0.03088	1.00000	0.03088	1.00000				
	foreground w	0.03088	1.00000	1.00000	1.00000				
Branch l $\omega_a = 1$	site class	0	1	2a	2b	20	-2368.74		
	proportion	0.93045	0.06955	0.00000	0.00000				
	background w	0.03088	1.00000	0.03088	1.00000				
	foreground w	0.03088	1.00000	1.00000	1.00000				
One ratio	$\omega = 0.0226$					12	-1490.92		
Branch-site Model									
Branch m	site class	0	1	2a	2b	15	-1489.54	0 $P=1$	
	proportion	0.99001	0.00999	0.00000	0.00000				
	background w	0.01995	1.00000	0.01995	1.00000				
	foreground w	0.01995	1.00000	1.00000	1.00000				
Branch m $\omega_a = 1$	site class	0	1	2a	2b	14	-1489.54		
	proportion	0.99001	0.00999	0.00000	0.00000				
	background w	0.01995	1.00000	0.01995	1.00000				
	foreground w	0.01995	1.00000	1.00000	1.00000				
One ratio	$\omega = 0.0214$					13	-1668.45		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-1663.54	0 $P=1$	
	proportion	0.98256	0.01744	0.00000	0.00000				
	background w	0.01710	1.00000	0.01710	1.00000				
	foreground w	0.01710	1.00000	1.00000	1.00000				
Branch n $\omega_a = 1$	site class	0	1	2a	2b	15	-1663.54		
	proportion	0.98256	0.01744	0.00000	0.00000				
	background w	0.01710	1.00000	0.01710	1.00000				
	foreground w	0.01710	1.00000	1.00000	1.00000				

^a The proportion of sites estimated to have ω

^b Twice the difference in log-likelihood values was calculated following a chi-squared (χ^2)

^c Posterior probability > 0.99 of having $\omega > 1$

^d The residues were identified by Bayes Empirical Bayes analysis

Supplementary Table 7: Selective pressure analyses for the 13 genes in Carangimorpha.

1. ATP6

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0130					13	-2265.00		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-2265.00	0 $P=1$	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.01295	1.00000	0.01295	1.00000				
	foreground w	0.01295	1.00000	1.00000	1.00000				
Branch n $\omega_a = 1$	site class	0	1	2a	2b	15	-2265.00		
	proportion	0.05766	0.00000	0.94234	0.00000				
	background w	0.01295	1.00000	0.01295	1.00000				
	foreground w	0.01295	1.00000	1.00000	1.00000				

2. ATP8

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0623					13	-486.38				
Branch-site Model											
Branch n	site class	0	1	2a	2b	16	-480.30	0 <i>P</i> =1			
	proportion	0.73112	0.02710	0.23314	0.00864						
	background w	0.03657	1.00000	0.03657	1.00000						
	foreground w	0.03657	1.00000	1.00000	1.00000						
Branch n $\omega_a = 1$	site class	0	1	2a	2b	15	-480.30				
	proportion	0.73112	0.02710	0.23314	0.00864						
	background w	0.03657	1.00000	0.03657	1.00000						
	foreground w	0.03657	1.00000	1.00000	1.00000						

3. CoxI

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0125					13	-4351.99				
Branch-site Model											
Branch n	site class	0	1	2a	2b	16	-4349.90	0 P=1			
	proportion	0.99534	0.00466	0.00000	0.00000						
	background w	0.01079	1.00000	0.01079	1.00000						
	foreground w	0.01079	1.00000	1.00000	1.00000						
Branch n ω _a = 1	site class	0	1	2a	2b	15	-4349.90				
	proportion	0.99534	0.00466	0.00000	0.00000						
	background w	0.01079	1.00000	0.01079	1.00000						
	foreground w	0.01079	1.00000	1.00000	1.00000						

4. CoxII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0162					13	-1837.11		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-1837.11	0 P=1	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.01618	1.00000	0.01618	1.00000				
	foreground w	0.01618	1.00000	1.00000	1.00000				
Branch n ω _a = 1	site class	0	1	2a	2b	15	-1837.11		
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.01618	1.00000	0.01618	1.00000				
	foreground w	0.01618	1.00000	1.00000	1.00000				

5. CoxIII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0145					13	-2303.52		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-2301.92	0 P=1	
	proportion	0.93074	0.00575	0.06312	0.00039				
	background w	0.01265	1.00000	0.01265	1.00000				
	foreground w	0.01265	1.00000	1.00000	1.00000				
Branch n ω _a = 1	site class	0	1	2a	2b	15	-2301.92		
	proportion	0.93074	0.00575	0.06312	0.00039				
	background w	0.01265	1.00000	0.01265	1.00000				
	foreground w	0.01265	1.00000	1.00000	1.00000				

6. CytB

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0119					13	-3521.32		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-3514.44	1.98 P=0.159	
	proportion	0.95138	0.00890	0.03935	0.00037				
	background w	0.00946	1.00000	0.00946	1.00000				
	foreground w	0.00946	1.00000	1.00000	1.00000				
Branch n ω _a = 1	site class	0	1	2a	2b	15	-3515.43		
	proportion	0.00000	0.00000	0.99120	0.00880				
	background w	0.00918	1.00000	0.00918	1.00000				
	foreground w	0.00918	1.00000	1.00000	1.00000				

7. ND1

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
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One ratio	ω =0.0096					13	-3011.12		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-3002.17	0.14 <i>P</i> = 0.71	
	proportion	0.00000	0.00000	0.99061	0.00939				
	background w	0.00641	1.00000	0.00641	1.00000				
	foreground w	0.00641	1.00000	114.71367	114.71367				
Branch n $\omega_a = 1$	site class	0	1	2a	2b	15	-3002.24		
	proportion	0.00000	0.00000	0.99060	0.00940				
	background w	0.00642	1.00000	0.00642	1.00000				
	foreground w	0.00642	1.00000	1.00000	1.00000				

8. ND2

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0274					13	-3617.49		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-3614.35	0 P=1	
	proportion	0.99101	0.00899	0.00000	0.00000				
	background w	0.02498	1.00000	0.02498	1.00000				
	foreground w	0.02498	1.00000	1.00000	1.00000				
Branch n ω _a = 1	site class	0	1	2a	2b	15	-3614.35		
	proportion	0.99101	0.00899	0.00000	0.00000				
	background w	0.02498	1.00000	0.02498	1.00000				
	foreground w	0.02498	1.00000	1.00000	1.00000				

9. ND3

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0131					13	-1058.21				
Branch-site Model											
Branch n	site class	0	1	2a	2b	16	-1046.11	0 P=1			
	proportion	0.97444	0.02556	0.00000	0.00000						
	background w	0.00618	1.00000	0.00618	1.00000						
	foreground w	0.00618	1.00000	1.00000	1.00000						
Branch n ω _a = 1	site class	0	1	2a	2b	15	-1046.11			0 P=1	
	proportion	0.97444	0.02556	0.00000	0.00000						
	background w	0.00618	1.00000	0.00618	1.00000						
	foreground w	0.00618	1.00000	1.00000	1.00000						

10. ND4

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0181					13	-4424.05		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-4417.58	0	

	proportion	0.97940	0.00719	0.01331	0.00010			$P=1$	
	background w	0.01536	1.00000	0.01536	1.00000				
	foreground w	0.01536	1.00000	1.00000	1.00000				
Branch n	site class	0	1	2a	2b				
$\omega_a = 1$	proportion	0.97940	0.00719	0.01331	0.00010	15	-4417.58		
	background w	0.01536	1.00000	0.01536	1.00000				
	foreground w	0.01536	1.00000	1.00000	1.00000				

11. ND4L

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0113					13	-861.36				
Branch-site Model											
Branch n	site class	0	1	2a	2b	16	-859.52	0 P=1			
	proportion	0.71293	0.00000	0.28707	0.00000						
	background w	0.00965	1.00000	0.00965	1.00000						
	foreground w	0.00965	1.00000	1.00000	1.00000						
Branch n ω _a = 1	site class	0	1	2a	2b	15	-859.52			0 P=1	
	proportion	0.71293	0.00000	0.28707	0.00000						
	background w	0.00965	1.00000	0.00965	1.00000						
	foreground w	0.00965	1.00000	1.00000	1.00000						

12. ND5

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0415					13	0.0415		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-6186.16	0 P=1	
	proportion	0.96372	0.02366	0.01232	0.00030				
	background w	0.03245	1.00000	0.03245	1.00000				
	foreground w	0.03245	1.00000	1.00000	1.00000				
Branch n ω _a = 1	site class	0	1	2a	2b	15	-6186.16		
	proportion	0.96372	0.02366	0.01232	0.00030				
	background w	0.03245	1.00000	0.03245	1.00000				
	foreground w	0.03245	1.00000	1.00000	1.00000				

13. ND6

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0214					13	-1668.45		
Branch-site Model									
Branch n	site class	0	1	2a	2b	16	-1663.54	0 P=1	
	proportion	0.98256	0.01744	0.00000	0.00000				
	background w	0.01710	1.00000	0.01710	1.00000				
	foreground w	0.01710	1.00000	1.00000	1.00000				

Branch n	site class	0	1	2a	2b				
$\omega_a = 1$	proportion	0.98256	0.01744	0.00000	0.00000	15	-1663.54		
	background w	0.01710	1.00000	0.01710	1.00000				
	foreground w	0.01710	1.00000	1.00000	1.00000				

^a The proportion of sites estimated to have ω

^b Twice the difference in log-likelihood values was calculated following a chi-squared (χ^2)

^c Posterior probability > 0.99 of having $\omega > 1$

^d The residues were identified by Bayes Empirical Bayes analysis

Supplementary Table 8: Selective pressure analyses for the 13 genes in Scombriformes.

1. ATP6

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0188					12	-1640.17				
Branch-site Model											
Branch o	site class	0	1	2a	2b	15	-1639.77	0 P =1			
	proportion	0.96986	0.00385	0.02619	0.00010						
	background w	0.01501	1.00000	0.01501	1.00000						
	foreground w	0.01501	1.00000	1.00000	1.00000						
Branch o $\omega_a = 1$	site class	0	1	2a	2b	14	-1639.77				
	proportion	0.96986	0.00385	0.02619	0.00010						
	background w	0.01501	1.00000	0.01501	1.00000						
	foreground w	0.01501	1.00000	1.00000	1.00000						

2. ATP8

Model	Parameter Estimated ^a					p	lnL	2ΔlnL ^b <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.1340					12	-351.88		
Branch-site Model									
Branch o	site class	0	1	2a	2b	15	-351.88	0 <i>P</i> =1	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.13403	1.00000	0.13403	1.00000				
	foreground w	0.13403	1.00000	1.00000	1.00000				
Branch o ω _a = 1	site class	0	1	2a	2b	14	-351.88		
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.13403	1.00000	0.13403	1.00000				
	foreground w	0.13403	1.00000	1.00000	1.00000				

3. CoxI

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0386					12	-3520.72		
Branch-site Model									
Branch o	site class	0	1	2a	2b	15	-3516.60	0 P=1	
	proportion	0.97897	0.02103	0.00000	0.00000				
	background w	0.02753	1.00000	0.02753	1.00000				
	foreground w	0.02753	1.00000	1.00000	1.00000				
Branch o ω _a = 1	site class	0	1	2a	2b	14	-3516.60		
	proportion	0.97897	0.02103	0.00000	0.00000				
	background w	0.02753	1.00000	0.02753	1.00000				
	foreground w	0.02753	1.00000	1.00000	1.00000				

4. CoxII

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0262					12	-1457.63				
Branch-site Model											
Branch o	site class	0	1	2a	2b	15	-1456.10	0 <i>P</i> =1			
	proportion	0.98340	0.01660	0.00000	0.00000						
	background w	0.01826	1.00000	0.01826	1.00000						
	foreground w	0.01826	1.00000	1.00000	1.00000						
Branch o $\omega_a = 1$	site class	0	1	2a	2b	14	-1456.10			0 <i>P</i> =1	
	proportion	0.98340	0.01660	0.00000	0.00000						
	background w	0.01826	1.00000	0.01826	1.00000						
	foreground w	0.01826	1.00000	1.00000	1.00000						

5. CoxIII

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0236					12	-1687.20				
Branch-site Model											
Branch o	site class	0	1	2a	2b	15	-1677.34	0 <i>P</i> =1			
	proportion	0.93838	0.03442	0.02623	0.00096						
	background w	0.00269	1.00000	0.00269	1.00000						
	foreground w	0.00269	1.00000	1.00000	1.00000						
Branch o $\omega_a = 1$	site class	0	1	2a	2b	14	-1677.34			0 <i>P</i> =1	
	proportion	0.93838	0.03442	0.02623	0.00096						
	background w	0.00269	1.00000	0.00269	1.00000						
	foreground w	0.00269	1.00000	1.00000	1.00000						

6. CytB

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0278					12	-2738.25		
Branch-site Model									
Branch o	site class	0	1	2a	2b	15	-2732.71	0.02 P=0.89	
	proportion	0.94437	0.01831	0.03661	0.00071				
	background w	0.01597	1.00000	0.01597	1.00000				
	foreground w	0.01597	1.00000	1.23020	1.23020				
Branch o ω _a = 1	site class	0	1	2a	2b	14	-2732.72		
	proportion	0.93919	0.01831	0.04169	0.00081				
	background w	0.01582	1.00000	0.01582	1.00000				
	foreground w	0.01582	1.00000	1.00000	1.00000				

7. ND1

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
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One ratio	ω =0.0150					12	-2382.49		
Branch-site Model									
Branch o	site class	0	1	2a	2b	15	-2376.94	0.36 <i>P</i> =0.55	
	proportion	0.97522	0.00983	0.01479	0.00015				
	background w	0.00926	1.00000	0.00926	1.00000				
	foreground w	0.00926	1.00000	2.86228	2.86228				
Branch o $\omega_a = 1$	site class	0	1	2a	2b	14	-2377.12		
	proportion	0.96385	0.00949	0.02640	0.00026				
	background w	0.00909	1.00000	0.00909	1.00000				
	foreground w	0.00909	1.00000	1.00000	1.00000				

8. ND2

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0193					12	-2657.02				
Branch-site Model											
Branch o	site class	0	1	2a	2b	15	-2653.64	0 P=1			
	proportion	0.98249	0.01751	0.00000	0.00000						
	background w	0.01336	1.00000	0.01336	1.00000						
	foreground w	0.01336	1.00000	1.00000	1.00000						
Branch o ω _a = 1	site class	0	1	2a	2b	14	-2653.64			0 P=1	
	proportion	0.98249	0.01751	0.00000	0.00000						
	background w	0.01336	1.00000	0.01336	1.00000						
	foreground w	0.01336	1.00000	1.00000	1.00000						

9. ND3

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0219					12	-763.56				
Branch-site Model											
Branch o	site class	0	1	2a	2b	15	-758.41	0.56 P= 0.45			
	proportion	0.92713	0.03976	0.03175	0.00136						
	background w	0.00543	1.00000	0.00543	1.00000						
	foreground w	0.00543	1.00000	999.00000	999.00000						
Branch o ω _a = 1	site class	0	1	2a	2b	14	-758.69			0.56 P= 0.45	
	proportion	0.41343	0.01788	0.54511	0.02357						
	background w	0.00556	1.00000	0.00556	1.00000						
	foreground w	0.00556	1.00000	1.00000	1.00000						

10. ND4

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0181					12	-3481.45		
Branch-site Model									
Branch o	site class	0	1	2a	2b	15	-3479.76	0	

	proportion	0.98445	0.01555	0.00000	0.00000			$P=1$	
	background w	0.01361	1.00000	0.01361	1.00000				
	foreground w	0.01361	1.00000	1.00000	1.00000				
Branch o	site class	0	1	2a	2b				
$\omega_a = 1$	proportion	0.98445	0.01555	0.00000	0.00000	14	-3479.76		
	background w	0.01361	1.00000	0.01361	1.00000				
	foreground w	0.01361	1.00000	1.00000	1.00000				

11. ND4L

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0067					12	-630.30				
Branch-site Model											
Branch o	site class	0	1	2a	2b	15	-630.30	0 P=1			
	proportion	1.00000	0.00000	0.00000	0.00000						
	background w	0.00669	1.00000	0.00669	1.00000						
	foreground w	0.00669	1.00000	1.00000	1.00000						
Branch o ω _a = 1	site class	0	1	2a	2b	14	-630.30			0 P=1	
	proportion	1.00000	0.00000	0.00000	0.00000						
	background w	0.00669	1.00000	0.00669	1.00000						
	foreground w	0.00669	1.00000	1.00000	1.00000						

12. ND5

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0256					12	-4397.81		
Branch-site Model									
Branch o	site class	0	1	2a	2b	15	-4397.55	0 P=1	
	proportion	0.99403	0.00457	0.00140	0.00001				
	background w	0.02380	1.00000	0.02380	1.00000				
	foreground w	0.02380	1.00000	1.00000	1.00000				
Branch o ω _a = 1	site class	0	1	2a	2b	14	-4397.55		
	proportion	0.99403	0.00457	0.00140	0.00001				
	background w	0.02380	1.00000	0.02380	1.00000				
	foreground w	0.02380	1.00000	1.00000	1.00000				

13. ND6

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0202					12	-1221.22		
Branch-site Model									
Branch o	site class	0	1	2a	2b	15	-1214.36	0 P=1	
	proportion	0.96061	0.03939	0.00000	0.00000				
	background w	0.00722	1.00000	0.00722	1.00000				
	foreground w	0.00722	1.00000	1.00000	1.00000				

Branch o $\omega_a = 1$	site class	0	1	2a	2b	14	-1214.36		
	proportion	0.96061	0.03939	0.00000	0.00000				
	background w	0.00722	1.00000	0.00722	1.00000				
	foreground w	0.00722	1.00000	1.00000	1.00000				

^a The proportion of sites estimated to have ω

^b Twice the difference in log-likelihood values was calculated following a chi-squared (χ^2)

^c Posterior probability > 0.99 of having $\omega > 1$

^d The residues were identified by Bayes Empirical Bayes analysis

Supplementary Table 9: Selective pressure analyses for the 13 genes in Pleuronectiformes.

1. ATP6

Model	Parameter Estimated ^a					p	lnL	$2\Delta\ln L^b$ <i>P</i> value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0634					27	-5073.41		
Branch-site Model									
Branch p	site class	0	1	2a	2b	30	-5009.93	0.92 <i>P</i> =0.34	
	proportion	0.90286	0.09714	0.00000	0.00000				
	background w	0.04468	1.00000	0.04468	1.00000				
	foreground w	0.04468	1.00000	1.00000	1.00000				
Branch p ω _a = 1	site class	0	1	2a	2b	29	-5010.39		
	proportion	0.66387	0.07140	0.23902	0.02571				
	background w	0.04449	1.00000	0.04449	1.00000				
	foreground w	0.04449	1.00000	1.00000	1.00000				

2. ATP8

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0977					27	-1058.19		
Branch-site Model									
Branch p	site class	0	1	2a	2b	30	-1058.19	0 P=1	
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.09768	1.00000	0.09768	1.00000				
	foreground w	0.09768	1.00000	1.00000	1.00000				
Branch p ω _a = 1	site class	0	1	2a	2b	29	-1058.19		
	proportion	1.00000	0.00000	0.00000	0.00000				
	background w	0.09768	1.00000	0.09768	1.00000				
	foreground w	0.09768	1.00000	1.00000	1.00000				

3. CoxI

Model	Parameter Estimated ^a					p	lnL	2ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0246					27	-8419.00				
Branch-site Model											
Branch p	site class	0	1	2a	2b	30	-8389.59	0 P=1			
	proportion	0.97932	0.02068	0.00000	0.00000						
	background w	0.01991	1.00000	0.01991	1.00000						
	foreground w	0.01991	1.00000	1.00000	1.00000						
Branch p ω _a = 1	site class	0	1	2a	2b	29	-8389.59				
	proportion	0.97933	0.02067	0.00000	0.00000						
	background w	0.01991	1.00000	0.01991	1.00000						
	foreground w	0.01991	1.00000	1.00000	1.00000						

4. CoxII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0367					27	-4022.46		
Branch-site Model									
Branch p	site class	0	1	2a	2b	30	-4011.14	0 P=1	
	proportion	0.98305	0.01695	0.00000	0.00000				
	background w	0.03263	1.00000	0.03263	1.00000				
	foreground w	0.03263	1.00000	1.00000	1.00000				
Branch p ω _a = 1	site class	0	1	2a	2b	29	-4011.14	0 P=1	
	proportion	0.98305	0.01695	0.00000	0.00000				
	background w	0.03264	1.00000	0.03264	1.00000				
	foreground w	0.03264	1.00000	1.00000	1.00000				

5. CoxIII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0273					27	-4463.92		
Branch-site Model									
Branch p	site class	0	1	2a	2b	30	-4450.31	0 P=1	
	proportion	0.87028	0.02485	0.10196	0.00291				
	background w	0.02244	1.00000	0.02244	1.00000				
	foreground w	0.02244	1.00000	1.00000	1.00000				
Branch p ω _a = 1	site class	0	1	2a	2b	29	-4450.31	0 P=1	
	proportion	0.87028	0.02485	0.10196	0.00291				
	background w	0.02244	1.00000	0.02244	1.00000				
	foreground w	0.02244	1.00000	1.00000	1.00000				

6. CytB

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0279					27	-7067.21		
Branch-site Model									
Branch p	site class	0	1	2a	2b	30	-7036.14	0 P=1	
	proportion	0.96887	0.03113	0.00000	0.00000				
	background w	0.02290	1.00000	0.02290	1.00000				
	foreground w	0.02290	1.00000	1.00000	1.00000				
Branch p ω _a = 1	site class	0	1	2a	2b	29	-7036.14	0 P=1	
	proportion	0.96887	0.03113	0.00000	0.00000				
	background w	0.02290	1.00000	0.02290	1.00000				
	foreground w	0.02290	1.00000	1.00000	1.00000				

7. ND1

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites
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Branch p	site class	0	1	2a	2b	30	-9202.60	0 $P=1$	
	proportion	0.96672	0.03328	0.00000	0.00000				
	background w	0.03079	1.00000	0.03079	1.00000				
	foreground w	0.03079	1.00000	1.00000	1.00000				
Branch p $\omega_a = 1$	site class	0	1	2a	2b	29	-9202.60		
	proportion	0.96672	0.03328	0.00000	0.00000				
	background w	0.03079	1.00000	0.03079	1.00000				
	foreground w	0.03079	1.00000	1.00000	1.00000				

11. ND4L

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0322					27	-1875.30				
Branch-site Model											
Branch p	site class	0	1	2a	2b	30	-1872.73	0 P=1			
	proportion	0.95965	0.04035	0.00000	0.00000						
	background w	0.02718	1.00000	0.02718	1.00000						
	foreground w	0.02718	1.00000	1.00000	1.00000						
Branch p ω _a = 1	site class	0	1	2a	2b	29	-1872.73			0 P=1	
	proportion	0.95965	0.04035	0.00000	0.00000						
	background w	0.02718	1.00000	0.02718	1.00000						
	foreground w	0.02718	1.00000	1.00000	1.00000						

12. ND5

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0617					27	-13282.93				
Branch-site Model											
Branch p	site class	0	1	2a	2b	30	-13117.04	3.74 P=0.053			
	proportion	0.90890	0.09110	0.00000	0.00000						
	background w	0.04193	1.00000	0.04193	1.00000						
	foreground w	0.04193	1.00000	1.00000	1.00000						
Branch p ω _a = 1	site class	0	1	2a	2b	29	-13115.17			3.74 P=0.053	
	proportion	0.03986	0.00395	0.86991	0.08628						
	background w	0.04117	1.00000	0.04117	1.00000						
	foreground w	0.04117	1.00000	1.00000	1.00000						

13. ND6

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0489					27	-3843.31		
Branch-site Model									
Branch p	site class	0	1	2a	2b	30	-3818.49	0 P=1	
	proportion	0.00000	0.00000	0.93357	0.06643				
	background w	0.03612	1.00000	0.03612	1.00000				

	foreground w	0.03612	1.00000	1.00000	1.00000				
Branch p $\omega_a = 1$	site class	0	1	2a	2b	29	-3818.49		
	proportion	0.00000	0.00000	0.93357	0.06643				
	background w	0.03612	1.00000	0.03612	1.00000				
	foreground w	0.03612	1.00000	1.00000	1.00000				

^a The proportion of sites estimated to have ω

^b Twice the difference in log-likelihood values was calculated following a chi-squared (χ^2)

^c Posterior probability > 0.99 of having $\omega > 1$

^d The residues were identified by Bayes Empirical Bayes analysis

Supplementary Table 10: Selective pressure analyses for the 13 genes in Scorpaeniformes.

1. ATP6

Model	Parameter Estimated ^a				p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0284				18	-3246.52		
Branch-site Model								
Branch q	site class	0	1	2a	2b	21	-3244.73	0 P=1
	proportion	0.99379	0.00621	0.00000	0.00000			
	background w	0.02676	1.00000	0.02676	1.00000			
	foreground w	0.02676	1.00000	1.00000	1.00000			
Branch q $\omega_a = 1$	site class	0	1	2a	2b	20	-3244.73	
	proportion	0.99379	0.00621	0.00000	0.00000			
	background w	0.02676	1.00000	0.02676	1.00000			
	foreground w	0.02676	1.00000	1.00000	1.00000			

2. ATP8

Model	Parameter Estimated ^a					p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.1176					18	-734.49		
Branch-site Model									
Branch q	site class	0	1	2a	2b	21	-731.15	0 P =1	
	proportion	0.93873	0.06127	0.00000	0.00000				
	background w	0.09380	1.00000	0.09380	1.00000				
	foreground w	0.09380	1.00000	1.00000	1.00000				
Branch q $\omega_a = 1$	site class	0	1	2a	2b	20	-731.15		
	proportion	0.93873	0.06127	0.00000	0.00000				
	background w	0.09380	1.00000	0.09380	1.00000				
	foreground w	0.09380	1.00000	1.00000	1.00000				

3. CoxI

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0184					18	-6073.85		
Branch-site Model									
Branch q	site class	0	1	2a	2b	21	-6055.21	0 P=1	
	proportion	0.98338	0.01662	0.00000	0.00000				
	background w	0.01350	1.00000	0.01350	1.00000				
	foreground w	0.01350	1.00000	1.00000	1.00000				
Branch q ω _a = 1	site class	0	1	2a	2b	20	-6055.21		
	proportion	0.98338	0.01662	0.00000	0.00000				
	background w	0.01350	1.00000	0.01350	1.00000				
	foreground w	0.01350	1.00000	1.00000	1.00000				

4. CoxII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0282					18	-2673.84		
Branch-site Model									
Branch q	site class	0	1	2a	2b	21	-2672.39	0 P=1	
	proportion	0.99035	0.00965	0.00000	0.00000				
	background w	0.02580	1.00000	0.02580	1.00000				
	foreground w	0.02580	1.00000	1.00000	1.00000				
Branch q ω _a = 1	site class	0	1	2a	2b	20	-2672.39		
	proportion	0.99035	0.00965	0.00000	0.00000				
	background w	0.02580	1.00000	0.02580	1.00000				
	foreground w	0.02580	1.00000	1.00000	1.00000				

5. CoxIII

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0227					18	-3143.99		
Branch-site Model									
Branch q	site class	0	1	2a	2b	21	-3135.37	0 P=1	
	proportion	0.93541	0.01374	0.05011	0.00074				
	background w	0.01641	1.00000	0.01641	1.00000				
	foreground w	0.01641	1.00000	1.00000	1.00000				
Branch q ω _a = 1	site class	0	1	2a	2b	20	-3135.37		
	proportion	0.93541	0.01374	0.05011	0.00074				
	background w	0.01641	1.00000	0.01641	1.00000				
	foreground w	0.01641	1.00000	1.00000	1.00000				

6. CytB

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0299					18	-5310.50		
Branch-site Model									
Branch q	site class	0	1	2a	2b	21	-5269.78	0 P=1	
	proportion	0.87866	0.03544	0.08257	0.00333				
	background w	0.01843	1.00000	0.01843	1.00000				
	foreground w	0.01843	1.00000	1.00000	1.00000				
Branch q ω _a = 1	site class	0	1	2a	2b	20	-5269.78		
	proportion	0.87866	0.03544	0.08257	0.00333				
	background w	0.01843	1.00000	0.01843	1.00000				
	foreground w	0.01843	1.00000	1.00000	1.00000				

7. ND1

Model	Parameter Estimated ^a				p	lnL	2 Δ lnL ^b P value ^c	Positively Selected Sites
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Branch q	site class	0	1	2a	2b	21	-6928.51	0.18 <i>P</i> =0.67	
	proportion	0.96652	0.02202	0.01120	0.00026				
	background w	0.04674	1.00000	0.04674	1.00000				
	foreground w	0.04674	1.00000	2.29577	2.29577				
Branch q $\omega_a = 1$	site class	0	1	2a	2b	20	-6928.60		
	proportion	0.95900	0.02213	0.01845	0.00043				
	background w	0.04652	1.00000	0.04652	1.00000				
	foreground w	0.04652	1.00000	1.00000	1.00000				

11. ND4L

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0728					18	-1307.80		
Branch-site Model									
Branch q	site class	0	1	2a	2b	21	-1274.24	0.04 <i>P</i> =0.84	
	proportion	0.84149	0.10050	0.05182	0.00619				
	background w	0.01694	1.00000	0.01694	1.00000				
	foreground w	0.01694	1.00000	1.24996	1.24996				
Branch q ω _a = 1	site class	0	1	2a	2b	20	-1274.26		
	proportion	0.83290	0.09971	0.06019	0.00721				
	background w	0.01672	1.00000	0.01672	1.00000				
	foreground w	0.01672	1.00000	1.00000	1.00000				

12. ND5

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d		
One ratio	ω =0.0523					18	-9165.47				
Branch-site Model											
Branch q	site class	0	1	2a	2b	21	-9131.05	0 P=1			
	proportion	0.94838	0.03089	0.02008	0.00065						
	background w	0.04317	1.00000	0.04317	1.00000						
	foreground w	0.04317	1.00000	1.00000	1.00000						
Branch q ω _a = 1	site class	0	1	2a	2b	20	-9131.05			0 P=1	
	proportion	0.94838	0.03089	0.02008	0.00065						
	background w	0.04317	1.00000	0.04317	1.00000						
	foreground w	0.04317	1.00000	1.00000	1.00000						

13. ND6

Model	Parameter Estimated ^a					p	lnL	2 ΔlnL ^b P value ^c	Positively Selected Sites (BEB Analysis) ^d
One ratio	ω =0.0479					18	-2713.11		
Branch-site Model									
Branch q	site class	0	1	2a	2b	21	-2704.99	0 P=1	
	proportion	0.95067	0.04933	0.00000	0.00000				
	background w	0.04112	1.00000	0.04112	1.00000				

	foreground w	0.04112	1.00000	1.00000	1.00000				
Branch q $\omega_a = 1$	site class	0	1	2a	2b	20	-2704.99		
	proportion	0.95067	0.04933	0.00000	0.00000				
	background w	0.04112	1.00000	0.04112	1.00000				
	foreground w	0.04112	1.00000	1.00000	1.00000				

^a The proportion of sites estimated to have ω

^b Twice the difference in log-likelihood values was calculated following a chi-squared (χ^2)

^c Posterior probability > 0.99 of having $\omega > 1$

^d The residues were identified by Bayes Empirical Bayes analysis