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Supplementary information

Supplementary table 1 Taxonomic groups listed as jellyfish prey in the models (spellings are as they appear in models), and the aggregated groups they correspond to in figure 8

Group in model	Aggregated group
zooplankton	diet;plankton;zooplankton
jellyfish	diet;plankton;jellyfish
phytoplankton	diet;plankton;phytoplankton
reef-associated fish	diet;fish;reef-fish
microzooplankton	diet;plankton;zooplankton
mesozooplankton	diet;plankton;zooplankton
pico-nanophytoplankton	diet;plankton;phytoplankton
copepods	diet;plankton;zooplankton;copepods
carnivorous jellyfish	diet;plankton;jellyfish;carnivorous jellyfish
benthic producer	diet;benthic producers
_Chaetognatha	diet;invertebrates;worms;arrow worms
calanoids	diet;plankton;zooplankton;copepods
T.lepturus	diet;fish;pelagic fish;forage fish;perciformes
small copepods	diet;plankton;zooplankton;copepods
Capelin	diet;fish;pelagic fish;osmeriformes
macrozooplankton	diet;plankton;zooplankton
near omni-zooplankton	diet;plankton;zooplankton
large phytoplankton	diet;plankton;phytoplankton
krill	diet;plankton;zooplankton;euphausiids;krill
euphausiids	diet;plankton;zooplankton;euphausiids
micro-zooplankton	diet;plankton;zooplankton
juvenile pollock	diet;fish;pelagic fish;gadiformes
juvenile butterfish	diet;fish;pelagic fish;forage fish;scombriformes
herbivorous zooplanktons	diet;plankton;zooplankton
zooplankton	diet;plankton;zooplankton
small jellies	diet;plankton;jellyfish
marine zooplankton	diet;plankton;zooplankton
carnivorous zooplankton	diet;plankton;zooplankton
pollock	diet;fish;pelagic fish;gadiformes
bay anchovy	diet;fish;pelagic fish;forage fish;clupeiformes
sharks	diet;fish;elasmobranchii;sharks
detritus	diet;detritus
carnivorous jellies	diet;plankton;jellyfish;carnivorous jellyfish
jacks	diet;fish;pelagic fish;forage fish;perciformes
large zooplankton	diet;plankton;zooplankton
large herbivorous zooplankton	diet;plankton;zooplankton
small herbivorous zooplankton	diet;plankton;zooplankton

gelatinous plankton	diet;plankton;jellyfish
gelatinous zooplankton	diet;plankton;jellyfish
macro-zooplankton	diet;plankton;zooplankton
salps	diet;plankton;jellyfish;tunicates
small zooplankton	diet;plankton;zooplankton
meiobenthos	diet;invertebrates;meiobenthos
ciliates	diet;plankton;jellyfish;carnivorous jellyfish
littoral forage fish	diet;fish;pelagic fish; forage fish
microphytoplankton	diet;plankton;phytoplankton
detritus	diet;detritus
euphausiid(larvae)	diet;plankton;zooplankton;euphaussids
cyclopoids	diet;plankton;zooplankton;copepods
S.niphonius	diet;fish;pelagic fish;forage fish;scombriformes
other mesozooplankton	diet;plankton;zooplankton
small pelagic fish	diet;fish;pelagic fish
bacteria	diet;microbial heterotrophs;bacteria
omni-zooplankton	diet;plankton;zooplankton
micro and mesozooplankton	diet;plankton;zooplankton
small phytoplankton	diet;plankton;phytoplankton
juvenile herring	diet;fish;pelagic fish;forage fish;clupeiformes
juvenile large pelagic	diet;fish;pelagic fish
carnivorous zooplanktons	diet;plankton;zooplankton
Ichthyoplankton	diet;plankton;zooplankton; Ichthyoplankton
appendicularians	diet;plankton;jellyfish;tunicates
detritivorous polychaeta	diet;invertebrates;worms;bristle worms
estuarine zooplankton	diet;plankton;zooplankton
other zooplankton	diet;plankton;zooplankton
herbivorous zooplankton	diet;plankton;zooplankton
P.cod	diet;fish;pelagic fish;gadiformes
decapterus maruadsi	diet;fish;pelagic fish;forage fish;perciformes
shrimps	diet;invertebrates;shrimps
shallow demersals	diet;fish;demersal fish
pacific cod	diet;fish;pelagic fish;gadiformes
micro-zooplankton'cryptophytes	diet;plankton;zooplankton
worms	diet;invertebrates;worms
ctenophores	diet;plankton;jellyfish;carnivorous jellyfish;ctenophores
small gelatinous zooplankton	diet;plankton;jellyfish
large pelagic fishes	diet;fish;pelagic fish
harpacticoids	diet;plankton;zooplankton;copepods
benthic producers	diet;benthic producers
Stromateoidae	diet;fish;pelagic fish;forage fish;scombriformes
near herbi-zooplankton	diet;plankton;zooplankton

scyphomedusae	diet;plankton;jellyfish;carnivorous jellyfish;cnidarians
scyphomeduase	diet;plankton;jellyfish;carnivorous jellyfish;cnidarians
pelagic detritus	diet;detritus
krill larvae	diet;plankton;zooplankton;euphaussids;krill
squids	diet;invertebrates;cephalopods;squids
juvenile medium pelagic	diet;fish;pelagic fish
microbial heterotrophs	diet;microbial heterotrophs
noctituc	diet;plankton;zooplankton
mollusca	diet;invertebrates;molluscs
marine ichthyoplankton	diet;plankton;zooplankton;icthyoplankton
marine ichthyoplnakon	diet;plankton;zooplankton;icthyoplankton
pelagic microbes	diet;microbial heterotrophs
P.halibut	diet;fish;demersal fish;pleuronectiformes
ctenophores	diet;plankton;jellyfish;carnivorous jellyfish;ctenophores
trichiurus haumela	diet;fish;pelagic fish;forage fish;perciformes
chaetognaths	diet;invertebrates;worms;bristle worms
pacific halbut	diet;fish;demersal fish;pleuronectiformes
small zooplankon	diet;plankton;zooplankton
omniovorus zooplankton	diet;plankton;zooplankton
pleurobachia pileus	diet;plankton;jellyfish;carnivorous jellyfish;ctenophores
mesozooplankton	diet;plankton;zooplankton
small jellyfish	diet;plankton;jellyfish
small pelagic fishes	diet;fish;pelagic fish
copepodites	diet;plankton;zooplankton;copepods
E.japonicus	diet;fish;pelagic fish;forage fish;clupeiformes
macrobenthos	diet;invertebrates;macrobenthos
microflora	diet;plankton;phytoplankton
herbi-zooplankton	diet;plankton;zooplankton
chaetognaths	diet;invertebrates;worms;bristle worms
carniv-zoops	diet;plankton;zooplankton
bathylagidae	diet;fish;deep sea fish;argentiniformes
juvenile small pelagic	diet;fish;pelagic fish
peneida&caridae	diet;invertebrates;shrimps
marine microbial heterotrophs	diet;microbial heterotrophs
Arrowtooth flounder	diet;fish;demersal fish;pleuronectiformes
psenopsis anomala	diet;fish;pelagic fish;forage fish;clupeiformes
greenland turbot	diet;fish;demersal fish;pleuronectiformes
diatoms	diet;plankton;phytoplankton
Sagitta setosa	diet;invertebrates;worms;arrow worms
euphasiid(eggs)	diet;plankton;zooplankton;euphaussids
larvae	diet;plankton;zooplankton;icthyoplankton
large copepods	diet;plankton;zooplankton;copepods

near phytoplankton	diet;plankton;phytoplankton
mesok	
other large zooplankton	diet;plankton;zooplankton
myctophidae	diet;fish;deep sea fish;myctophiformes
juvenile lare reef associated	diet;fish;pelagic fish;forage fish
water column detritus	diet;detritus
other detritus benthos	diet;detritus
estuarine phytoplankton	diet;plankton;phytoplankton
estuarine microbial heterotrophs	diet;microbial heterotrophs
Small flatfish	diet;fish;demersal fish;pleuronectiformes
upeneus bensasi	diet;fish;pelagic fish;forage fish;perciformes
crab larvae	diet;invertebrates;crabs
ice algae	diet;plankton;phytoplankton
cryptophytes	diet;plankton;phytoplankton
fish larvae	diet;plankton;zooplankton;icthyoplankton
fish eggs	diet;plankton;zooplankton;icthyoplankton
offshore phytoplankton	diet;plankton;phytoplankton
capeline	capelin
juvenile medium reef associated	diet;fish;pelagic fish;forage fish
echinodermata	diet;invertebrates;echinoderms
marine water-column detritus	diet;detritus
marine phytoplankton	diet;plankton;phytoplankton
skates	diet;fish;elasmobranchii;skates
other pelagics	diet;fish;pelagic fish
seaweeds	diet;plankton;phytoplankton
flathead sole	diet;fish;demersal fish;pleuronectiformes
other phytoplankton	diet;plankton;phytoplankton
water column detritus	diet;detritus
detritus	diet;detritus
detritus	diet;detritus
mespelagics	diet;fish;pelagic fish
mesopelagics	diet;fish;pelagic fish
sand lance	diet;fish;demersal fish;trachiniformes
juvenile small reef associated	diet;fish;pelagic fish;forage fish
sculpins	diet;fish;pelagic fish;scorpaeniformes
yellowfin sole	diet;fish;demersal fish;pleuronectiformes
larval juvenile fish	diet;plankton;zooplankton;icthyoplankton
eulachon	diet;fish;pelagic fish;osmeriformes
juvenile large demersal	
detached estuarine macrophytes	
sablefish	diet;fish;pelagic fish;scorpaeniformes
small pelagics-commercial	diet;fish;pelagic fish

small pelagics-other	diet;fish;pelagic fish
small pelagics-squid	diet;invertebrates;cephalopods;squids
small pelagics-anadromous	diet;fish;pelagic fish
small pelagics-commerical	diet;fish;pelagic fish
managed forage	diet;fish;pelagic fish; forage fish
other pelagic smelt	diet;fish;pelagic fish
pelagic gelatinous filter feeder	diet;plankton;jellyfish;tunicates
juvenile small demersal	
juvenile large planktivore	diet;fish;pelagic fish; forage fish
juvenile small planktivore	diet;fish;pelagic fish; forage fish
juvenile anchovy	diet;fish;pelagic fish;forage fish;clupeiformes
juvenile deepwater fish	diet;fish;deep sea fish
juvenile macro algal browsing	diet;fish;pelagic fish; forage fish
juvenile eroding grazers	diet;fish;reef-fish
juvenile scraping grazers	diet;fish;reef-fish
estuarine sediment detritus	diet;detritus
rockfish	diet;fish;reef-fish
macrouridae	diet;fish;pelagic fish;gadiformes
zoarcidae	diet;fish;pelagic fish;forage fish;perciformes
tanner crab	diet;invertebrates;crabs
snow crab	diet;invertebrates;crabs
king crab	diet;invertebrates;crabs
benthic amphipods	diet;plankton;zooplankton;amphipods
P.herring	diet;fish;pelagic fish;forage fish;clupeiformes
cephplapods	diet;invertebrates;cephalopods;squids
forage fish	diet;fish;pelagic fish; forage fish
alaska placie	diet;fish;demersal fish;pleuronectiformes
saketes	diet;fish;elasmobranchii;skates
macrouridate	diet;fish;pelagic fish;gadiformes
shrimp	diet;invertebrates;shrimps
pacific herring	diet;fish;pelagic fish;forage fish;clupeiformes
cephalpods	diet;invertebrates;cephalopod
Forage fish	diet;fish;pelagic fish; forage fish
norway pout	diet;fish;demersal fish;pleuronectiformes
other gadoids	diet;fish;pelagic fish;gadiformes
small mobile epifauna	diet;invertebrates;worms
planktonic microflora	diet;plankton;phytoplankton

Supplementary table 2 Taxonomic groups listed as jellyfish predators in the models (spellings are as they appear in models), and the aggregated groups they correspond to in figure 9

Group in model	Aggregated group
macrourids	pred;fish;deep sea fish;gadiformes
snappers	pred;fish;pelagic fish;perciformes
sea birds	pred;birds;sea birds
leatherback turtles	pred;reptiles;sea turtles;leatherback turtles
macro-zooplankton	pred;plankton;zooplankton
jellyfish	pred;plankton;jellyfish
sea nettles	pred;plankton;jellyfish;carnivorous jellyfish;cnidarians
gelatinous zooplankton	pred;plankton;jellyfish
atlantic mackerel	pred;fish;pelagic fish;scombriformes
seabirds	pred;birds;sea birds
horse mackerel	pred;fish;pelagic fish;perciformes
filefish	pred;fish;pelagic fish;tetraodontiformes
predatory gastropods	pred;invertebrates;molluscs;gastropods
small gelatinous zooplankton	pred;plankton;jellyfish
Appendicularians	pred;plankton;jellyfish;tunicates
cyclopoids	pred;plankton;zooplankton;copepods;cyclopoids
sharks	pred;fish;elasmobranchii;sharks
marine mammals	pred;marine mammals
rays and skates	pred;fish;elasmobranchii;rays
other demersal fish	pred;fish;demersal fish
Turtles	pred;reptiles;sea turtles
krill	pred;plankton;zooplankton;euphaussids;krill
large copepods	pred;plankton;zooplankton;copepods
large pelagic	pred;fish;pelagic fish
spiny dogfish	pred;fish;elasmobranchii;sharks
squid	pred;invertebrates;cephalopods;squids
Sandeels	pred;fish;pelagic fish;trachiniformes
gelatinous zooplankton	pred;plankton;jellyfish
scyphomedusa	pred;plankton;jellyfish;carnivorous jellyfish;cnidarians
scyphomedusae	pred;plankton;jellyfish;carnivorous jellyfish;cnidarians
tuna billfishes	tuna & billfishes
norway pout	pred;fish;pelagic fish;gadiformes
pelagic fish	pred;fish;pelagic fish
rorcuals	pred;marine mammals;whales;baleen whales
salmon	pred;fish;pelagic fish;salmoniformes
Benthic infauna	pred;invertebrates;benthic infauna
misc. shallow fish	pred;fish;pelagic fish
scyphozoid jellies	pred;plankton;jellyfish;carnivorous jellyfish;cnidarians
green turtles	pred;reptiles;sea turtles;green turtles

ilex squid	pred;invertebrates;cephalopods;squids
carnivorous benthos	pred;invertebrates;benthic infauna
Large-mouth sculpin	pred;fish;pelagic fish;scorpaeniformes
large pelagics	pred;fish;pelagic fish
chum	pred;fish;pelagic fish;salmoniformes
Sea turtles	pred;reptiles;sea turtles
misc. pelagics	pred;fish;pelagic fish
leiognathids	pred;fish;pelagic fish;perciformes
shallow sharks	pred;fish;elasmobranchii;sharks
baleen whales	pred;marine mammals;whales;baleen whales
ross seal	pred;marine mammals;seals;ross seal
aurelia aurita	pred;plankton;jellyfish;carnivorous jellyfish;cnidarians
billfish tuna	tuns & billfishes
hake	pred;fish;pelagic fish;gadiformes
common mora	pred;fish;pelagic fish;gadiformes
other tuna	pred;fish;pelagic fish;tunas
dogfish	pred;fish;elasmobranchii;sharks
other gadiformes	pred;fish;pelagic fish;gadiformes
other small pelagics(fish)	pred;fish;pelagic fish
large jellyfish	pred;plankton;jellyfish;carnivorous jellyfish;cnidarians
chinook	pred;fish;pelagic fish;salmoniformes
small fish	pred;fish;pelagic fish
small mouthed flatfish	pred;fish;demersal fish
marine turtles	pred;reptiles;sea turtles
Copeoda calanoida	pred;plankton;zooplankton;copepods;calanoida
decapterus maruadsi	pred;fish;pelagic fish;perciformes
sharks and rays	pred;fish;elasmobranchii;sharks
elasmobranchs	pred;fish;elasmobranchii
medium sciaenids	pred;fish;pelagic fish
lgoceplank	pred;fish;pelagic fish
amphipods	pred;plankton;zooplankton;amphipods
cod	pred;fish;pelagic fish;gadiformes
butterfishes	pred;fish;pelagic fish;perciformes
sea turtle	pred;reptiles;sea turtles
sablefish	pred;fish;pelagic fish;scorpaeniformes
demersal fishes	pred;fish;demersal fish
large zooplankton	pred;plankton;zooplankton
demersal sharks	pred;fish;elasmobranchii;sharks
other gadoids(small)	pred;fish;pelagic fish;gadiformes
red snapper	pred;fish;pelagic fish;perciformes
Notothenia rossii	rock cod (perciformes)
atka mackerel	pred;fish;pelagic fish;scorpaeniformes

other sebastes	pred;fish;pelagic fish;scorpaeniformes
dusky rockfish	pred;fish;pelagic fish;scorpaeniformes
squids	pred;invertebrates;cephalopods;squids
oceanic turtles	pred;reptiles;sea turtles
patagonian squid	pred;invertebrates;cephalopods;squids
reef sharks	pred;fish;elasmobranchii;sharks
ponyfishes,pinkies and trumpters	ponyfishes,pinkies and trumpters
demersal fish	pred;fish;demersal fish
echinodermata	pred;invertebrates;echinoderms
benthic-feeding fish	pred;fish;benthic fish
squids and cuttlefish	pred;invertebrates;cephalopods
small benthopealgic invert feeders	pred;invertebrates
misc demersals	pred;fish;demersal fish
other rays	pred;fish;elasmobranchii;rays
cluepoids	pred;fish;pelagic fish;clupeiformes
small pelagics	pred;fish;pelagic fish
small demersals	pred;fish;demersal fish
coryphanoides L	pred;fish;deep sea fish;gadiformes
basking sharks	pred;fish;elasmobranchii;sharks;basking sharks
crabeater seal	pred;marine mammals;seals;crabeater seals
sperm whales	pred;marine mammals;whales;toothed whales;sperm whales
oceanic small pelagics	pred;fish;pelagic fish
large sharks	pred;fish;elasmobranchii;sharks
juvenile pollock	pred;fish;pelagic fish;gadiformes
medium mesopelagic fishes	pred;fish;pelagic fish
forage fisih	pred;fish;pelagic fish
smelt	pred;fish;pelagic fish;osmeriformes
other salmon	pred;fish;pelagic fish;salmoniformes
sea stars	pred;invertebrates;echinoderms;sea stars
macrozooplankton	pred;plankton;zooplankton
large croakers	pred;fish;pelagic fish;perciformes
Copepoda cyclopoida	pred;plankton;zooplankton;copepods;cyclopoids
trichiurus haumela	pred;fish;pelagic fish;perciformes
S. lalandi	pred;fish;pelagic fish;perciformes
pelocejelly/eaters	pred
small pelagics-commercial	pred;fish;pelagic fish
micronekton	pred;invertebrates
pollock	pred;fish;pelagic fish;gadiformes
forage fish	pred;fish;pelagic fish
demersal invertebrate-eaters	pred;fish;demersal fish
salmon fry	pred;fish;pelagic fish;salmoniformes
loggerhead turtle	pred;reptiles;sea turtles;loggerhead turtles

mesopk	pred;plankton;zooplankton
alepocephalids	pred;fish;deep sea fish;alepocephaliformes
fish larvae	pred;fish;pelagic fish
juv rock	pred;fish;pelagic fish;scorpaeniformes
sharpchin rockfish	pred;fish;pelagic fish;scorpaeniformes
rougheye rockfish	pred;fish;pelagic fish;scorpaeniformes
sabelfish	pred;fish;pelagic fish;scorpaeniformes
sculpins	pred;fish;pelagic fish;scorpaeniformes
adult snappers	pred;fish;pelagic fish;perciformes
codling	pred;fish;pelagic fish;gadiformes
squid and cuttlefishes	pred;invertebrates;cephalopods;squids
octopus	pred;invertebrates;cephalopods;octopuses
piscivorous rays	pred;fish;elasmobranchii;rays
sessile epibethos	pred;invertebrates;benthic infauna
squids and cuttlefishes	pred;invertebrates;cephalopods
carnivorous jellies	pred;plankton;jellyfish
orange roughy	pred;fish;pelagic fish;trachichthyiformes
juvenile haddock	pred;fish;pelagic fish;gadiformes
sperm whale	pred;marine mammals;whales;toothed whales;sperm whales
gentoo penguins	pred;birds;penguins;gentoo penguins
coastal omnivores	pred
mesopelagic crustaceans	pred;invertebrates;arthropods;crustaceans
large pelagic (fish)	pred;fish;pelagic fish
transient salmon	pred;fish;pelagic fish;salmoniformes
piscivorous fish	pred;fish;pelagic fish
benthopelagic fish	pred;fish;pelagic fish
small pelagic (fish)	pred;fish;pelagic fish
eulachon	pred;fish;pelagic fish;osmeriformes
benthic fish	pred;fish;benthic fish
mackerel	pred;fish;pelagic fish;clupeiformes
anchovy	pred;fish;pelagic fish;clupeiformes
small demersal fish	pred;fish;demersal fish
small demersal fish	pred;fish;demersal fish
upeneus bensasi	pred;fish;pelagic fish;perciformes
S. niphonius	pred;fish;pelagic fish;scombriformes
sessile epibenthos	pred;invertebrates;benthic infauna
demersals-benthivores	pred;fish;demersal fish
medium pelagics	pred;fish;pelagic fish
small pelagics-other	pred;fish;pelagic fish
L benth	pred;fish;benthic fish
benthic carnivores	pred;fish;benthic fish
warty oreo	pred;fish;demersal fish;zeiformes

shrimp	pred;invertebrates;arthropods;crustaceans;shrimps
sand demersals	pred;fish;demersal fish
yellowtail	pred;fish;pelagic fish;scorpaeniformes
large demersals	pred;fish;demersal fish
pacific ocean perch	pred;fish;pelagic fish;scorpaeniformes
shortspine thornyhead adult	pred;fish;pelagic fish;scorpaeniformes
rock cod	pred;fish;pelagic fish;gadiformes
large jellies	pred;plankton;jellyfish
bairds smoothhead	na
chinstrap pengins	pred;birds;penguins;chinstrap penguins
flying birds	pred;birds;sea birds
detritus	pred;detritus
large reef associates (fish)	pred;fish;reef fish
juvenile fish	pred;fish
medium pelagic fishes	pred;fish;pelagic fish
juvenile salmon	pred;fish;pelagic fish;salmoniformes
mesopelagics	pred;fish;pelagic fish
carnivorous jellyfish	pred;plankton;jellyfish
juvenile pink salmon	pred;fish;pelagic fish;salmoniformes
pomfrets	pred;fish;pelagic fish;perciformes
other pelagics	pred;fish;pelagic fish
Stromateoidae	pred;fish;pelagic fish;scombriformes
demersals-omnivores	pred;fish;demersal fish
small pelagics-squid	pred;invertebrates;cephalopods;squids
skates	pred;fish;elasmobranchii;rays
urchins	pred;invertebrates;echinoderms;urchins
other oreos	pred;fish;demersal fish;zeiformes
small mobile epifauna	pred;invertebrates;benthic infauna
reef demersals	pred;fish;reef fish
black	pred;fish;pelagic fish;scorpaeniformes
electrona antarica	pred;fish;deep sea fish;myctophiformes
arrowthooth flounder	pred;fish;demersal fish;pleuronectiformes
yellowfin sole	pred;fish;demersal fish;pleuronectiformes
adult large sharks	pred;fish;elasmobranchii;sharks
snoek juvenile	pred;fish;pelagic fish;scombriformes
bulls eye black cardinalfish	pred;fish;deep sea fish;perciformes
epifaunal macro-benthos	pred;invertebrates;benthic infauna
flying birds	pred;birds;sea birds
cephalopods	pred;invertebrates;cephalopods
medium reef associates (fish)	pred;fish;reef fish
large pelagic fishes	pred;fish;pelagic fish
juvenile rockfish	pred;fish;pelagic fish;scorpaeniformes

demersals-piscivores	pred;fish;demersal fish
macro zoobenthos	pred;invertebrates;benthic infauna
depth demersals	pred;fish;demersal fish
sloperock	pred;fish;pelagic fish;scorpaeniformes
ssthorny	pred;fish;pelagic fish;scorpaeniformes
A.gazella	pred;marine mammals;seals;antarctic fur seal
flathead sole	pred;fish;demersal fish;pleuronectiformes
manta ray	pred;fish;elasmobranchii;rays
southern blue whiting	pred;fish;pelagic fish;gadiformes
benthic teleosts	pred;fish
infaunal macro-benthos	pred;invertebrates;benthic infauna
other icefish	pred;fish;demersal fish;perciformes
large planktivore	pred;fish;pelagic fish
juvenile fish	pred;fish
rockfish	pred;fish;pelagic fish;scorpaeniformes
juvenile wild salmon	pred;fish;pelagic fish;salmoniformes
sharks-pelagics	pred;fish;elasmobranchii;sharks
sharks-coastal	pred;fish;elasmobranchii;sharks
redfish	pred;fish;deep sea fish;myctophiformes
transitory squid	pred;invertebrates;cephalopods;squids
zooplankton	pred;plankton;zooplankton
small flat	pred;fish;demersal fish;pleuronectiformes
lsthory	pred;fish;pelagic fish;scorpaeniformes
L. carcinophagus	pred;marine mammals;seals;crabeater seals
northern rockfish	pred;fish;pelagic fish;scorpaeniformes
rock sole	pred;fish;demersal fish;pleuronectiformes
alaska plaice	pred;fish;demersal fish;pleuronectiformes
juvenile medium pelagic	pred;fish;pelagic fish
hoki	pred;fish;pelagic fish;gadiformes
cephalopods	pred;invertebrates;cephalopods
infaunal mesobenthos	pred;invertebrates;benthic infauna
toothfish	pred;fish;demersal fish;perciformes
small planktivore	pred;fish;pelagic fish
coho	pred;fish;pelagic fish;salmoniformes
wild salmon	pred;fish;pelagic fish;salmoniformes
HMS	
A plaice	pred;fish;demersal fish;pleuronectiformes
coast soft micro carn telo	pred;fish
non-migratory small fish	pred;fish;pelagic fish
shearwater	pred;birds;sea birds;shearwaters
juvthorny	pred;fish;pelagic fish;scorpaeniformes
birds	pred;birds

alaska plaice	pred;fish;demersal fish;pleuronectiformes
arrowtooth flounder	pred;fish;demersal fish;pleuronectiformes
adult small pelagic	pred;fish;pelagic fish
basking shark	pred;fish;elasmobranchii;sharks;basking sharks
gelatinous plankton	pred;plankton;jellyfish
cephlapods	pred;invertebrates;cephalopods
large nototheniidae	pred;fish;demersal fish;perciformes
deepwater fish	pred;fish;deep sea fish
juvenile hatchery salmon	pred;fish;pelagic fish;salmoniformes
flounders	pred;fish;demersal fish;pleuronectiformes
coast sm dem reef plk telo	pred;fish
rex	pred;fish;demersal fish;pleuronectiformes
B.acutorostrata	pred;marine mammals;whales;baleen whales;minke whale
misc. deepfish	pred;fish;deep sea fish
turbot	pred;fish;demersal fish;pleuronectiformes
halibut	pred;fish;demersal fish;pleuronectiformes
juvenile small pelagic	pred;fish;pelagic fish
small nototheniidae	pred;fish;demersal fish;perciformes
hatchery salmon	pred;fish;pelagic fish;salmoniformes
odontocetes	pred;marine mammals;whales;toothed whales
haddock	pred;fish;pelagic fish;gadiformes
coast sch carn pel telo fl	pred;fish
junvenile smallpealgic	pred;fish;pelagic fish
toothed whales, dolphins & porpoises	pred;marine mammals;whales;toothed whales
carnivorous zooplankton	pred;plankton;zooplankton
deep demersals large	pred;fish;demersal fish
other pelagic	pred;fish;pelagic fish
oceanic planktivores	pred;fish;pelagic fish
alaska plaice	pred;fish;demersal fish;pleuronectiformes
adult large reef associated	pred;fish;reef fish
seals and sea lions	pred;marine mammals;seals
shallow demersals	pred;fish;demersal fish
deep demersals small	pred;fish;demersal fish
sm pel plk telo	pred;fish
turbot	pred;fish;demersal fish;pleuronectiformes
juvenile large reef associated	pred;fish;reef fish
deep demersals large	pred;fish;demersal fish
flatfih(benthic)	pred;fish;demersal fish;pleuronectiformes
flatfish(small)	pred;fish;demersal fish;pleuronectiformes
sm pel carn tel fl	pred;fish
mig mesopelagic	pred;fish;pelagic fish
whitebl skate	pred;fish;elasmobranchii;rays

mud skate	pred;fish;elasmobranchii;rays
alakan skate	pred;fish;elasmobranchii;rays
adult small reef associated	pred;fish;reef fish
juvenile small reef associated	pred;fish;reef fish
adult large planktivore	pred;fish;pelagic fish
juvenile large planktivore	pred;fish;pelagic fish
adult small planktivore	pred;fish;pelagic fish
adult anchovy	pred;fish;pelagic fish;clupeiformes
juvenile anchovy	pred;fish;pelagic fish;clupeiformes
adult deepwater fish	pred;fish;deep sea fish
juvenile deepwater fish	pred;fish;deep sea fish
adult scraping grazers	pred;fish
juvenile scraping grazers	pred;fish
jellyfish and hydroids	pred;plankton;jellyfish
deep demerals small	pred;fish;demersal fish
myctophids	pred;fish;deep sea fish;myctophiformes
champsocephalus gunnari	pred;fish;demersal fish;perciformes
pleuragramma antarcticum	pred;fish;demersal fish;perciformes
notothenia gibberifrons	pred;fish;demersal fish;perciformes
cnidaria	pred;plankton;jellyfish
arthropod other	pred;invertebrates;arthropods
worms	pred;invertebrates;benthic infauna;worms
asteroidae	pred;invertebrates;echinoderms;sea stars
pleuragramm antarcticum	pred;fish;demersal fish;perciformes
arhropod crustecea	pred;invertebrates;arthropods;crustaceans
echinoidea	pred;invertebrates;echinoderms
ophiuroidea	pred;invertebrates;echinoderms;brittle stars
spur-dog	pred;fish;elasmobranchii;sharks

Supplementary table 3 Input parameters of jellyfish functional groups in the models investigated

First Author	Year	B	P/B	Q/B	EE	Estimated input	Name of group	Model start Year	Reference
Tecchio	2013	0.08	22.00	56.00	0.42	EE	gelatinous zooplankton	2009	[1]
	2007	0.22	10.23	26.46	0.98	EE	jellyfish & hydroids	1990	
Pitcher	2007	0.30	10.23	26.46	0.45	EE	jellyfish & hydroids	2005	[2]
Li	2010	12.50	9.60	20.00	na	EE	jellyfish	2005	[3]
Griffiths	2010	2.12	32.00	70.00	0.06	EE	gelatinous zooplankton	2004	[4]
Ruzicka	2012	23.30	15.00	60.00	0.06	EE	gelatinous zooplankton	2006	[5]
Tsagarakis	2010	2.48	4.84	12.09	0.09	EE	jellyfish & M.leidyi	2003	[6]
		0.58	5.00	20.00	0.00	EE;Q/B	sea nettles	1950	
Christensen	2009	3.40	8.80	35.20	0.21	EE;Q/B	ctenophores	1950	[7]
		26.07	0.44	1.47	0.50	EE	gelatinous zooplankton	1600	
		20.11	0.44	1.47	0.50	EE	gelatinous zooplankton	1900	
		28.47	0.44	1.47	0.50	EE	gelatinous zooplankton	1967	
		245.66	0.44	1.47	0.15	EE	gelatinous zooplankton	1990	
		5.00	0.58	1.67	0.17	EE	gelatinous zooplankton	1900	
		5.00	0.58	1.67	0.17	EE	gelatinous zooplankton	1600	
Watermeyer	2008	5.00	0.58	1.67	0.15	EE	gelatinous zooplankton	1960	[8]
Bānaru	2012	0.04	18.00	38.00	0.20	dc	gelatinous zooplankton	2000	[9]
		3.08	9.00	30.00	0.90	B	small jellyfish	2000	
		0.86	15.00	60.00	0.86	EE	large jellyfish	2000	
		8.95	9.00	30.00	0.90	B	small jellyfish	2000	
Ruzicka	2007	3.27	15.00	60.00	0.29	EE	large jellyfish	2000	[10]
		3.00	18.00	60.00	0.69	EE	carnivorous jellyfish	2000	
		3.00	18.00	60.00	0.67	EE	carnivorous jellyfish	1950	
		3.36	18.00	60.00	0.95	EE	carnivorous jellyfish	1900	
Ainsworth	2002	4.63	18.00	60.00	0.95	EE	carnivorous jellyfish	1750	[11]
Arancibia	2008	7.77	0.58	1.42	0.15	B	jellies	2000	[12]
Cheng	2009	0.68	5.00	20.00	0.35	EE	jellyfish	2000	[13]
		0.16	2.06	10.30	0.10	B	tunicates	2000	
Harvey	2012	6.62	9.00	30.00	0.80	B	small gelatinous zooplankton	2000	[14]

		8.26	3.00	11.50	0.50	B	jellyfish	2000	
		0.18	2.06	10.30	0.08	B	tunicates	1981	
		8.25	9.00	30.00	0.80	B	small gelatinous zooplankton	1981	
		10.41	3.00	11.50	0.80	B	jellyfish	1981	
Li	2009	2.15	5.00	25.05	0.95	EE	jellyfish	2000	[15]
		0.81	8.80	35.20	0.90	B	ctenophores	1880	
		0.13	8.80	35.20	0.90	B	ctenophores	1930	
		0.28	8.80	35.20	0.90	B	ctenophores	1980	
Nuttall	2011	0.15	8.80	35.20	0.90	B	ctenophores	2000	[16]
		0.02	0.30	0.79	0.02	EE	ctenophores	1999	
Pavés	2008	0.02	0.30	0.73	0.02	EE	ctenophores	1999	[17]
Lin	2008	na	na	na	na	na	na	1999	[18]
		1036.00	4.34	14.45	0.49	none	lavaceans	1999	
Persad	2009	20859.00	0.10	0.33	0.00	none	carnivores	1999	[19]
		0.77	5.00	25.00	0.25	B	jellyfish	1981	
Duan	2009	1.53	5.00	25.00	0.05	EE	jellyfish	1998	[20]
Hong	2008	2.25	5.01	25.05	0.34	B	large jellyfish	1997	[21]
Chen	2008	1.12	6.12	25.05	0.14	B	jellyfish	1997	[22]
Duan	2009	1.53	5.01	25.04	0.30	EE	jellyfish	1997	[23]
		0.02	0.58	2.92	0.95	Q/B	gelatinous zooplankton	1995	
Tam	2008	0.00	0.58	2.92	0.95	Q/B	gelatinous zooplankton	1997	[24]
Okey	2002	0.27	40.00	80.00	0.93	EE	carnivorous jellyfish	1997	[25]
Dommasnes	2001	4.00	3.00	10.00	0.34	EE	jellyfish	1997	[26]
		41.09	40.00	143.08	0.90	EE	gelatinous zooplankton (George's Bank)	1996	
		42.91	35.00	146.00	0.91	EE	gelatinous zooplankton (Gulf of Maine)	1996	
		37.72	40.00	146.00	0.90	EE	gelatinous zooplankton (Mid-Atlatntic Bight)	1996	
Link	2006	40.42	40.00	146.00	0.90	EE	gelatinous zooplankton (Southern New England)	1996	[27]
Barausse	2009	1.02	14.81	44.44	0.15	EE	jellyfish	1996	[28]

		0.52	15.51	62.05	0.21	EE	gelatinous zooplankton	1995	
		0.52	15.51	62.05	0.14	EE	gelatinous zooplankton	1995	
Araújo	2012	0.52	15.51	62.05	0.14	EE	gelatinous zooplankton	1995	[29]
		0.03	11.00	29.20	0.00	EE	aurelia	1960	
		0.82	11.00	29.20	0.00	EE	mnemopsis	1960	
		0.11	11.00	29.20	0.00	EE	aurelia	1960	
Akoglu	2014	0.48	11.00	29.20	0.00	EE	aurelia	1960	[30]
Okey	2001	0.07	18.25	80.00	0.90	B	Jellies	1995	
Okey	2001	0.27	40.00	80.00	0.95	B	jellies	1995	[31]
		1.10	7.00	23.33	0.38	EE	Carnivorous zooplankton	1995	
Stanford	2004	1.10	7.00	23.33	0.68	EE	Carnivorous zooplankton	1973	[32]
Okey	2004	6.39	5.00	29.41	0.01	EE	jellies	1994	[33]
Coll	2006	0.39	28.51	50.48	0.22	EE	jellyfish	1994	[34]
Watson	2013	4.77	9.20	10.00	0.80	B	gelatinous zooplankton	1993	[35]
Pedersen	2008	0.01	6.50	23.50	0.13	EE	Scyphomedusae	1993	[36]
Falk-Petersen	2004	0.72	6.50	17.33	0.13	EE	scyphomedusae	1993	[37]
Bulman	2002	8.00	6.00	22.00	0.80	none	gelatinous zooplankton	1992	[38]
Mackinson	2008	0.07	2.86	6.35	0.77	EE,Q/B	gelatinous zooplankton	1973	[39]
Fondo	2015	1.08	0.09	0.40	0.70	EE	jellyfish	1990	[40]
		0.08	5.00	15.00	na	EE	gelatinous zooplankton	1990	
		0.18	5.00	20.00	na	EE	gelatinous zooplankton	1990	
Althauser	2003	1.50	2.50	10.00	na	EE	gelatinous zooplankton	1990	[41]
Díaz-Uribe	2007	2.05	30.70	118.45	0.80	EE	gelatinous zooplankton	1990	[42]
		1.03	3.00	12.00	0.80	none	large jellies	1990	
		1.11	9.00	30.00	0.80	none	small jellies	1990	
		1.17	3.00	12.00	0.80	EE	large jellies	1960	
Field	2004	1.34	9.00	30.00	0.80	EE	small jellies	1960	[43]
Cornejo-Donoso	2008	1.00	3.60	12.00	0.48	EE	salps	1990	[44]
		0.11	0.88	3.00	0.61	EE	scyphozoid jellies	1990	
		0.34	0.88	3.00	0.66	EE	scyphozoid jellies	1990	
Aydin	2007	0.11	0.88	3.00	0.48	EE	scyphozoid jellies	1990	[45]

		3.16	5.48	15.64	0.80	EE	gelatinous filter feeders	1990	
		0.70	5.48	15.64	0.80	EE	gelatinous filter feeders	1990	
		0.94	5.48	15.64	0.80	EE	gelatinous filter feeders	1990	
Ainsworth	2005	0.22	10.23	26.46	na	EE	jellyfish and hydroids	1990	[46]
Cheung	2005	1.85	3.43	13.73	0.95	EE	jellyfish	1990	[47]
		1.61	10.00	39.20	na	EE	gelatinous organisms	1955	
		214.00	10.00	39.20	na	EE	gelatinous organisms	1990	
Gucu	2002	952.00	10.00	39.20	na	EE	gelatinous organisms	1980	[48]
		0.10	30.00	80.00	0.50	B	large jellies	1990	
Okey	2007	0.18	40.00	80.00	0.50	B	small jellies	1990	[49]
Orek	2000	315.00	0.50	2.00	0.00	Q/B	jellies	1990	[50]
Coll	2007	4.00	14.60	50.48	0.17	EE	jellyfish	1990	[51]
		0.25	1.00	3.30	na	EE	cnidaria	1990	
Rocha	2007	0.51	1.00	3.30	na	EE	cnidaria	1990	[52]
		0.02	40.00	80.00	0.50	B	large jellies	1986	
Okey	2006	0.03	0.03	80.00	0.50	B	small jellies	1986	[53]
Whitehouse	2014	0.66	0.88	3.00	0.00	EE	jellyfish	1985	[54]
Mackinson	1996	15.00	3.00	12.00	0.14	EE	jellies	1982	[55]
		0.05	0.88	2.00	0.00	EE	jellyfish	1980	
Aydin	2002	1.40	1.50	3.00	0.02	EE	jellyfish	1980	[56]
		5.29	16.20	35.00	0.04	EE	ctenophores	1981	
Vasslides	2017	0.35	13.00	20.00	0.00	EE	sea nettles	1981	[57]
Wang	2012	1.07	5.01	25.04	0.74	EE	jellyfish	1981	[58]
		8.00	9.00	30.00	0.00	EE	salps and gelatinous herbivore	1980	
Polovina	1996	9.10	3.00	10.00	0.02	EE	jellies	1980	[59]
		6.19	7.00	23.30	0.20	not clear	salps	1983	
Pauly	1996	5.00	3.00	12.00	0.58	not clear	carnivorous jellies	1983	[60]
Díaz-Uribe	2012	0.02	6.80	40.00	0.13	EE	jellyfishes	1980	[61]
Lee	2010	0.05	0.88	2.00	na	EE	jellyfish	1979	[62]
		0.05	0.88	2.00	0.02	EE	jellyfish	1980	
Trites	1999	0.05	0.88	2.00	0.02	EE	jellyfish	1950	[63]
Nurhakim	2003	0.10	5.01	25.05	0.53	EE	jellyfishes	1979	[64]
		4.55	0.58	1.67	0.16	EE	gelatinous zooplankton	1990	
Shannon	2003	5.00	0.58	1.67	0.15	EE	gelatinous zooplankton	1980	[65]

Coll	2013	0.33	13.87	50.48	0.22	EE	jellyfish	1978	[66]
Coll	2009	2.17	14.60	50.48	0.17	EE	jellyfish	1975	[67]
Buchary	1999	0.10	5.01	25.05	0.41	EE	jellyfish	1974	[68]
Heymans	2009	na	2.86	na	0.95	B;Q/B	gelatinous plankton	1974	[69]
Lees	2007	5.44	7.50	25.00	0.99	Q/B	gelatinous zooplankton	1973	[70]
Vibunpant	2003	2.00	5.00	20.00	0.00	EE	jellyfish	1973	[71]
Hoover	2013	na	na	na	na	not clear	jellies	2013	[72]
Hoover	2009	2.50	3.00	12.00	0.21	EE;Q/B	salps	1970	[73]
		1.53	0.25	na	1.00	EE	cnidaria	1970	
Daskalov	2002	0.02	10.95	29.20	0.02	EE	Pleurobrachia pileus	1960	[74]
		0.02	20.00	100.00	0.02	EE	Pleurobrachia pileus	1960	
		0.03	10.95	29.20	0.00	EE	Aurelia aurita	1960	
		0.03	20.00	100.00	0.00	EE	Aurelia aurita	1960	
Chagaris	2002	0.22	20.08	80.00	na	EE	carnivorous jellyfish	1950	[75]
Christensen	2015	0.50	10.00	20.00	na	EE	carnivorous jellyfish	1950	[76]
Libralato	2010	na	na	na	na	not clear	jellyfish	NA	[77]
		na	na	na	na	not clear	jellyfish	NA	
Heymans	2000	0.60	25.00	225.00	na	EE	jellyfish	NA	[78]

Supplementary References

Some of the included models in Ecobase had incomplete bibliographic information, in instances where the source document could not be found the reference is presented as listed in Ecobase.

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