Table S1. Stock assessment reports that included ecosystem interactions quantitatively. Councils are as follows: Gulf of Mexico Fishery Management Council (GMFMC), Mid-Atlantic Fishery Management Council (MAFMC), South Atlantic Fishery Management Council (SAFMC), New England Fishery Management Council (NEFMC), North Pacific Fishery Management Council (NPFMC), Pacific Fishery Management Council (PFMC), and SA-GM indicates jointly managed by South Atlantic and Gulf of Mexico Fishery Management Councils. NOAA Science Centers are abbreviated as: Southeast Fishery Science Center (SEFSC), Northeast Fishery Science Center (NEFSC), Southwest Fishery Science Center (SWFSC), Northwest Fishery Science Center (NWFSC), Alaska Fishery Science Center (AFSC), and NW-SW indicates jointly assessed by the Northwest and Southwest Fishery Science Centers.

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| --- | --- | --- | --- | --- |
| **Species and Stock** | **Year Assessed** | **Managing Council** | **NOAA Science Center** | **Ecosystem interaction** |
| Gag Gulf of Mexico | 2014 | GMFMC | SEFSC | climate |
| Yellowedge grouper Gulf of Mexico | 2011 | GMFMC | SEFSC | habitat |
| Vermilion Snapper - Gulf of Mexico | 2006 | GMFMC | SEFSC | habitat |
| Red Grouper - Gulf of Mexico | 2006 | GMFMC | SEFSC | habitat |
| Tilefish Gulf of Mexico | 2011 | GMFMC | SEFSC | habitat |
| Ocean quahog | 2009 | MAFMC | NEFSC | habitat |
| Longfin inshore squid Atlantic Coast | 2010 | MAFMC | NEFSC | habitat |
| Atlantic surfclam - Mid-Atlantic Coast | 2013 | MAFMC | NEFSC | habitat |
| Yellowtail flounder- Southern New England / Mid-Atlantic | 2012 | NEFMC | NEFSC | climate |
| Winter flounder - Southern New England / Mid-Atlantic | 2011 | NEFMC | NEFSC | climate |
| Black sea bass - Northern | 2009 | MAFMC | NEFSC | climate |
| Silver Hake | 2006 | NEFMC | NEFSC | climate |
| Winter flounder - George's Bank | 2011 | NEFMC | NEFSC | climate |
| Pollock - Gulf of Maine / George's Bank | 2010 | NEFMC | NEFSC | climate |
| Butterfish | 2014 | MAFMC | NEFSC | climate, predation |
| Atlantic herring | 2012 | NEFMC | NEFSC | climate, predation |
| Sea Scallop Georges Bank / Mid-Atlantic Bight | 2014 | NEFMC | NEFSC | habitat |
| Red King Crab Bristol Bay | 2013 | NPFMC | ADFG | climate |
| Flathead sole (BSAI) | 2014 | NPFMC | AFSC | climate |
| Tanner Crab Bering Sea | 2013 | NPFMC | AFSC | climate |
| Alaska Plaice | 2014 | NPFMC | AFSC | climate |
| Kamchatka flounder (BSAI) | 2014 | NPFMC | AFSC | climate |
| Arrowtooth flounder BSAI | 2014 | NPFMC | AFSC | climate |
| Northern rock sole Eastern Bering Sea and Aleutian Islands | 2012 | NPFMC | AFSC | climate |
| Yellowfin sole BSAI | 2014 | NPFMC | AFSC | climate |
| Red King Crab Pribilof Islands | 2013 | NPFMC | AFSC | climate |
| Demersal shelf rockfish complex (GOA - includes Yelloweye) | 2014 | NPFMC | AFSC | habitat |
| Chilipepper - Southern Pacific Coast | 2007 | PFMC | NW-SW | climate |
| Coho salmon - Oregon Production Index Area: Oregon Coast Natural | 2014 | PFMC | NW-SW | climate |
| Coho salmon - Puget Sound: Skagit | 2014 | PFMC | NW-SW | climate |
| Chinook salmon - Puget Sound: Snohomish Summer/Fall | 2014 | PFMC | NW-SW | climate |
| Chinook salmon - Puget Sound: Stillaguamish Summer/Fall | 2014 | PFMC | NW-SW | climate |
| Sablefish Pacific Coast | 2011 | PFMC | NW-SW | climate |
| Starry Flounder off CA., OR., and WA. | 2005 | PFMC | NW-SW | habitat |
| Black rockfish - Southern Pacific Coast | 2007 | PFMC | NW-SW | habitat |
| Blue rockfish | 2007 | PFMC | NW-SW | habitat |
| shortbelly rockfish pacific coast | 2007 | PFMC | NW-SW | predation |
| Pacific Sardine | 2014 | PFMC | SWFSC | climate |
| Goliath Grouper | 2011 | SA-GM | SEFSC | habitat |
| Hogfish Gulf of Mexico and South Atlantic | 2013 | SA-GM | SEFSC | habitat |
| Yellowtail Snapper Southern Atlantic Coast | 2012 | SA-GM | SEFSC | habitat |
| Black Grouper Gulf of Mexico and South Atlantic | 2010 | SA-GM | SEFSC | habitat |
| Yellowtail Snapper | 2012 | SA-GM | SEFSC | habitat |
| Spiny lobster - Southeast US | 2005 | SA-GM | SEFSC | habitat |
| Mutton Snapper - South Atlantic and Gulf of Mexico | 2008 | SA-GM | SEFSC | habitat, climate |
| Vermilion Snapper - South Atlantic | 2008 | SAFMC | SEFSC | climate |
| King Mackerel South Atlantic | 2014 | SAFMC | SEFSC | climate |
| Hogfish - Southeast Florida | 2013 | SAFMC | SEFSC | habitat |
| Black Sea Bass - South Atlantic | 2011 | SAFMC | SEFSC | habitat |
| Tilefish - South Atlantic | 2011 | SAFMC | SEFSC | habitat |
| Red grouper South Atlantic | 2010 | SAFMC | SEFSC | habitat, climate |

Table S2. Pairwise statistical tests for difference in scores among life history types, by ecosystem interaction. Significance determined by Bonferroni corrected alpha of 0.00833. \* indicates statistical significance

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ecosystem Interaction | Life History Type A | Life History Type B | Wilcoxon W | p-value |
| Climate | demersal | invert | 744 | 0.0840 |
| Climate | demersal | lg. pel. | 3999 | 0.0860 |
| Climate | demersal | sm. pel. | 443 | 0.4550 |
| Climate | invert | lg. pel. | 567 | 0.006\* |
| Climate | invert | sm. pel. | 65.5 | 0.7070 |
| Climate | lg. pel. | sm. pel. | 174.5 | 0.1030 |
| Diet | demersal | invert | 1054.5 | 0.2630 |
| Diet | demersal | lg. pel. | 4246.5 | 0.001\* |
| Diet | demersal | sm. pel. | 533 | 0.6870 |
| Diet | invert | lg. pel. | 456 | 0.0550 |
| Diet | invert | sm. pel. | 56.5 | 0.6920 |
| Diet | lg. pel. | sm. pel. | 199.5 | 0.0090 |
| Habitat | demersal | invert | 865.5 | 0.4380 |
| Habitat | demersal | lg. pel. | 4246.5 | 0.001\* |
| Habitat | demersal | sm. pel. | 470 | 0.6410 |
| Habitat | invert | lg. pel. | 541.5 | <0.001\* |
| Habitat | invert | sm. pel. | 61 | 0.9660 |
| Habitat | lg. pel. | sm. pel. | 171 | <0.001\* |
| Predation | demersal | invert | 883.5 | 0.5000 |
| Predation | demersal | lg. pel. | 4012.5 | 0.0140 |
| Predation | demersal | sm. pel. | 257 | <0.001\* |
| Predation | invert | lg. pel. | 505.5 | 0.007\* |
| Predation | invert | sm. pel. | 34.5 | 0.0510 |
| Predation | lg. pel. | sm. pel. | 89.5 | <0.001\* |