

APPENDIX 8: NMFS SURVEY HSP DATA COMPARISON WITH THE LIFE HISTORIES APPENDIX

This paper reports on a preliminary comparison of the HSP data derived from the NMFS survey data for depth/latitude and the HSP data derived from the Life Histories Appendix (NOAA Fisheries 2003).

General Comments

By and large, the NMFS survey data (and hence the maps) seems to tie up reasonably well with the information in the Life Histories Appendix (NOAA Fisheries 2003). However, it became clear that the areas that had very low HSP values (below 0.01) derived from the NMFS survey data for depth/latitude, were unlikely to be suitable, and that it would be better to map them as zero. The areas which had HSP values between 0.01 and 0.1 roughly corresponded to the outer depth limits of the fish distribution as given in the Life Histories Appendix, which generally quotes the extreme limits (say 100m to 600m) and then the normal range (95% between 150m and 450m). These have been abbreviated in the following in the form (100)150-450(600).

The latitude information in the Life Histories Appendix is more vague, and generally gives only the extreme limits (often well outside our area). However, on the whole these seem to correspond with the HSP 0.01 level derived from the NMFS survey data for depth/latitude. Furthermore, where further information is given in the Life Histories Appendix (e.g. more common N of Monterey), these also seem to correspond with the HSP 0.1 level.

This suggests that the maps would be better if they treated the NMFS survey data HSP values lower than 0.01 as zero, and split the HSP 0.01 to 0.2 category at 0.1 to distinguish the extreme areas from more likely ones.

The habitat data corresponded pretty well to the Life Histories Appendix. However, two of the 18 fish were not represented in the habitat data (Aurora and Darkblotched - rockfish) so they had to be made up from (somewhat vague) information in the Life Histories Appendix.

Some fish had NMFS survey data depth/latitude HSP values that were all (or almost all) low. In particular, silvergray rockfish and flag rockfish had very low values. Some others only had HSP maxima of around 0.3 or 0.4. Is there a good reason for this? A related question is whether the NMFS survey data HSP data values should be rescaled so that the maximum value is 1.

Summary: Comparison for 18 individual species

In the following summaries, depth and latitude ranges are given as described above. The following abbreviations are used for habitat types:

Ss	Shelf, soft
Sh	Shelf, hard
Scs	Shelf, canyon, soft
Sch	Shelf, canyon, hard
Fs	Slope, soft
Fh	Slope, hard
Fcs	Slope, canyon, soft
Fch	Slope, canyon, hard
Bs	Basin, soft
Bh	Basin, hard

Habitat values are given as percentages (0 to 100).

Aurora Rockfish

Depth:	NMFS survey data - (100)250-650(750); Life Histories Appendix - (125)150-500(765)
Latitude:	NMFS survey data - low values in N, very high in S, all above 0.1; Life Histories Appendix - Vancouver Is to San Diego.
Habitat:	No data (assumed Ss, Fs, Bs = 100); Life Histories Appendix – deep, soft bottom.
Comment:	NMFS survey Depth data looks okay but main part of values are a bit too high. High values in south imply that distribution stretches well beyond San Diego. Should probably have made Scs and Fcs = 100 also.
Fit:	Dubious fit.

Bank Rockfish

Depth:	NMFS survey data - (70)190-460(540); Life Histories Appendix - (31)-(247). Adults prefer >210m.
Latitude:	NMFS survey data – (45)41 – south. Peak around 36-37 degrees; Life Histories Appendix – Newport, OR to central Baja California.
Habitat:	Fh, Sh = 100, Sch, Scs, Fch, Fcs = 66; Life Histories Appendix – hard bottom, high relief or bank edges, ledge of Monterey Canyon. Also deep water over muddy or sandy bottom. Adults also on rocky/non-rocky shelf, canyon, slope, basin.
Comment:	NMFS survey Depth data does not agree with Life Histories Appendix, but Life Histories Appendix may be wrong – adult depth range seems very narrow.
Fit:	Reasonably good.

Blackgill Rockfish

Depth: NMFS survey data - (150)250-600(680); Life Histories Appendix - (219)250-600(768)m.
Latitude: NMFS survey data – (49)41-southwards, highest between 36-37 degrees; Life Histories Appendix – About Washington (maybe further north) to Punta Abreojos.
Habitat: Fh = 100, Fch = 83, Sh, Sch = 66; Life Histories Appendix – Rocky, hard bottoms. Edges of canyons, seamounts.
Fit: Good fit.

Cowcod

Depth: NMFS survey data - (30)110-290(380); Life Histories Appendix - (21)180-275(366). Just says “common” in range 180-275m.
Latitude: NMFS survey data – Northwards to 41(47); Life Histories Appendix – Guadalupe Is, Baja California to Mendocino, CA.
Habitat: Fh = 100, Sh, Sch = 66; Life Histories Appendix – High relief rocky areas. Submarine canyons?
Comment: Generally a good fit, though NMFS survey latitude data goes too far north. Max data value only 0.38.
Fit: Good fit.

Darkblotched Rockfish

Depth: NMFS survey data - (30)60-480(590); Life Histories Appendix - (25)50-400(600)m.
Latitude: NMFS survey data – Increasing northwards from about 33 degrees; Life Histories Appendix – Santa Catalina Is to Bering Sea.
Habitat: No data (assumed Ss, Scs, Fs, Fcs = 100); Life Histories Appendix – Soft bottom. Rocks, boulders, cobble surrounded by mud.
Comment: A good fit, provided the habitat is correct.
Fit: Good fit.

Flag Rockfish

Depth: NMFS survey data - (130)-(440); Life Histories Appendix - (30)-(183)m.
Latitude: NMFS survey data – (32)-(39), (42)-(46); Life Histories Appendix – Heceta Bank, OR to central Baja California.
Habitat: Sh = 100, Sch = 66; Life Histories Appendix – Hard bottom.
Comment: No NMFS survey data values above 0.1. Life Histories Appendix states that it is an important sport fish in S California. Clearly NMFS survey data are wrong.
Fit: Pure.

Greenspotted Rockfish

Depth: NMFS survey data - (30)60-360(480); Life Histories Appendix - 90-179(209)m.
Latitude: NMFS survey data – (46)41-south; Life Histories Appendix – Copalis Head, WA to Cedros Is, Baja California.
Habitat: Sh = 100, Ss = 83, Fh,Fs = 66; Life Histories Appendix – High relief rocky reefs and soft bottoms.
Comment: NMFS survey data give too great a depth. Otherwise a reasonably good fit.
Fit: Reasonably good fit.

Greenstriped Rockfish

Depth: NMFS survey data - (30)70-320(440); Life Histories Appendix - (50)150-239+(409)m.
Latitude: NMFS survey data – Increasing northwards over whole area; Life Histories Appendix – Cedros Is, Baja California to Alaska.
Habitat: Sh = 100, Ss=83, Fh,Fs = 66; Life Histories Appendix – Rocky and soft bottom, high and low reefs.
Comment: Some confusion in depth values Life Histories Appendix, the values given being contradictory.
Fit: Good fit.

Pacific Ocean Perch

Depth: NMFS survey data - (60)140-550(670); Life Histories Appendix - (25)100-450(825)m.
Latitude: NMFS survey data – (37)39 northward; Life Histories Appendix - Aleutians to La Jolla, common from Oregon northwards.
Habitat: Sh, Sch, Fh, Fch = 100, Ss, Scs, Fs, Fcs = 66; Life Histories Appendix – Gravel, rocky, boulders, gullies, canyons..
Comment: NMFS survey depth data looks okay. NMFS survey latitude data does not go as far south as La Jolla. Habitat looks okay.
Fit: ?

Redbanded Rockfish

Depth: NMFS survey data - (100)150-460(540); Life Histories Appendix - (49)150-450(625)m.
Latitude: NMFS survey data – (32)34 - north; Life Histories Appendix – San Diego to Bering Sea.
Habitat: Fs, Ss = 100; Life Histories Appendix – Soft substrate.
Comment: In Life Histories Appendix, latitude uncommon S of San Francisco.
Fit: Good fit.

Redstripe Rockfish

Depth: NMFS survey data - (70)110-350(410); Life Histories Appendix - (12)100-350(425)m.
Latitude: NMFS survey data – (32)41 - north; Life Histories Appendix – San Diego to Bering Sea.
Habitat: Fh, Sh = 100; Life Histories Appendix – Rocky areas.
Comment: There seem to be very few Life Histories Appendix polygons with suitable habitats where it has high NMFS survey data values. Is this correct?
Fit: Good fit.

Rosethorn Rockfish

Depth: NMFS survey data - (60)110-430(550); Life Histories Appendix - (92)100-350(550)m.
Latitude: NMFS survey data – Increasing northwards over whole area; Life Histories Appendix – Guadalupe Is, Baja California to Alaska.
Habitat: Fh = 100, Sh, Sch = 66; Life Histories Appendix – Rock habitat, boulders.
Comment: As with the Redstripe rockfish, there seem to be very few Life Histories Appendix polygons with suitable habitats where it has high NMFS survey data values. Is this correct?
Fit: Good fit.

Rougheye Rockfish

Depth: NMFS survey data - (30)100-600(860); Life Histories Appendix - (25)50-450(875)m.
Latitude: NMFS survey data – (34)41 northward; Life Histories Appendix - Aleutians to San Diego.
Habitat: Sh, Ss, Fh, Fs = 100; Life Histories Appendix – soft, steeply sloped (rather unclear).
Comment: NMFS survey depth data looks okay (perhaps a bit deep). NMFS survey latitude data looks fine, though not quite as far S as San Diego. Is it found on hard as well as soft?
Fit: ?

Sharpchin Rockfish

Depth: NMFS survey data - (50)110-440(530); Life Histories Appendix - (25)100-350(475)m.
Latitude: NMFS survey data – (32)34 - north; Life Histories Appendix – San Diego to Aleutians. Less common S of Monterey.
Habitat: Sh = 100, Ss, Fs = 33; Life Histories Appendix – Can occur over soft, but prefer mud & cobble or boulder & cobble.
Fit: Good fit.

Silvergray Rockfish

Depth: NMFS survey data - (30)60-350(460); Life Histories Appendix - (0)100-300(375)m.
Latitude: NMFS survey data – (38)41-north; Life Histories Appendix – Santa Barbara Is to Bering Sea, commercially important.
Habitat: Sh, Fh = 100; Life Histories Appendix – Rocky bottom.
Comment: Nearly all NMFS survey data values are very low. This does not seem consistent with the commercial importance, and implies that the species is rare below 41 degrees. Currently not believable.
Fit: ?

Splitnose Rockfish

Depth: NMFS survey data - (30)70-510(590); Life Histories Appendix - ?(0)100-450(800)m.
Latitude: NMFS survey data – Increasing northwards from about 33 degrees; Life Histories Appendix – Baja California to Alaska.
Habitat: Ss, Fs = 100, Scs, Bs = 66; Life Histories Appendix – Non-rocky shelf, slope, basin.
Fit: Good fit.

Yellowmouth Rockfish

Depth: NMFS survey data - (110)170-380(500); Life Histories Appendix - (137)275-366(366)m.
Latitude: NMFS survey data – (40)48 – north; Life Histories Appendix – Point Arena, CA to Alaska. Adults from N California northward.
Habitat: Fh, Sh, Bh = 100; Life Histories Appendix – rough bottom, rocky shelf on slope, basin.
Comment: Nearly all NMFS survey data values are very low, inconsistent with distribution in Life Histories Appendix, which also says that it is commercially important from BC to OR.
Fit: ?