

Decadal analysis of larval connectivity from Cuban snapper (Lutjanidae) spawning aggregations based on biophysical modeling

Andrew S. Kough, Rodolfo Claro, Kenyon C. Lindeman, Claire B. Paris*

*Corresponding author: cparis@rsmas.miami.edu

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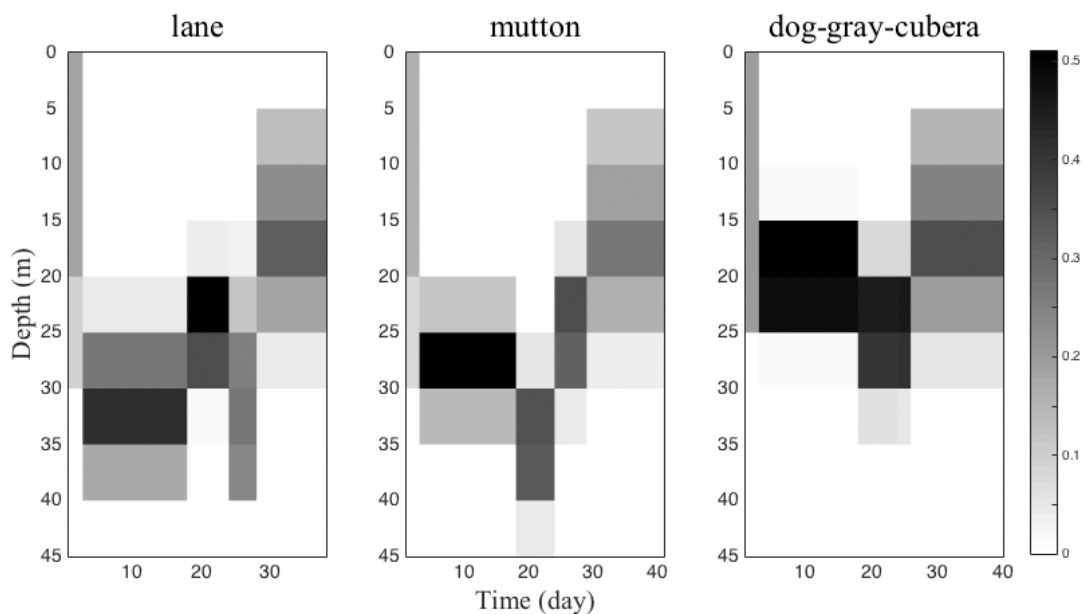


Figure S1. Ontogenetic vertical migration (OVM) matrices for Caribbean lutjanid larvae. Probability matrix of larval depth distribution with age for *Lutjanus synagris* (lane), *L. analis* (mutton), and *L. jocu*, *L. griseus*, and *L. cyanopterus* (dog-gray-cubera complex) estimated from ichthyoplankton observations by D'Alessandro et al. (2010). Individual virtual larvae are randomly assigned to a depth during each model time step following the OVM matrix.

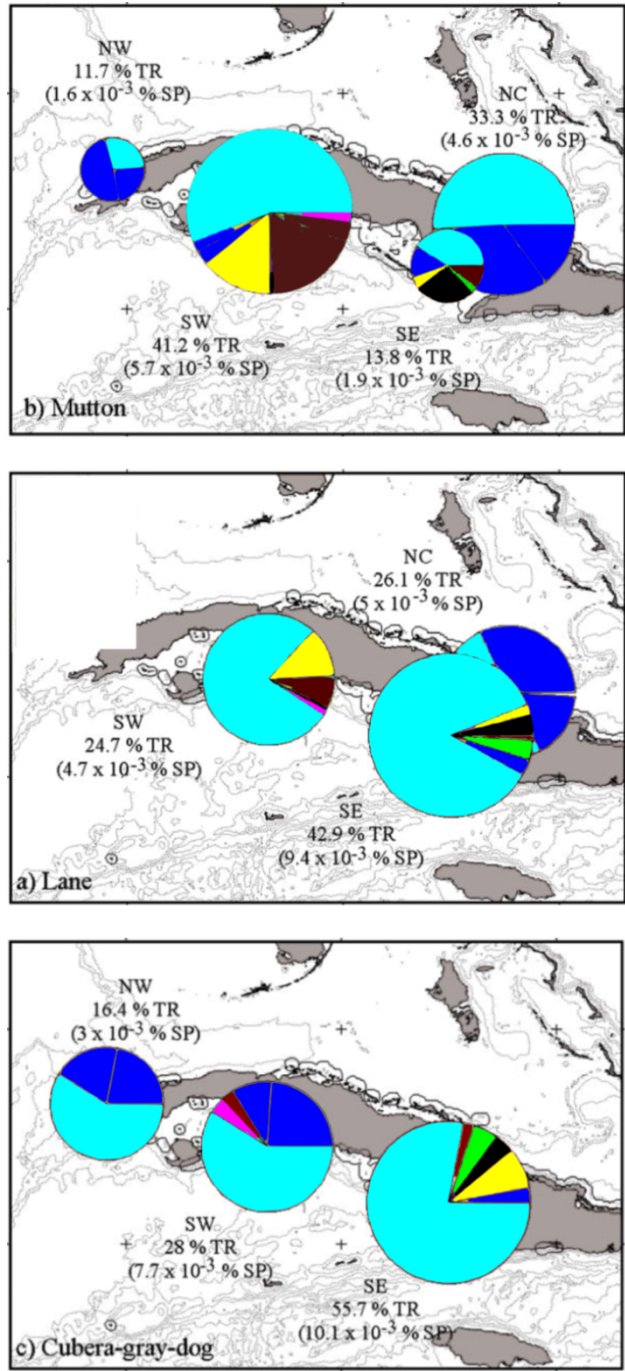


Figure S2. Caribbean dispersal destinations from original study. The findings from Paris et al. (2005) are shown, recolored to denote the habitat delineations of the current study. The results display the transport destinations from each Cuban ecoregion for each species, and the bubbles are scaled relative to settlement success

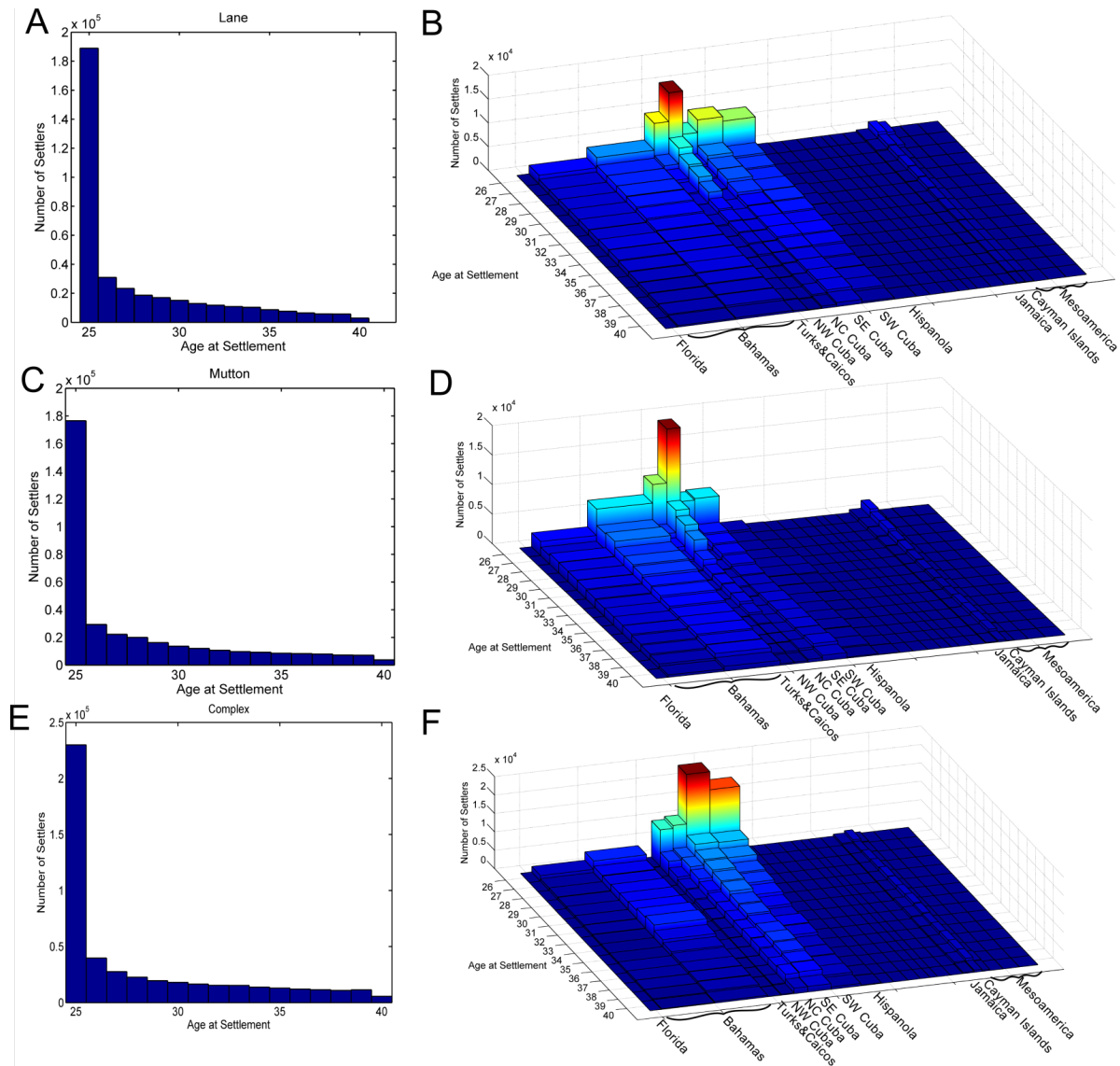


Figure S3. Spatial distribution of larval ages at settlement. Histograms of larval age at settlement show that much settlement occurs directly at competency (25 days) in Lane (A,B), Mutton (C,D), and the Cubera-Dog-Gray Complex (E,F). Focusing on the remaining settlement (ages > 25 days) and adding a third dimension of location, we see that settlement later in the PLD occurs at the same locations and in lower magnitudes than earlier implying that a mortality rate would not alter our findings

Table S1. Coefficients of the best-ranked multinomial logistic regression model of Caribbean larval exchange. The coefficients are relative to the reference levels of destination Florida, year 2004, and spawning region NW Cuba.

Destination	Factor	Beta	Standard Error	p-value	Exp (Beta)
The Bahamas	Intercept	4.548048036	0.200558639	7.57E-114	94.4478694
	Species	-0.046803534	0.060130868	0.436356112	0.954274862
	Region	-1.184644195	0.055051861	1.04E-102	0.305854985
	Year	-0.493855125	0.02006857	1.03E-133	0.610269189
Turks and Caicos	Intercept	10.02319535	0.126703874	0	22543.34884
	Species	0.054899177	0.029933169	0.06664534	1.056434096
	Region	-2.057140207	0.029186997	0	0.127818984
	Year	-0.097222326	0.008327553	1.72E-31	0.907354255
Cuba	Intercept	2.977601031	0.226442874	1.71E-39	19.64064278
	Species	0.237470031	0.066300183	0.000341313	1.268036995
	Region	-1.662950729	0.062328516	7.94E-157	0.189578758
	Year	-0.084794893	0.018219415	3.25E-06	0.918700697
Hispaniola	Intercept	8.563379406	0.12626371	0	5236.34705
	Species	0.141109392	0.029741064	2.09E-06	1.151550611
	Region	-0.686846498	0.028970541	2.95E-124	0.503160287
	Year	-0.101792096	0.008274241	8.80E-35	0.903217314
Jamaica	Intercept	5.898669343	0.130244485	0	364.5520512
	Species	0.043350373	0.031166592	0.164248357	1.044303727
	Region	-0.671919759	0.03015576	5.57E-110	0.510727163
	Year	-0.325189413	0.008724425	4.42E-304	0.72239051
Cayman Islands	Intercept	6.336335897	0.128080927	0	564.7233118
	Species	-0.188480588	0.030361733	5.37E-10	0.828216581
	Region	-0.377301498	0.02949117	1.78E-37	0.685709303
	Year	-0.316387867	0.008462437	6.28E-306	0.728776727
Mesoamerica	Intercept	-3.694134405	0.143385337	2.26E-146	0.024868971
	Species	0.412354945	0.031237899	8.72E-40	1.51037044
	Region	1.591766502	0.033123406	0	4.912419067
	Year	-0.082713898	0.008645376	1.10E-21	0.920614499

Table S2. Coefficients of the best-ranked multinomial logistic regression model of larval exchange within Cuba. The coefficients are relative to the reference levels of destination NW Cuba, spawning year 2004, and spawning aggregation number 1.

Destination	Factor	Beta	Standard Error	p-value	Exp (Beta)
NC Cuba	Intercept	13.37077185	0.030150318	0	640991.7382
	Aggregation	-3.144830744	0.006010554	0	0.043074214
	Year	-0.012589023	0.001901889	3.61E-11	0.987489888
SE Cuba	Intercept	14.54982624	0.029212935	0	2084055.354
	Aggregation	-3.205481906	0.005706983	0	0.040539361
	Year	-0.037439568	0.001731788	1.19E-103	0.963252628
SW Cuba	Intercept	8.586145192	0.024244964	0	5356.923909
	Aggregation	-1.480427315	0.004000861	0	0.227540436
	Year	0.017610229	0.00130994	3.36E-41	1.017766203

