Continuity Runs for Gray Triggerfish Abundance Indices from SEAMAP Groundfish Surveys in the Northern Gulf of Mexico

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Continuity Runs for Gray Triggerfish Abundance Indices from SEAMAP Groundfish Surveys in the Northern Gulf of Mexico

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In preparation for the upcoming SEDAR 62 assessment of gray triggerfish (*Balistes capriscus*), continuity runs were produced for use in the assessment model. Two abundance indices were developed for gray triggerfish from the SEAMAP Summer and Fall Groundfish Surveys. The indices followed the same methodology that was outlined in Pollack and Ingram (2015) utilizing a delta-lognormal model as described by Lo *et al*. (1992). For the SEAMAP Summer Groundfish Survey abundance index (Table 1), year, area and depth were included in the binomial submodel, while year, area, depth and time of day were included in the lognormal submodel. For the SEAMAP Fall Groundfish Survey abundance index (Table 2), year, area, depth and survey were included in the binomial submodel, while year, area and depth were included in the lognormal submodel.

When the continuity runs were compared to the final model runs from SEDAR 43, there appeared very minor overall differences between the runs (Figures 1 and 2). These differences were mostly likely due to data revisions that have taken place between SEDARs as the data is constantly being updated as discrepancies are identified and corrected.

Literature Cited

Lo, N.C.H., L.D. Jacobson, and J.L. Squire. 1992. Indices of relative abundance from fish spotter data based on delta-lognormal models. *Canadian Journal of Fisheries and Aquatic Science* 49: 2515-2526.

Pollack, A.G. and G. Walter Ingram, Jr. 2015. Gray Triggerfish Abundance Indices from SEAMAP Groundfish Surveys in the Northern Gulf of Mexico. SEDAR43-WP-11. SEDAR, North Charleston, SC. 30pp.

Table 1. Indices of gray triggerfish abundance developed using the delta-lognormal (DL) model for SEAMAP Summer Groundfish Survey from 1987-2017. The nominal frequency of occurrence, the number of samples (*N*), the DL Index (number per trawl-hour), the DL indices scaled to a mean of one for the time series, the coefficient of variation on the mean (CV), and lower and upper confidence limits (LCL and UCL) for the scaled index are listed.

Survey Year	Frequency	*N*	DL Index	Scaled Index	CV	LCL	UCL
1987	0.06272	287	0.33548	0.57767	0.31995	0.30940	1.07854
1988	0.07265	234	0.29440	0.50692	0.32910	0.26693	0.96266
1989	0.08372	215	0.57516	0.99037	0.32080	0.52960	1.85203
1990	0.10305	262	0.68128	1.17309	0.26104	0.70197	1.96039
1991	0.13386	254	0.75174	1.29441	0.23305	0.81718	2.05035
1992	0.10081	248	0.25874	0.44553	0.27296	0.26063	0.76157
1993	0.07258	248	0.24252	0.41760	0.32067	0.22337	0.78073
1994	0.15267	262	0.82878	1.42707	0.21370	0.93517	2.17769
1995	0.12971	239	0.66133	1.13875	0.24405	0.70389	1.84225
1996	0.05306	245	0.24579	0.42323	0.37661	0.20429	0.87682
1997	0.12554	231	0.53397	0.91945	0.25210	0.55966	1.51053
1998	0.05677	229	0.13844	0.23838	0.37654	0.11508	0.49380
1999	0.17480	246	1.10192	1.89739	0.20756	1.25826	2.86117
2000	0.20502	239	1.35718	2.33692	0.19348	1.59268	3.42893
2001	0.15341	176	2.18820	3.76785	0.25896	2.26363	6.27164
2002	0.16270	252	0.67537	1.16292	0.21232	0.76412	1.76986
2003	0.08780	205	0.18217	0.31368	0.32013	0.16795	0.58585
2004	0.06667	240	0.19356	0.33330	0.34006	0.17199	0.64589
2005	0.12308	195	0.37611	0.64761	0.27830	0.37504	1.11829
2006	0.18828	239	1.67704	2.88769	0.20265	1.93330	4.31323
2007	0.10714	224	0.38957	0.67080	0.27748	0.38907	1.15652
2008	0.09699	299	0.37229	0.64104	0.25261	0.38981	1.05420
2009	0.13043	529	0.52650	0.90658	0.16935	0.64766	1.26901
2010	0.07916	379	0.28117	0.48415	0.25304	0.29416	0.79683
2011	0.11246	329	0.48362	0.83275	0.22906	0.52978	1.30899
2012	0.12030	399	0.46330	0.79775	0.20413	0.53256	1.19498
2013	0.08754	297	0.27894	0.48031	0.27184	0.28158	0.81931
2014	0.08000	350	0.28420	0.48936	0.26701	0.28953	0.82712
2015	0.19835	363	0.87225	1.50192	0.16496	1.08225	2.08431
2016	0.08876	338	0.32571	0.56084	0.25668	0.33840	0.92947
2017	0.12112	322	0.42668	0.73470	0.22131	0.47444	1.13774

Table 2. Indices of gray triggerfish abundance developed using the delta-lognormal (DL) model for SEAMAP Fall Groundfish Survey from 1987-2017. The nominal frequency of occurrence, the number of samples (*N*), the DL Index (number per trawl-hour), the DL indices scaled to a mean of one for the time series, the coefficient of variation on the mean (CV), and lower and upper confidence limits (LCL and UCL) for the scaled index are listed.

Survey Year	Frequency	*N*	DL Index	Scaled Index	CV	LCL	UCL
1987	0.24038	208	2.16846	1.01958	0.23360	0.64300	1.61672
1988	0.20339	236	1.89525	0.89113	0.24371	0.55119	1.44072
1989	0.30522	249	3.21409	1.51123	0.19254	1.03184	2.21334
1990	0.14000	250	0.77791	0.36577	0.28146	0.21056	0.63537
1991	0.44534	247	6.77383	3.18498	0.14729	2.37605	4.26930
1992	0.10823	231	0.74325	0.34947	0.32343	0.18597	0.65671
1993	0.32117	274	5.08549	2.39114	0.17770	1.68055	3.40219
1994	0.34783	253	3.94548	1.85512	0.17549	1.30948	2.62812
1995	0.24896	241	2.35284	1.10628	0.21889	0.71773	1.70517
1996	0.21514	251	2.53781	1.19325	0.23187	0.75503	1.88580
1997	0.16194	247	1.28480	0.60410	0.26589	0.35817	1.01889
1998	0.02930	273	0.15637	0.07352	0.52339	0.02748	0.19670
1999	0.25806	248	2.34515	1.10266	0.21249	0.72429	1.67870
2000	0.33607	244	4.72942	2.22372	0.18231	1.54890	3.19255
2001	0.34661	251	6.72234	3.16077	0.17721	2.22359	4.49293
2002	0.23735	257	3.16559	1.48843	0.21817	0.96700	2.29102
2003	0.16364	275	1.89014	0.88872	0.25246	0.54058	1.46108
2004	0.27511	229	1.78870	0.84102	0.20848	0.55674	1.27048
2005	0.27843	255	2.45112	1.15249	0.20198	0.77259	1.71919
2006	0.21076	223	2.27975	1.07191	0.24085	0.66665	1.72353
2007	0.23043	230	2.35740	1.10842	0.23186	0.70137	1.75171
2008	0.37158	366	1.65354	0.77747	0.19149	0.53193	1.13635
2009	0.14574	446	0.37472	0.17619	0.25142	0.10738	0.28908
2010	0.16452	310	0.55178	0.25944	0.27864	0.15015	0.44828
2011	0.22831	219	0.71398	0.33571	0.27333	0.19625	0.57425
2012	0.33000	200	1.26145	0.59312	0.24499	0.36596	0.96127
2013	0.15054	186	0.46249	0.21746	0.33044	0.11423	0.41399
2014	0.24601	313	0.80792	0.37988	0.24562	0.23411	0.61641
2015	0.21656	314	0.67182	0.31588	0.25632	0.19073	0.52315
2016	0.12435	193	0.26067	0.12256	0.34921	0.06219	0.24155
2017	0.18662	284	0.50745	0.23860	0.27370	0.13939	0.40843

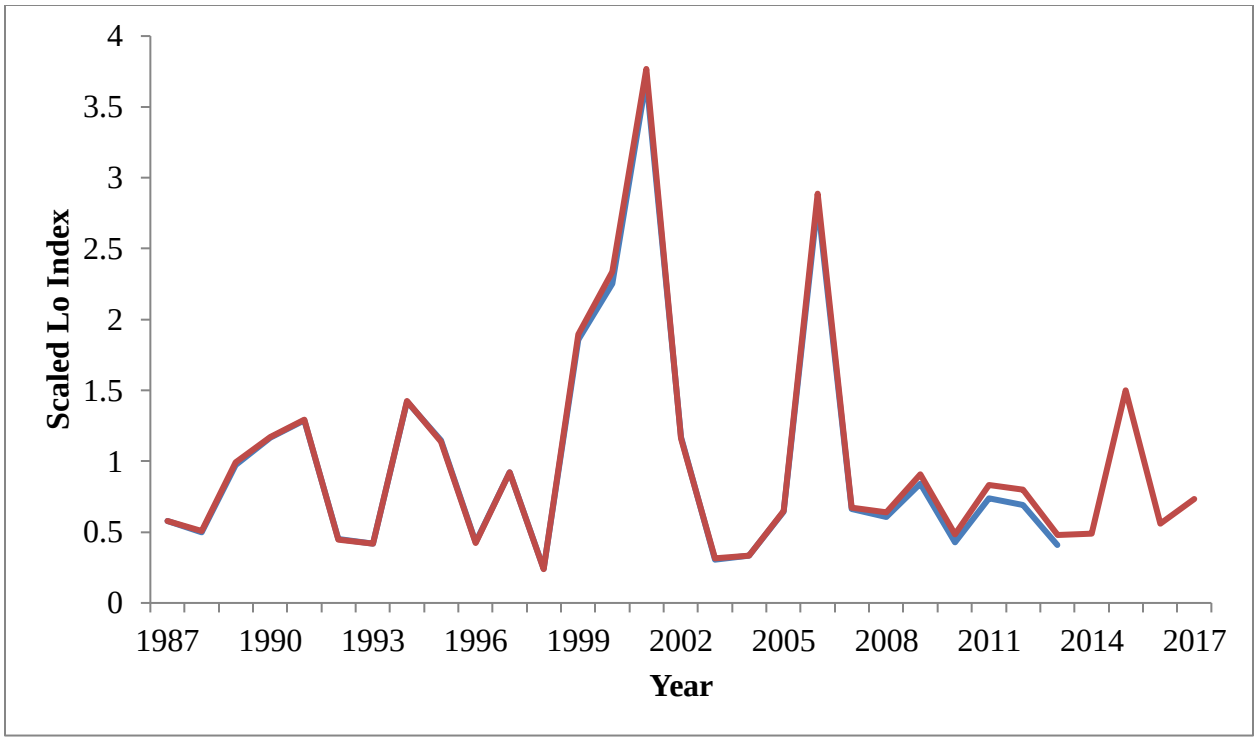

Figure 1. Comparison of the abundance indices used during SEDAR 43 (blue) with the continuity run for SEDAR 62 (red) for the SEAMAP Summer Groundfish Survey.

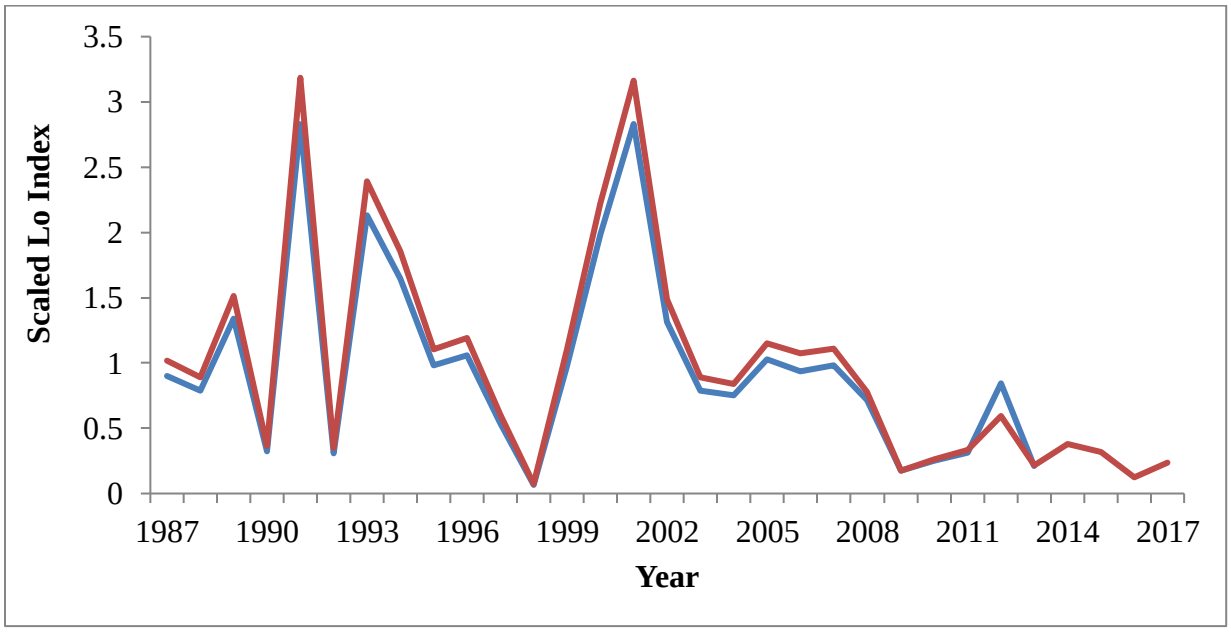

Figure 2. Comparison of the abundance indices used during SEDAR 43 (blue) with the continuity run for SEDAR 62 (red) for the SEAMAP Fall Groundfish Survey.