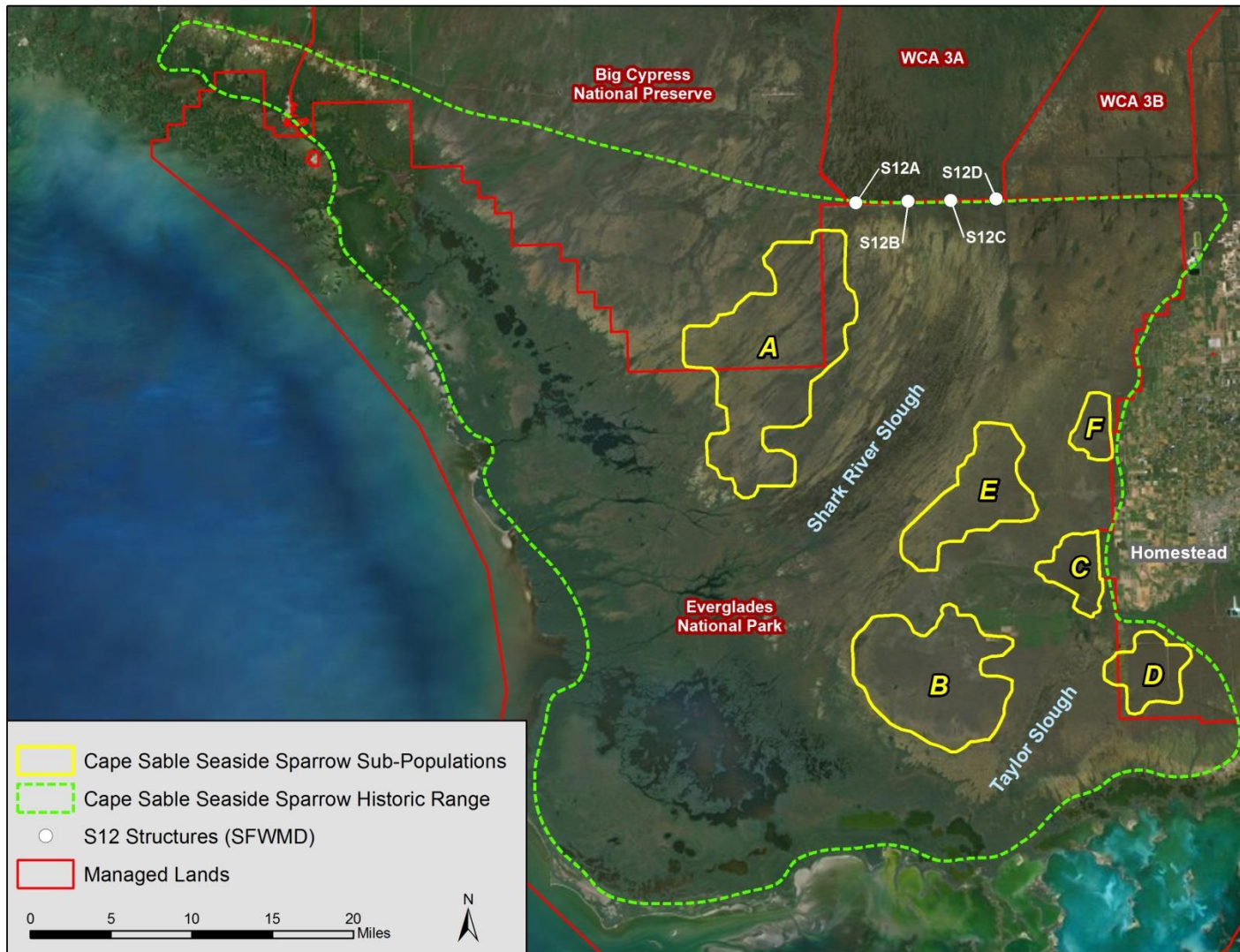


South Dade Investigation USFWS Performance Goals

September 3, 2015



CSSS Subpopulation Map



Performance Goals for CSSS

- Sparrow nesting season – March 1 – July 15
 - In order to provide an opportunity for each pair to have at least 1 successful nest attempt (status quo or declining population):
 - Current requirement is a minimum of 60 continuous dry days through at least 40% of the designated habitat (at least 58,000 acres).
 - In order to allow for multiple nest attempts (possible increasing population):
 - A minimum of 90 continuous dry days through at least 60% of the designated habitat (at least 87,000 acres).



Performance Goals for CSSS

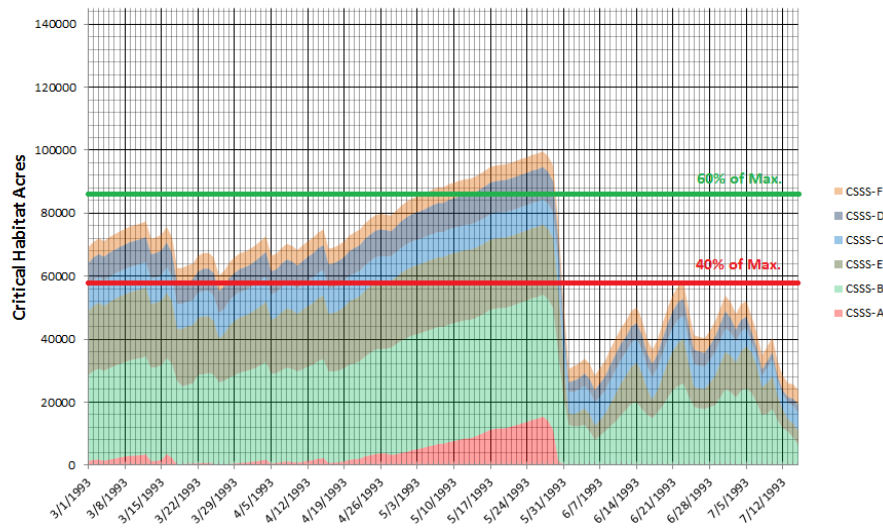
- Habitat Maintenance
 - Annual Discontinuous Hydroperiod
 - Marl prairie vegetation requires an annual discontinuous hydroperiod of 90-210 days.
 - <90 days for multiple years the area becomes too dry and vegetation begins to transition to woody shrubs and is fire prone.
 - >210 days for multiple years the area becomes too wet and vegetation begins to transition to sawgrass and other wet marsh species.



Dry Nesting Days (March 1 – July 15)

1995 CSSS population estimate 59% decrease from 1992

CSSS Subpopulations (CH) Number of Acres Dry 3/1-7/15/1993



60,000 total acres dry for 90 consecutive days

CSSS Subpopulations (CH) Number of Acres Dry 3/1-7/15/1995



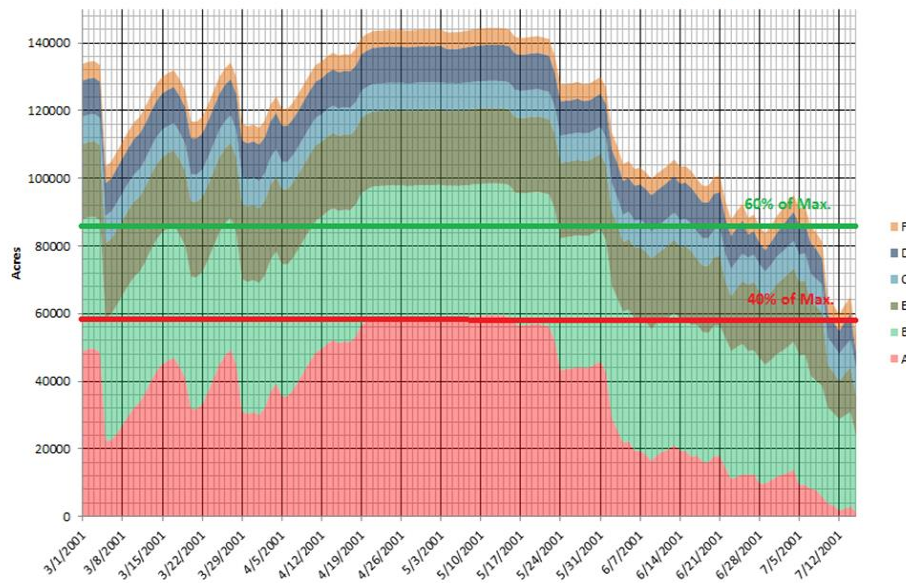
55,000 total acres dry for 70 consecutive days



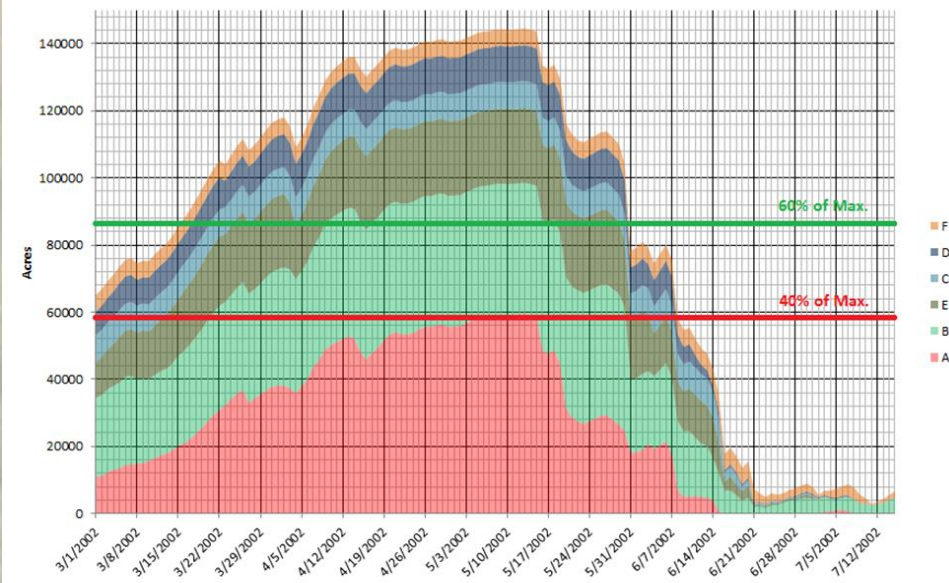
Dry Nesting Days (March 1 – July 15)

2003 CSSS population estimate 19% increase compared to 2002

CSSS Subpopulations (CH) Number of Acres Dry 3/1 -7/15/2001



CSSS Subpopulations (CH) Number of Acres Dry 3/1 -7/15/2002



100,000 total acres dry for 110 consecutive days

80,000 total acres dry for 85 consecutive days



Discontinuous Hydroperiod (90-210 days/year)

Subpopulation A

	NP205	TMC	P34	BCA20	Ave.
1992	224	224	199	351	250
1993	366	329	366	366	357
1994	337	320	246	340	311
1995	366	366	366	366	366
1996	335	309	338	350	333
1997	353	273	312	346	321
1998	290	312	309	338	312
1999	305	305	295	342	312
2000	279	311	329	335	314
2001	212	218	232	253	229
2002	275	260	253	320	277
2003	288	245	247	366	287
2004	276	245	272	344	284
2005	233	247	252	322	264
2006	249	268	272	296	271
2007	239	208	320	334	275
2008	184	200	256	292	233
2009	257	279	277	294	277
2010	268	270	261	357	289
2011	189	230	235	250	226
2012	258	291	284	291	281
2013	280	313	316	324	308
2014	251	259	277	288	269

Subpopulation B

	NP46	CY3	SP	CY2	DO1	DO2	P38	Ave.
1992	206	183	165	128	141	152	265	177
1993	262	188	134	145	163	177	366	205
1994	237	149	142	169	176	184	252	187
1995	302	267	249	209	227	256	366	268
1996	264	210	173	140	144	141	366	205
1997	253	221	215	189	195	196	358	232
1998	288	296	252	239	236	211	337	266
1999	272	255	207	196	196	192	322	234
2000	275	246	124	127	148	146	339	201
2001	184	174	162	147	152	145	239	172
2002	295	256	185	151	162	168	327	221
2003	294	276	222	211	205	189	359	251
2004	216	197	143	106	112	106	281	166
2005	205	201	177	113	163	153	322	191
2006	184	161	122	122	134	135	348	172
2007	212	205	120	159	171	163	342	196
2008	177	184	159	109	123	109	252	159
2009	243	239	210	194	197	182	309	225
2010	300	262	154	158	162	136	345	217
2011	202	187	125	140	143	129	262	170
2012	246	247	220	244	235	217	336	249
2013	286	267	228	237	219	181	366	255
2014	275	233	113	144	119	87	343	188



Discontinuous Hydroperiod (90-210 days/year)

Subpopulation C

	NTS10	R3110	NTS1	E112	NTS18	Ave.
1992	4	145	143	194	3	98
1993	0	204	156	349	0	142
1994	72	185	166	292	2	143
1995	141	272	246	305	2	193
1996	35	197	157	251	0	128
1997	106	208	180	224	4	144
1998	40	253	203	326	4	165
1999	114	236	240	266	36	178
2000	121	236	205	243	112	183
2001	146	182	173	181	115	159
2002	129	223	189	220	114	175
2003	199	241	250	252	182	225
2004	116	164	181	202	93	151
2005	195	214	221	224	197	210
2006	71	175	146	178	57	125
2007	64	190	153	177	66	130
2008	135	191	177	191	150	169
2009	163	246	239	243	221	222
2010	159	251	254	268	225	231
2011	105	184	169	180	129	153
2012	225	261	258	260	233	247
2013	202	264	250	264	221	240
2014	131	255	258	260	199	221

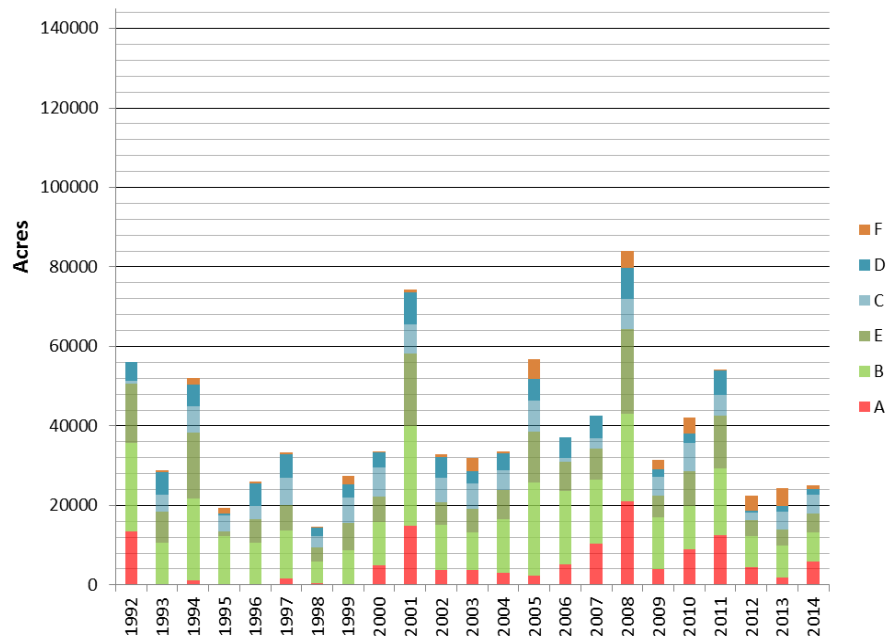
Subpopulation E

	NP62	NP44	A13	NP206	CR3	CR2	Ave.
1992	187	87	109	159	95	54	115
1993	277	124	175	232	115	157	180
1994	150	139	135	232	131	147	156
1995	364	200	330	352	314	247	301
1996	326	78	237	301	207	159	218
1997	244	182	224	232	212	189	214
1998	308	139	275	294	242	192	242
1999	287	142	249	279	218	209	231
2000	287	127	203	288	197	150	209
2001	177	130	169	194	173	162	168
2002	311	115	246	275	223	192	227
2003	264	156	229	280	196	217	224
2004	236	91	215	235	203	182	194
2005	235	128	194	245	217	212	205
2006	284	113	137	259	138	125	176
2007	224	125	153	194	149	125	162
2008	195	96	184	199	185	169	171
2009	272	164	252	257	245	238	238
2010	287	105	220	299	218	211	223
2011	232	93	159	183	152	134	159
2012	301	196	246	281	250	238	252
2013	311	154	262	290	257	243	253
2014	288	47	220	278	239	217	215

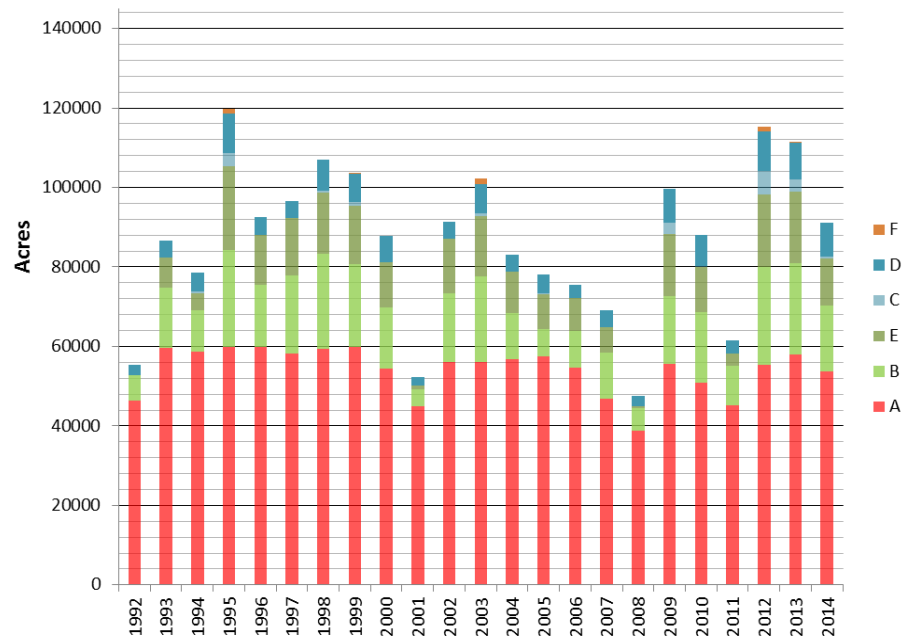


Number of Acres Experiencing Target 90-210, and >210 Discontinuous Hydroperiod (Days/Calendar Year) in CSSS Subpopulations, Based on Sparrow Viewer Output (Maximum 145,000 Acres).

**CSSS Subpopulations (CH) Annual # Acres
Target 90-210 Day Discontinuous HP**



**CSSS Subpopulations (CH) Annual # Acres
>210 Day Discontinuous Hydroperiod**

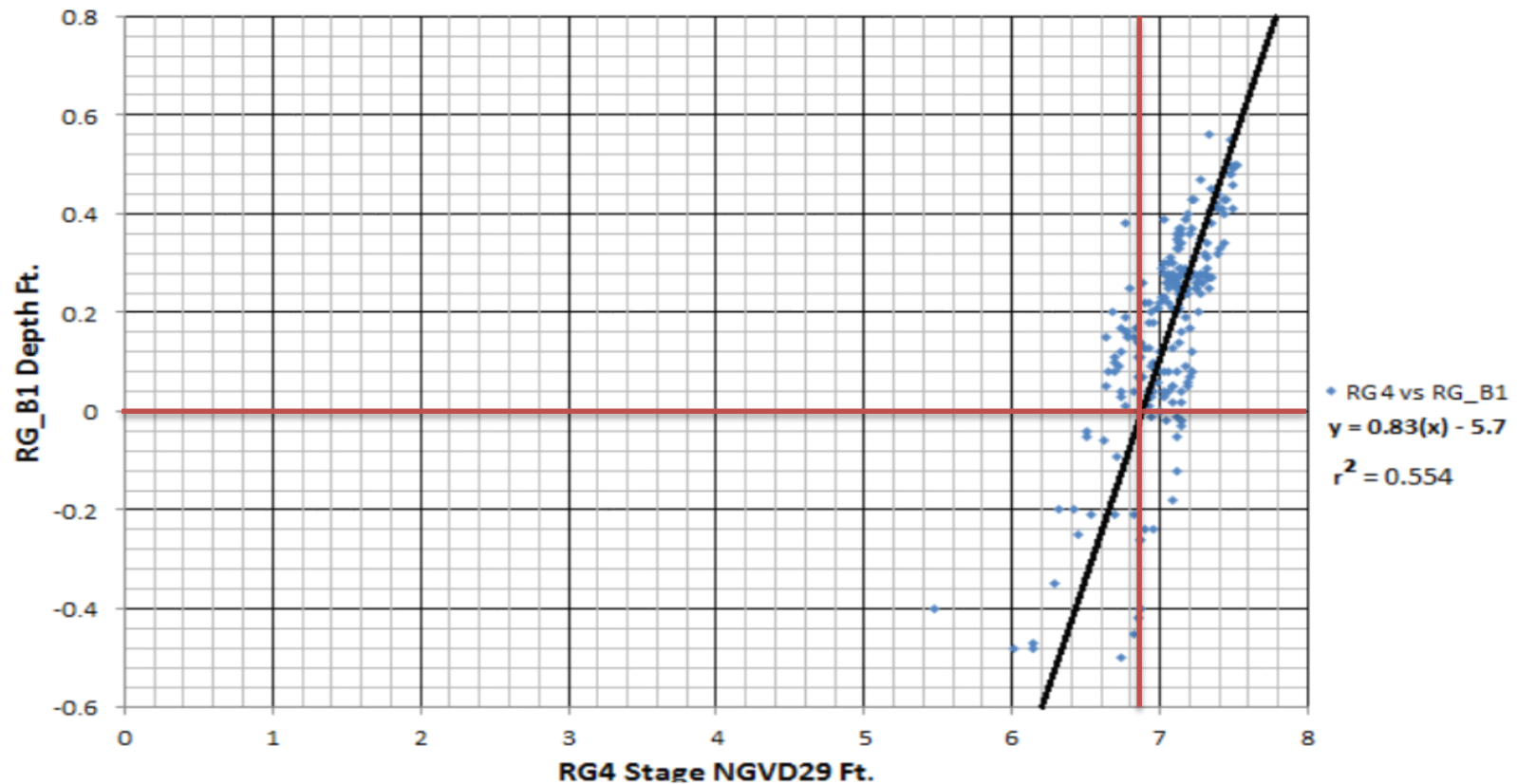


Averaged 1992-2014, only 26% of all CSSS habitat experienced the preferred 90-210 day hydroperiod.

S-332B (CSSS-F)

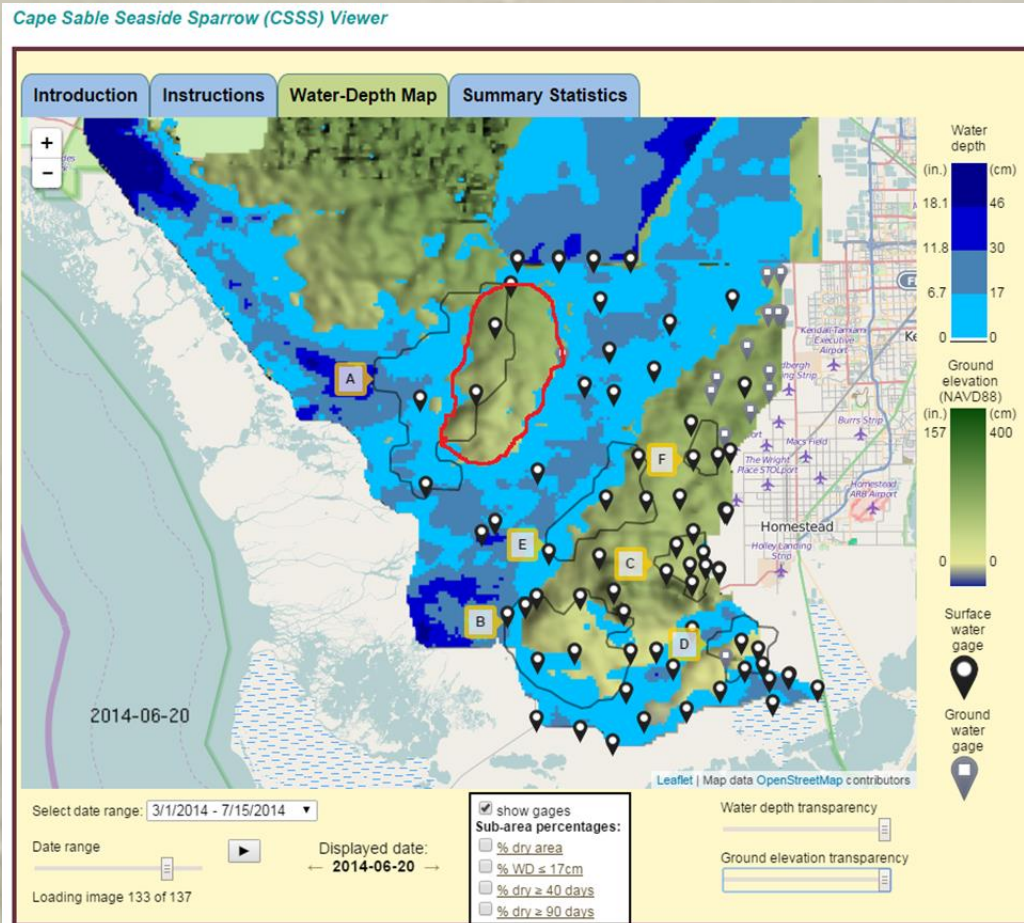
RG4 vs RG_B1, 1/1/2010 to present.

Data analyzed for 3/1-7/15 CSSS nesting period and RG_B1 depth > -0.5 ft.
Ave. stage @ RG4 = 6.9 ft. NGVD29 when RG_B1 ave. depth = 0.



New Tools

- USGS EDEN [SparrowViewer](#)

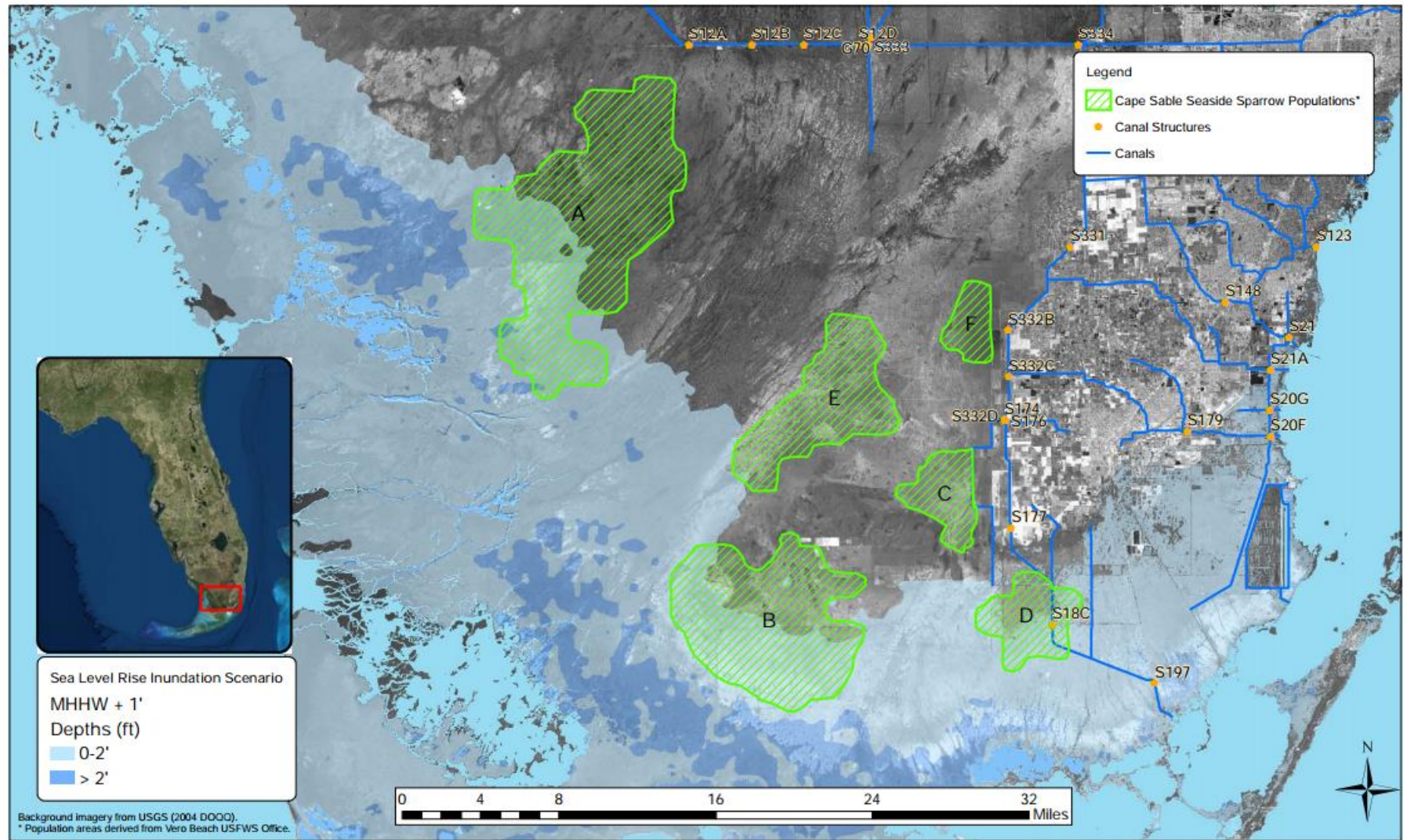


Questions?

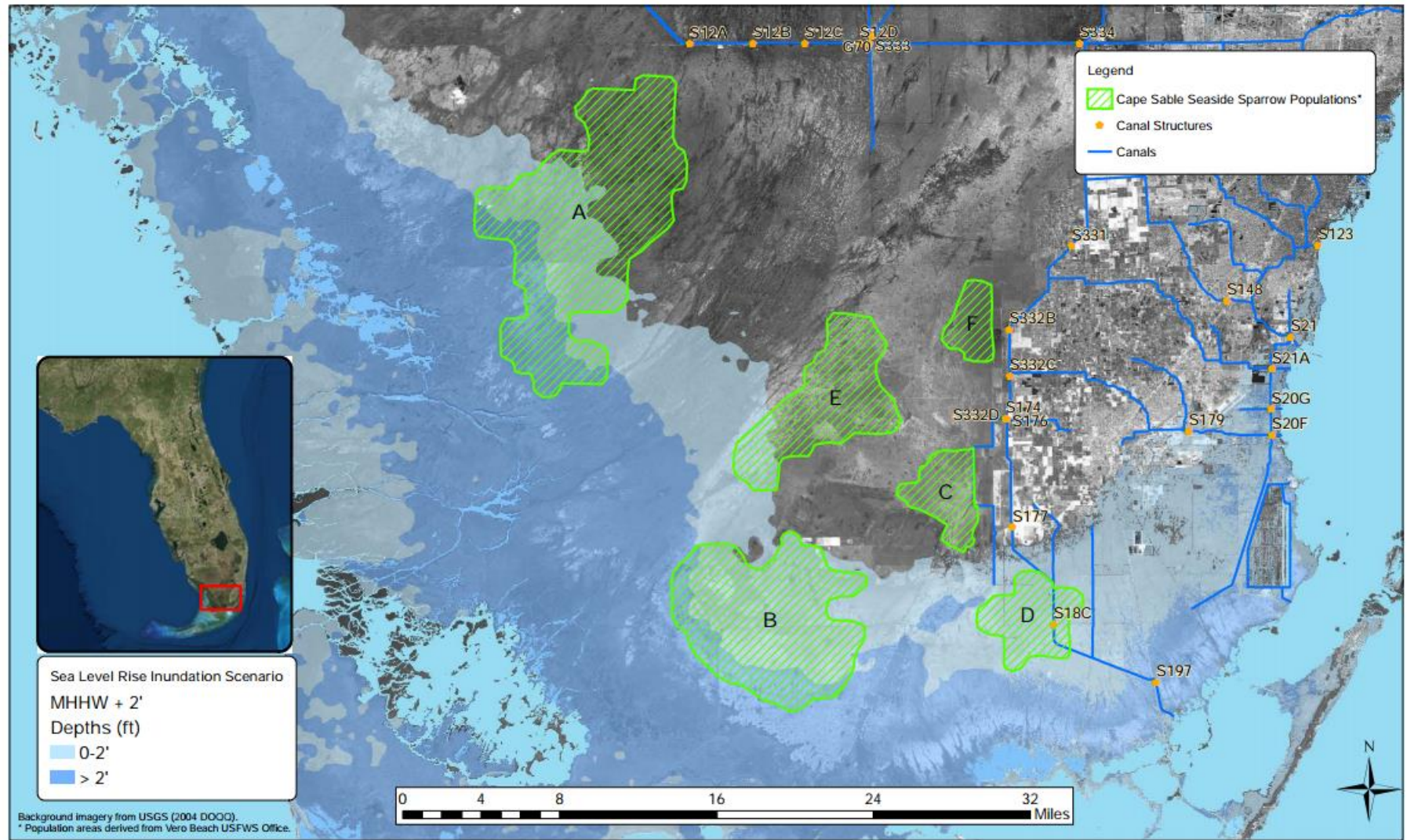


David A. La Puma

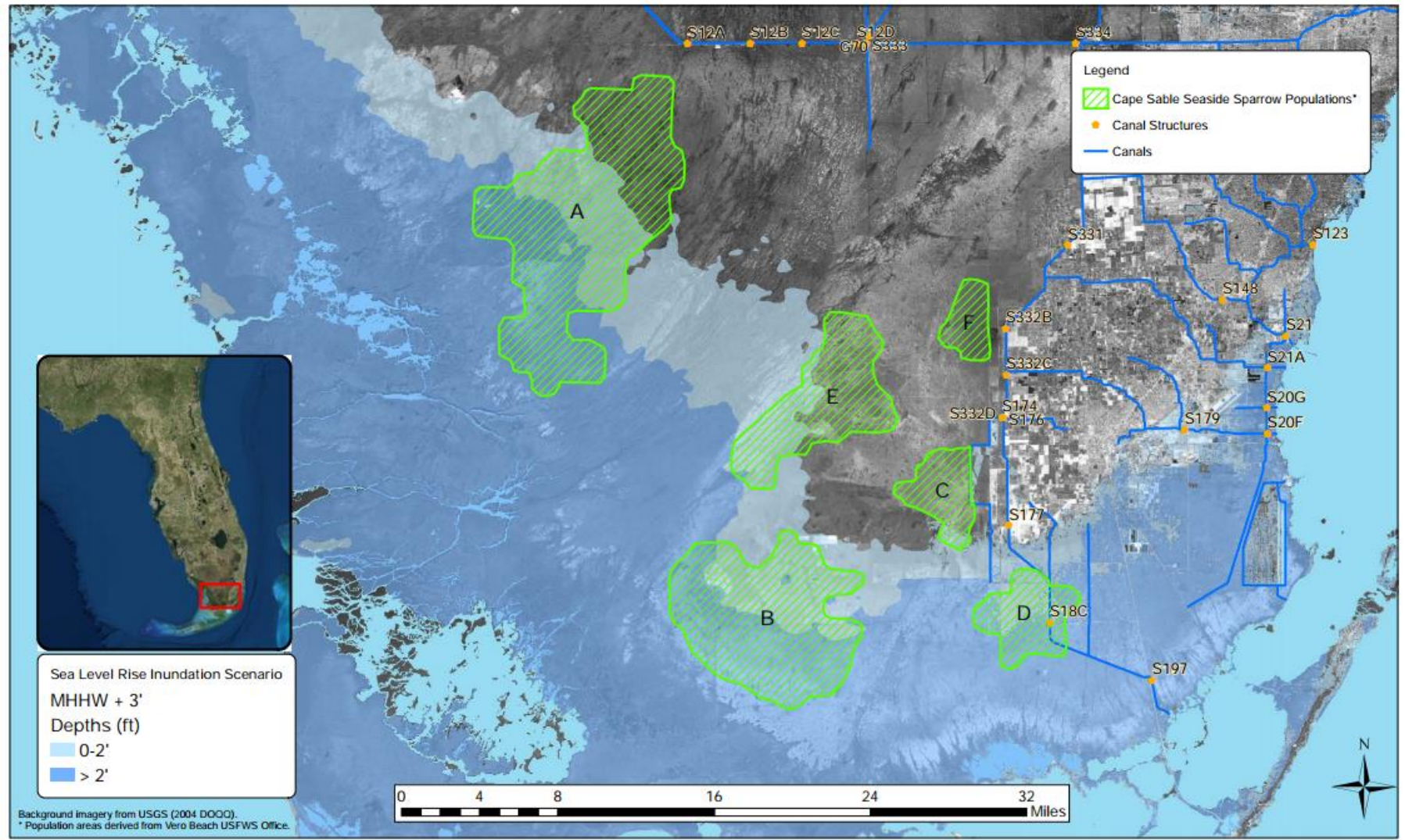
Sea Level Rise (MHHW +1')



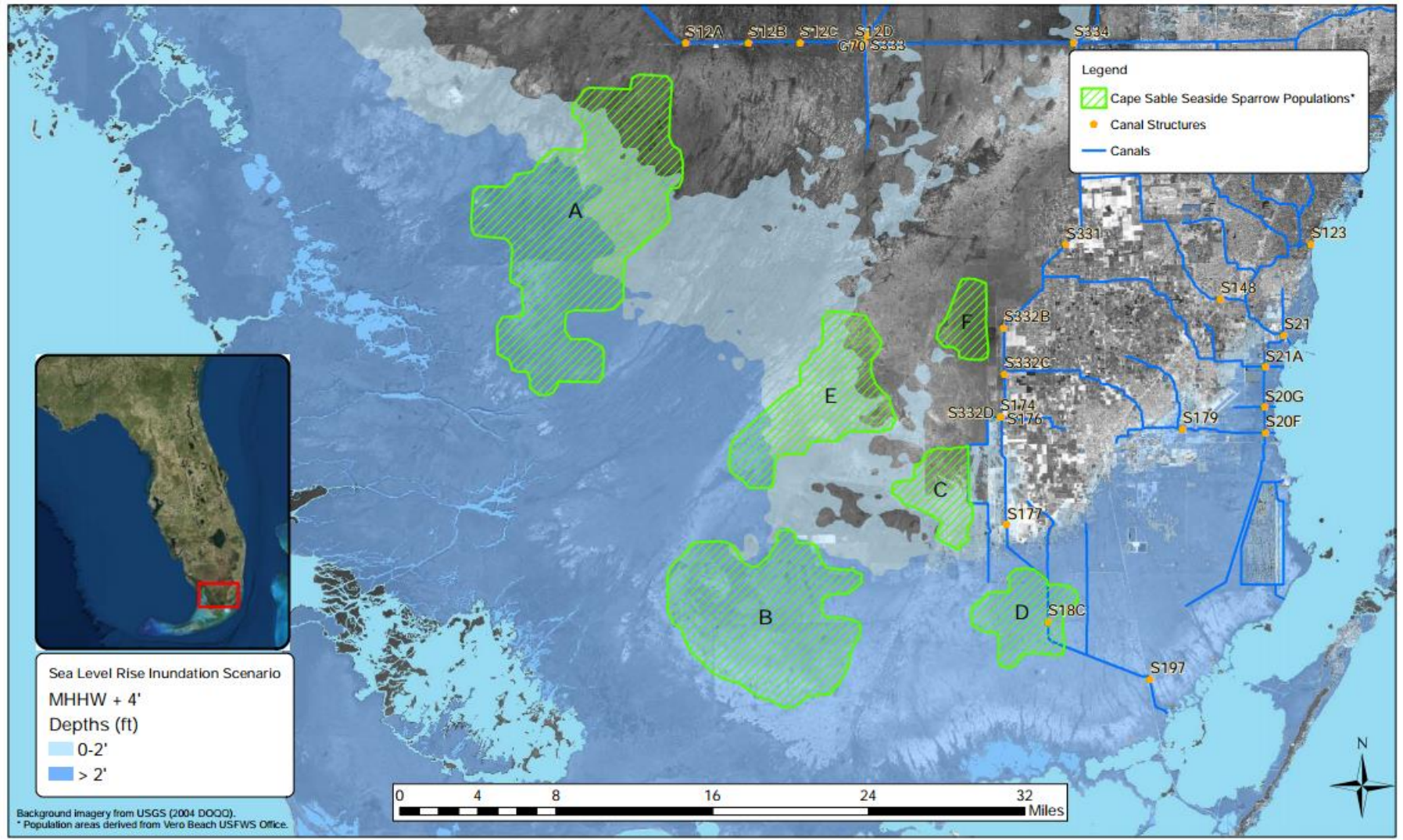
Sea Level Rise (MHHW +2')



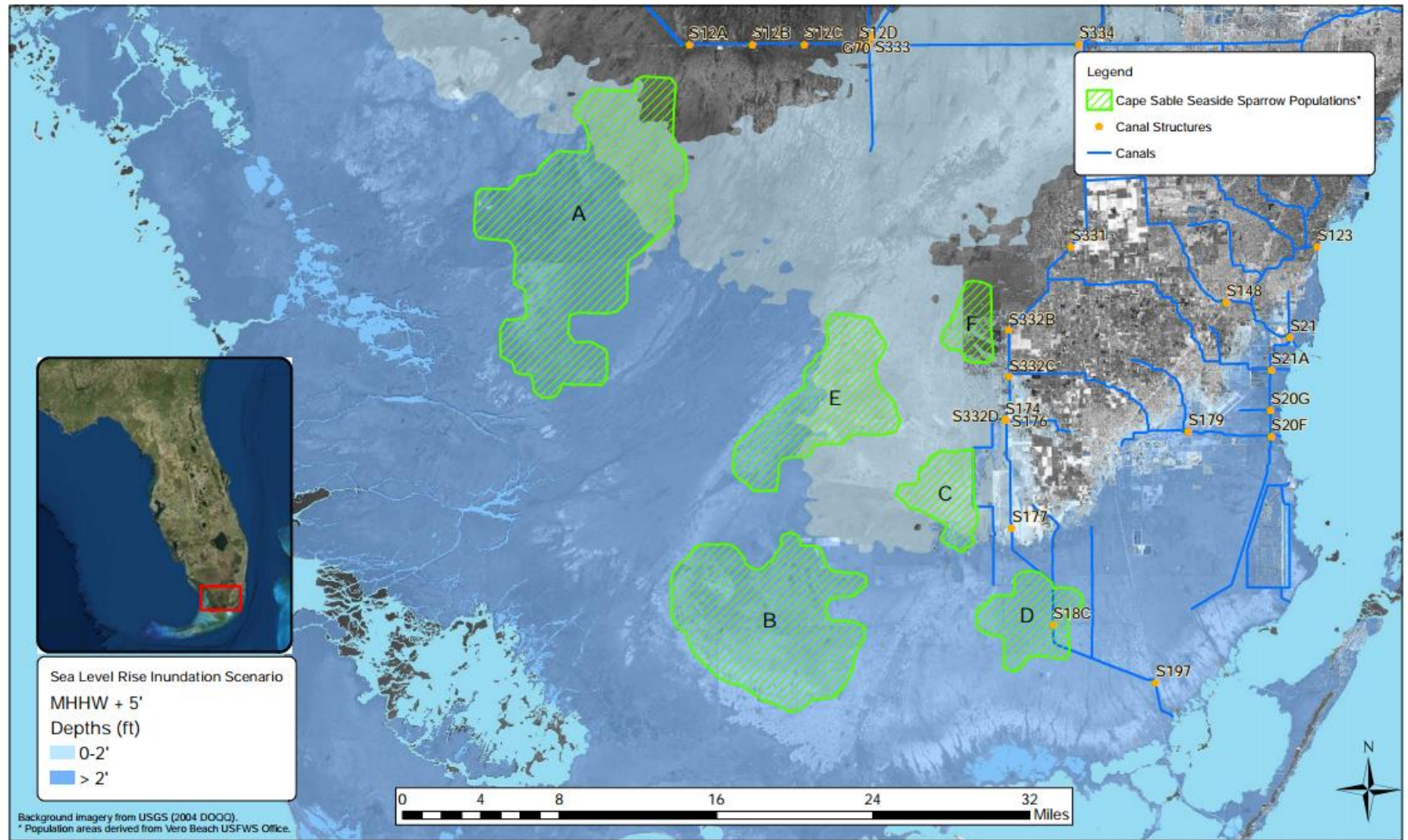
Sea Level Rise (MHHW +3')



Sea Level Rise (MHHW +4')

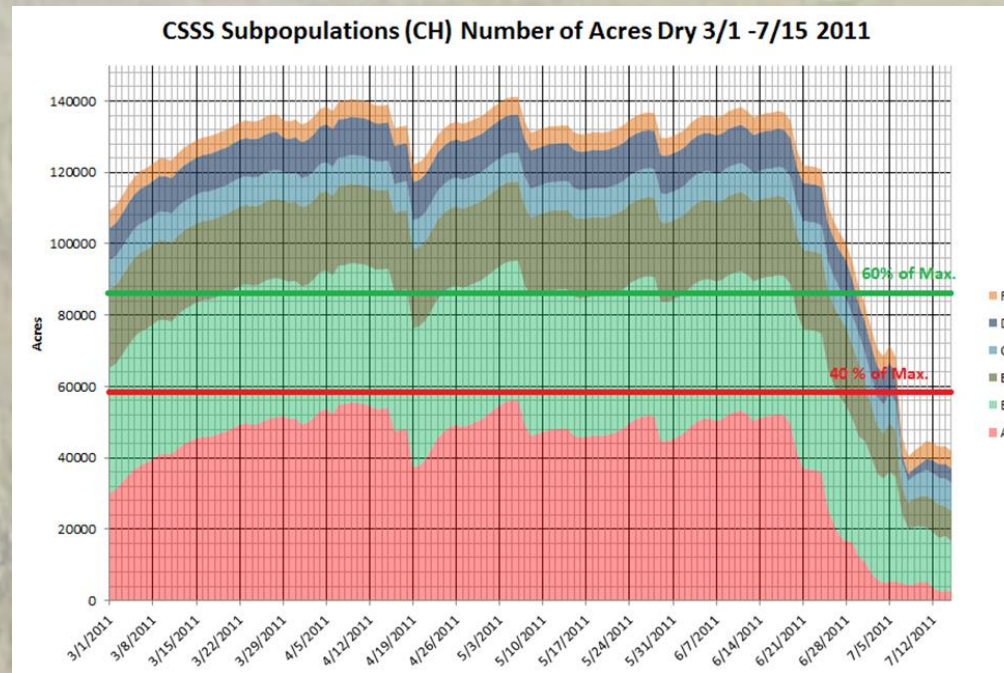


Sea Level Rise (MHHW +5')



Dry Nesting Days (March 1 – July 15)

2012 CSSS population estimate 16% increase compared to 2011



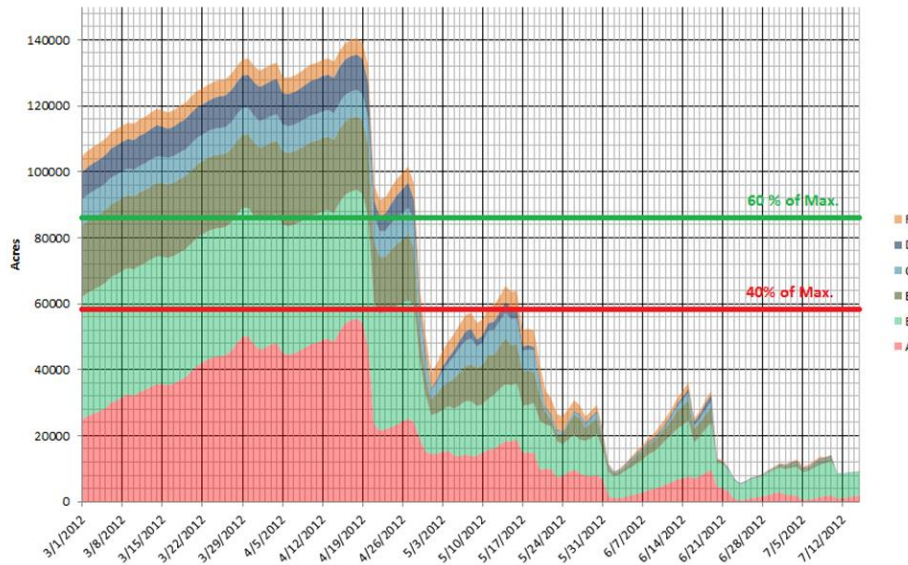
110,000 total acres dry for 120 consecutive days



Dry Nesting Days (March 1 – July 15)

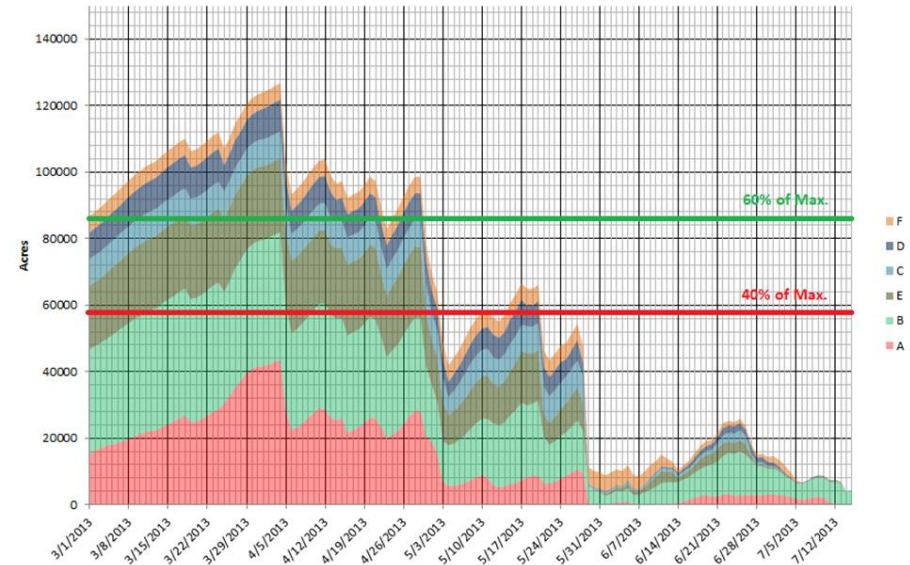
2014 CSSS population estimate 19% decrease compared to 2012

CSSS Subpopulations (CH) Number of Acres Dry 3/1 -7/15 2012



80,000 total acres dry for 60 consecutive days

CSSS Subpopulations (CH) Number of Acres Dry 3/1 -7/15 2013



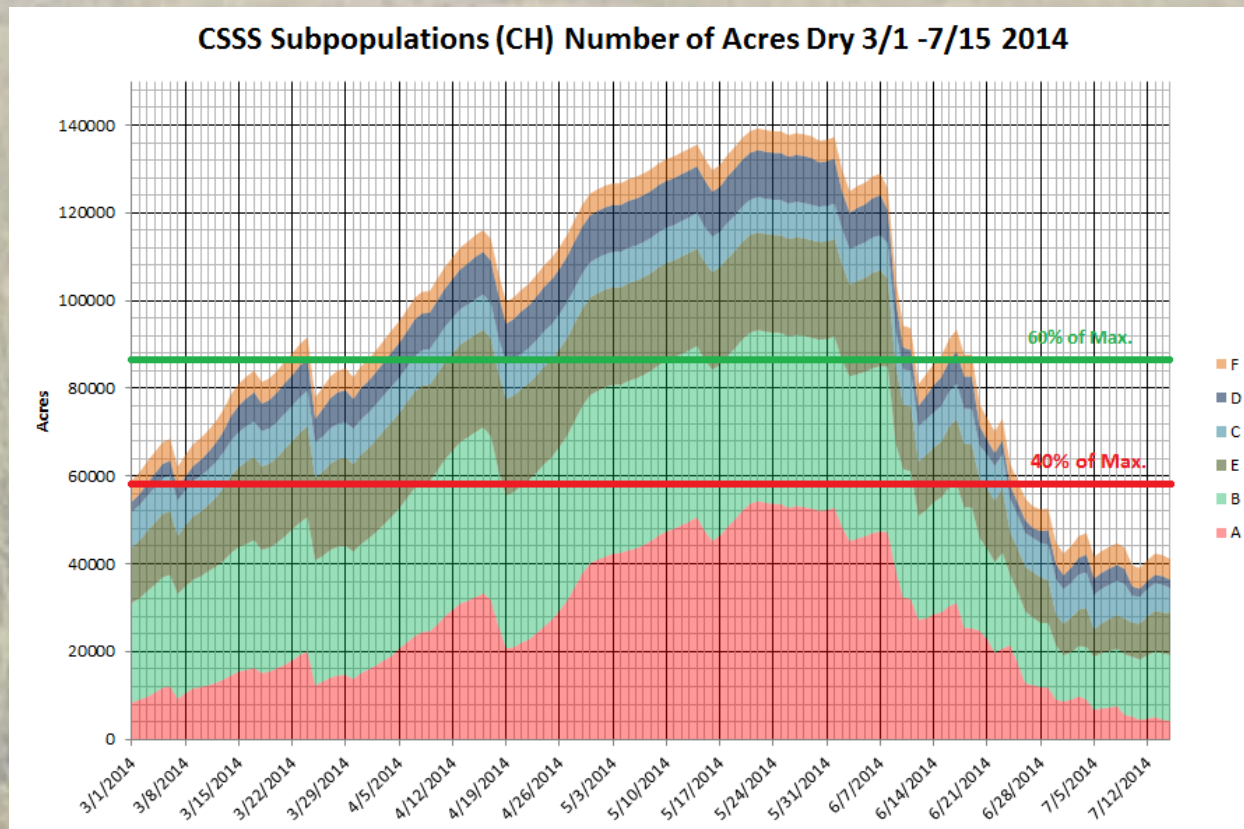
80,000 total acres dry for 60 consecutive days



Dry Nesting Days (March 1 – July 15)

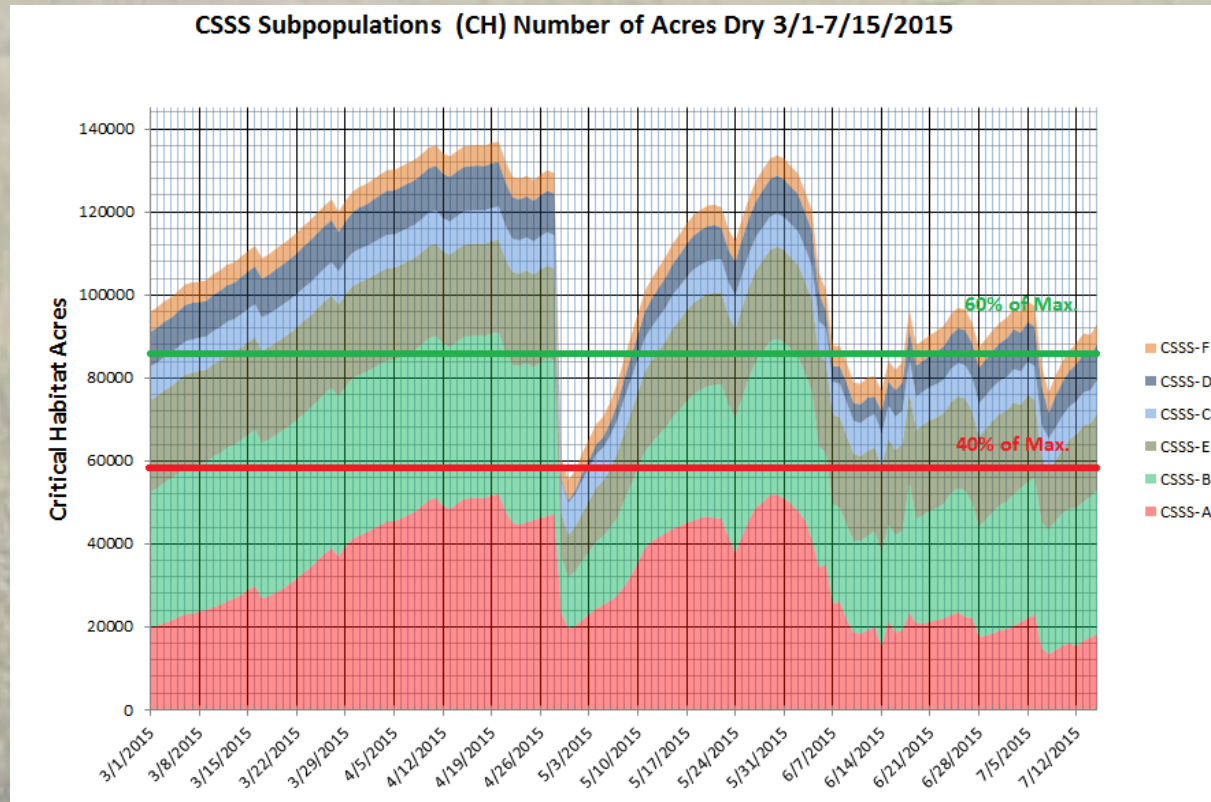
2014 looked like a pretty good year.

Early estimates of 2015 CSSS population appear to have increased.



Dry Nesting Days (March 1 – July 15)

2015 was truncated by rainfalls in late May and early June



S-332B (CSSS-F)

RG4 vs RG_B1, 1/1/2010 to 1/1/2014.

Shaded areas represent water level above average ground surface at RG_B1 during the CSSS breeding season. Ave. stage @ RG4 = 6.9 ft. NGVD29 when RG_B1 ave depth = 0.

