Description of stocks included in the fall Chinook salmon ocean distribution model. It has these characteristics:

Attribute	Value
Run date	Thu Dec 5 10:39:57 2019
Hatchery Run code	FRAM_v1
Spatial grouping code	TWO_OR
Month structure code	FOUR
Brood years (first,last)	(1977,2009)
Release years (first,last)	(1978,2010)
CWT Recovery years (first,last)	(1979,2015)

Here is a table of the ocean location code and location number from south (MONT = Monterey) to North (NSEAK = Northern Southeast Alaska)

Code	Number
MONT	1
SFB	2
MEN	3
NCA	4
SOR	5
NOR	6
COL	7
WAC	8
PUSO	9
PUSO_out	10
SGEO	11
SWVI	12
NWVI	13
CBC	14
NBC	15
SSEAK	16
NSEAK	17

Here is a table of the timing in terms of calendar year, calendar months, season, model year, model month, and model age. The 18 seasonal steps of model age is the primary time accounting structure. As a reminder the model starts tracking fish in May of brood year + 2 so if fish are from the 2000 brood year and released in 2001 the model tracks that release starting in May 2002.

Calendar_Year	Calendar_Month	Season	Model_Year	Model_Month	Model_Age
1	4	spring	1	1	1
1	5	spring	1	2	1
1	6	summer	1	3	2
1	7	summer	1	4	2
1	8	fall	1	5	3
1	9	fall	1	6	3
1	10	fall	1	7	3
1	11	winter	1	8	4
1	12	winter	1	9	4
2	1	winter	1	10	4
2	2	winter	1	11	4
2	3	winter	1	12	4
2	4	spring	2	13	5
2	5	spring	2	14	5
2	6	summer	2	15	6
2	7	summer	2	16	6
2	8	fall	2	17	7
2	9	fall	2	18	7
2	10	fall	2	19	7
2	11	winter	2	20	8
2	12	winter	2	21	8
3	1	winter	2	22	8
3	2	winter	2	23	8
3	3	winter	2	24	8
3	4	spring	3	25	9
3	5	spring	3	26	9
3	6	summer	3	27	10
3	7	summer	3	28	10
3	8	fall	3	29	11
3	9	fall	3	30	11
3	10	fall	3	31	11
3	11	winter	3	32	12
3	12	winter	3	33	12
4	1	winter	3	34	12
4	2	winter	3	35	12
4	3	winter	3	36	12
4	4	spring	4	37	13
4	5	spring	4	38	13
4	6	summer	4	39	14
4	7	summer	4	40	14
4	8	fall	4	41	15
4	9	fall	4	42	15
4	10	fall	4	43	15
4	11	winter	4	44	16
4	12	winter	4	45	16
5	1	winter	4	46	16
5	2	winter	4	47	16

Calendar_Year	Calendar_Month	Season	Model_Year	Model_Month	Model_Age
5	3	winter	4	48	16
5	4	spring	5	49	17
5	5	spring	5	50	17
5	6	summer	5	51	18
5	7	summer	5	52	18
5	8	fall	5	53	19
5	9	fall	5	54	19
5	10	fall	5	55	19

Here is a tabular summary of the hatcheries included in this model run ordered from south to north. Codes as the previous tables. The suffix "_small" or "_large" on some of the stock refers to hatchery that release fish at two sizes (or, equivalently, at two times of year). "large" refers to yearlings and "small" to fingerlings in many but not all cases. The "_late" designation separates out fish designated as Upriver Bright from other stock types when there are multiple run types from a single hatchery. These releases only include fall fish (run=3 from RMIS) or run=8 (Columbia Upriver Brights). Summer and spring run fish are not included. "Origin.region" is the relevent grouping variable - generally these correspond to the ocean region the fish are released into but the Columbia stocks are subdivided into multiple groups (LCOL, MCOL, UCOL, SNAK, URB) as at the Strait of Georgia and Puget Sound (SGEO_S, SGEO_N and PUSO_N, PUSO_S, respectively). ID generally corresponds to the river and/or the hatchery of origin.

origin.region	ID	first_brood	last_brood	n_brood
SFB	Coleman	1980	2009	29
SFB	Feather	1977	2009	32
SFB	Merced	1987	2009	16
SFB	Mokelumne	1990	2009	16
SFB	Nimbus	1982	2009	15
SFB	San_Joaquin	1981	1999	6
SFB	Tehama	1977	1984	5
SFB	Yuba	1983	1986	2
NCA	Irongate	1979	2009	29
NCA	Irongate_large	1978	2007	26
NCA	Mad	1980	1982	2
NCA	Mad_large	2001	2001	1
NCA	Smith	1999	2008	3
NCA	Smith_large	1978	1978	1
NCA	Trinity	1977	2009	29
NCA	Trinity_large	1977	2009	36
SOR	Chetco	1978	2006	25
COR	Elk	1977	2009	33
NOR	Salmon(OR)	1977	2009	31
LCOL	Abernathy	1977	1995	11
LCOL	Big Creek_large	1982	2004	18
LCOL	Big Creek_small	1977	2009	32
LCOL	Bonneville_large	1986	1992	4
LCOL	Bonneville_small	1977	2009	23
LCOL	Cowlitz_large	1981	1984	4
LCOL	Cowlitz_small	1977	2009	24
LCOL	Elochoman_small	1977	2007	22
LCOL	Fallert	1979	2009	19
LCOL	Grays_large	1984	1996	6
LCOL	Grays_small	1977	1995	14
LCOL	Kalama	1977	2009	24
LCOL	Klaskanine_large	1984	2009	12
LCOL	Klaskanine_small	1978	2009	13
LCOL	Spring Creek_LCOL	1983	1999	3
LCOL	Stayton	1978	1994	14
LCOL	Toutle	1977	2009	19
LCOL	Washougal	1977	2009	26
LCOL	Youngs Bay	1989	2009	15
MCOL	Klickitat_small	1997	2000	4
MCOL	Spring Creek	1977	2009	31

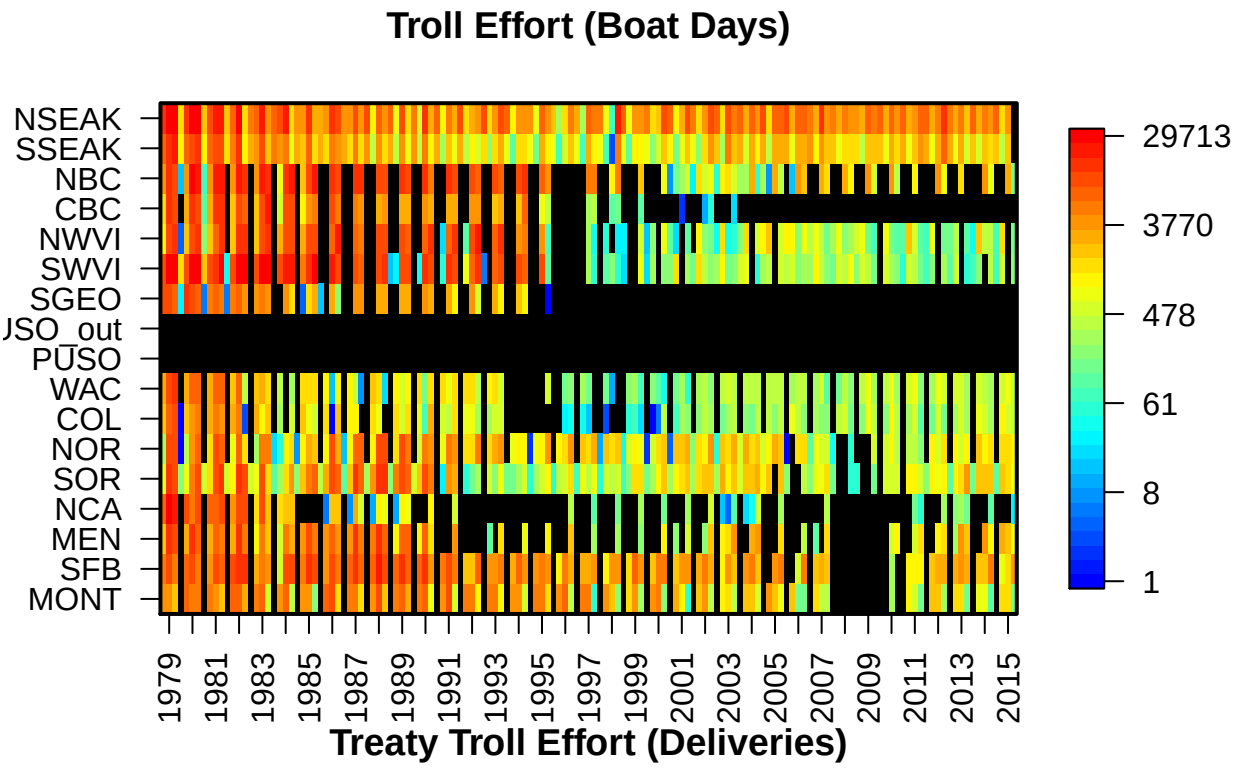
origin.region	ID	first_brood	last_brood	n_brood
MCOL	Spring Creek_?	1984	1987	3
MCOL	White_salmon_small	1977	2009	15
UCOL	Bright_Yakima	1987	1994	4
UCOL	Bright_Yakima2	1983	1985	3
UCOL	Klickitat_small_Priest	1994	2004	10
UCOL	Priest	1977	2009	33
UCOL	Prosser	2003	2009	7
UCOL	Ringold	1977	2009	16
UCOL	Turtle_large	1982	1993	11
UCOL	Turtle_small	1992	1993	2
SNAK	Hagerman	1978	1984	6
SNAK	Lyons_large	1993	2008	19
SNAK	Lyons_small	1998	2009	9
SNAK	Oxbow	2003	2009	7
URB	Bonneville_late	1979	2009	28
URB	Bonneville_late_large	1977	1987	9
URB	Clearwater_late_large	1995	2008	10
URB	Clearwater_late_small	1995	2009	7
URB	Irrigon_large	1988	1989	2
URB	Irrigon_small	1985	1990	6
URB	Klickitat_late_small	2008	2009	2
URB	Lyons_late_large	1983	1992	9
URB	Lyons_late_small	1984	1992	8
URB	NPT	2005	2009	5
URB	Umatilla_large	1995	2008	5
URB	Umatilla_small	1993	2009	16
URB	Upper_Snake_late_large	1994	2008	12
URB	Upper_Snake_late_small	2005	2009	5
URB	White_salmon_late	1990	2009	16
WAC	Forks	1996	2009	11
WAC	Humptulips	1982	2006	12
WAC	Makah	1985	2009	23
WAC	Quinault	1978	1990	8
WAC	Salmon_WA	1977	1983	6
PUSO_S	Garrison-Chambers	1987	2009	12
PUSO_S	Grovers	1982	2009	27
PUSO_S	HoodCanal	1978	2009	28
PUSO_S	Issaquah	1979	2006	10
PUSO_S	Nisqually_Clear_Ck	1997	2009	12
PUSO_S	Nisqually_Kalama_Ck	1984	2009	18
PUSO_S	Soos	1978	2009	25
PUSO_N	Elwha	1978	1994	15
PUSO_N	Samish	1979	2009	25
PUSO_N	Skagit	2000	2008	9
PUSO_N	Snohomish-Bernie	1986	2003	11
SGEO_S	Chehalis	1982	2009	27
SGEO_S	Chilliwack	1981	2009	28
SGEO_S	Cowichan	1979	2009	28
SGEO_S	Nanaimo	1980	2004	16
SGEO_S	Puntledge	1977	2009	29
SGEO_N	Big Qualicum	1977	2009	33
SGEO_N	Quinsam	1977	2009	33

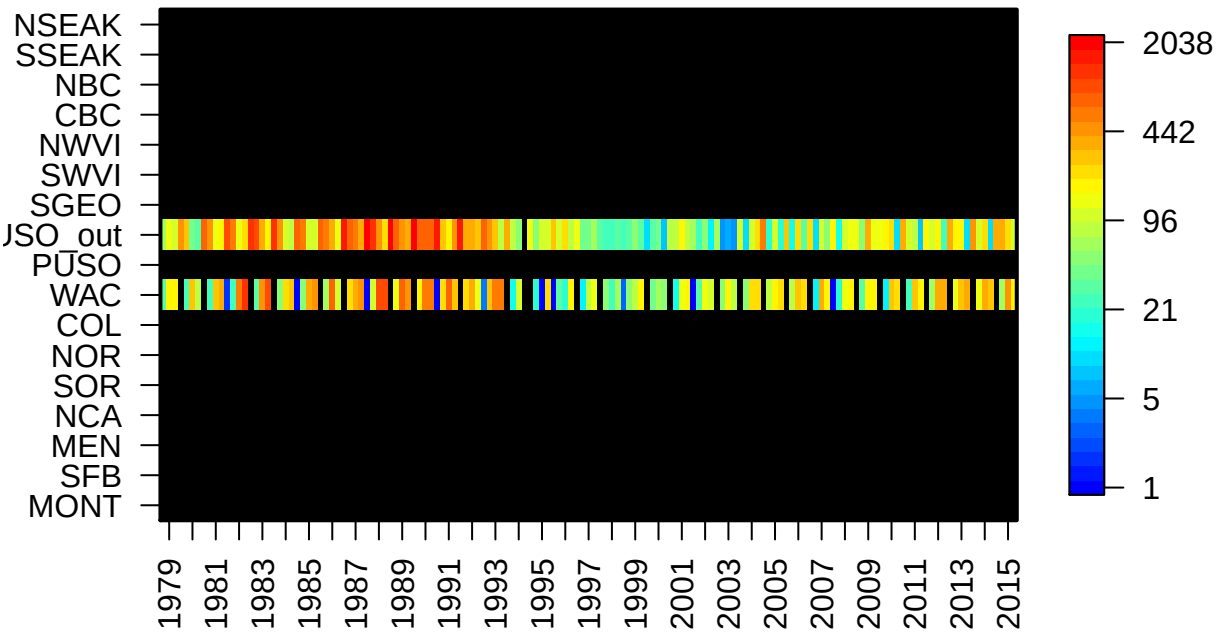
origin.region	ID	first_brood	last_brood	n_brood
SWVI	Conuma	1979	2002	21
SWVI	Nitinat	1980	2002	23
SWVI	Robertson	1977	2009	33
TOTAL	NA	NA	NA	1483

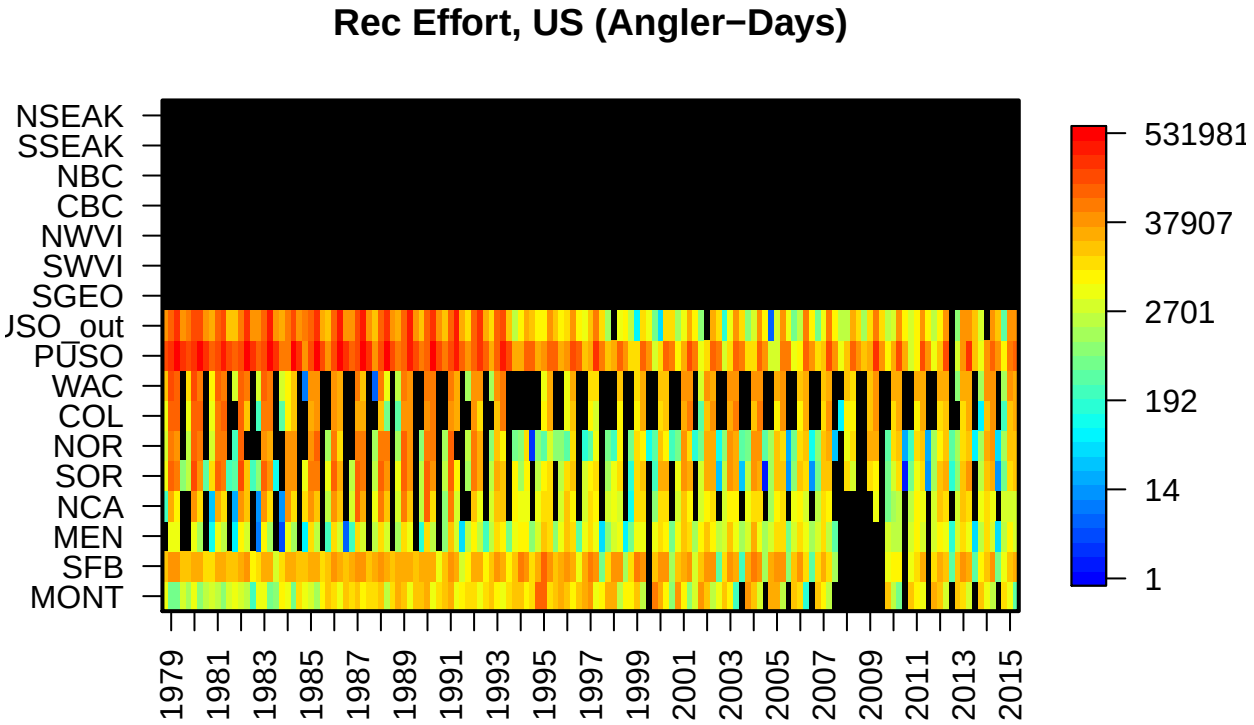
Here is a tabular summary of the releases from each region. Total CWT released = 361,197,267

origin.region	N.release.groups	N.year	avg.release	tot.released
SFB	121	33	785,008	94,986,019
NCA	127	33	219,250	27,844,688
SOR	25	25	49,248	1,231,194
COR	33	33	152,380	5,028,556
NOR	31	31	154,725	4,796,471
LCOL	303	33	171,626	52,002,751
MCOL	53	33	409,419	21,699,205
UCOL	86	33	259,493	22,316,375
SNAK	41	23	257,925	10,574,942
URB	140	33	239,376	33,512,608
WAC	60	32	180,095	10,805,697
PUSO_S	132	32	180,669	23,848,326
PUSO_N	60	32	176,845	10,610,709
SGEO_S	128	33	118,685	15,191,733
SGEO_N	66	33	223,111	14,725,308
SWVI	77	33	156,139	12,022,685

Here are some plots of fishing effort from the available fleets. x-axis in model seasons, y-axis is spatial boxes. Color is on the log-scale. Black can indicate either a true zero (most troll data) or no data (generally rec fisheries, generally in Canada and Alaska) in these plots.






Rec Effort, US (Angler−Days)
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
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2001
2003
2005
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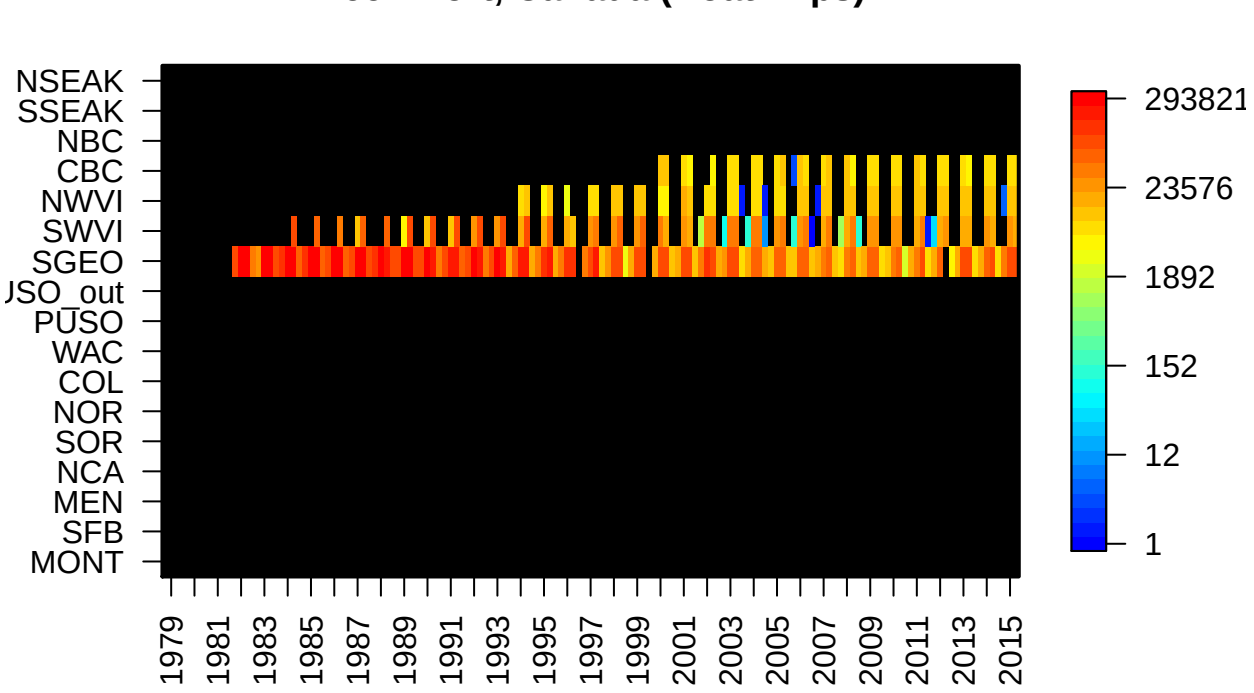
2009
2011
2013
2015
531981
37907
2701
192
14
1


Rec Effort, Canada (Boat Trips)
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
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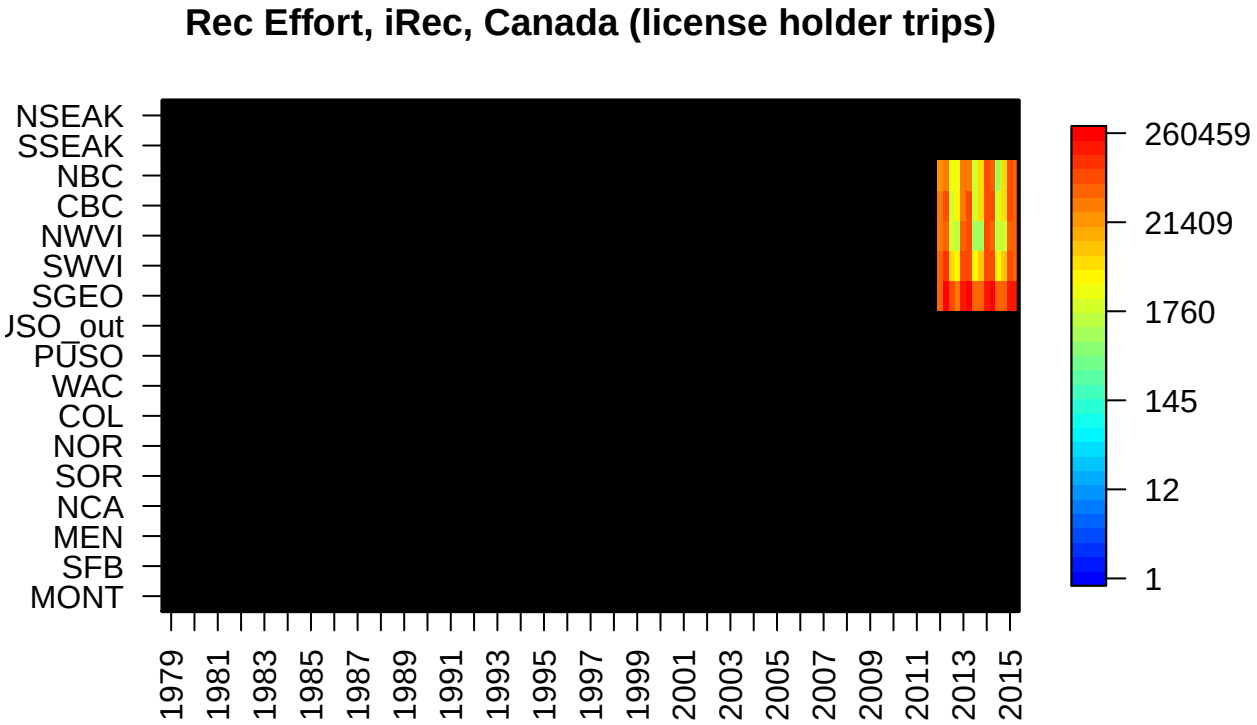
2011
2013
2015
293821
23576
1892
152
12
1


Rec Effort, iRec, Canada (license holder trips)
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
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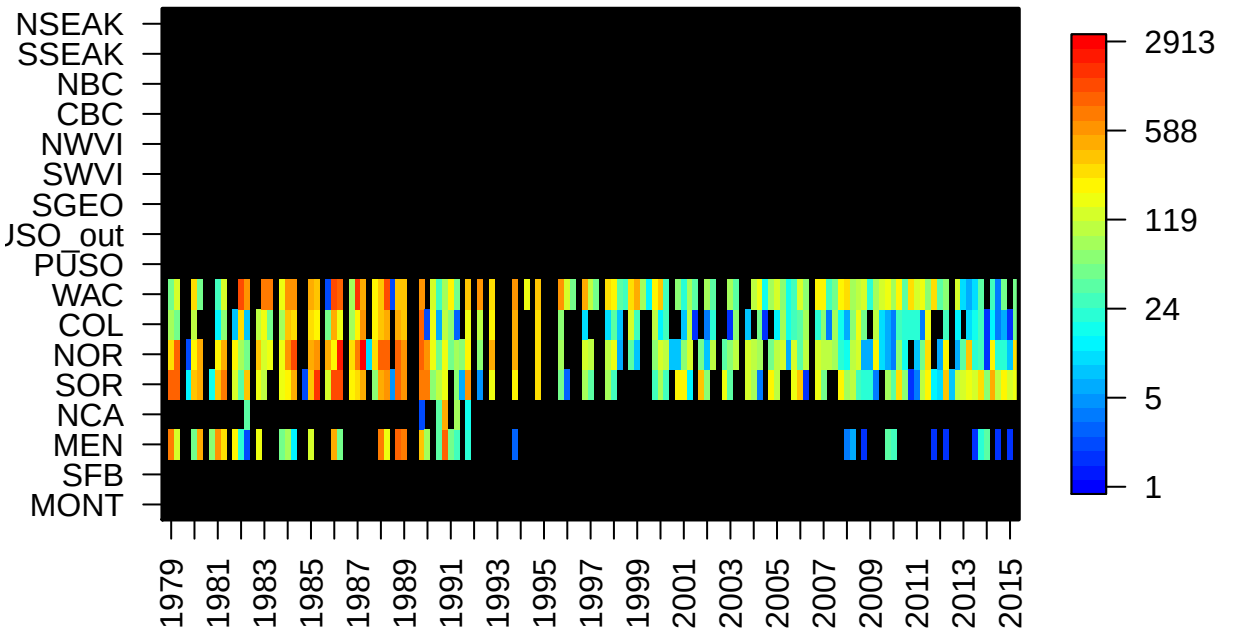
2011
2013
2015
260459
21409
1760
145
12
1


Trawl hake ASHOP Effort (Boat Days)
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
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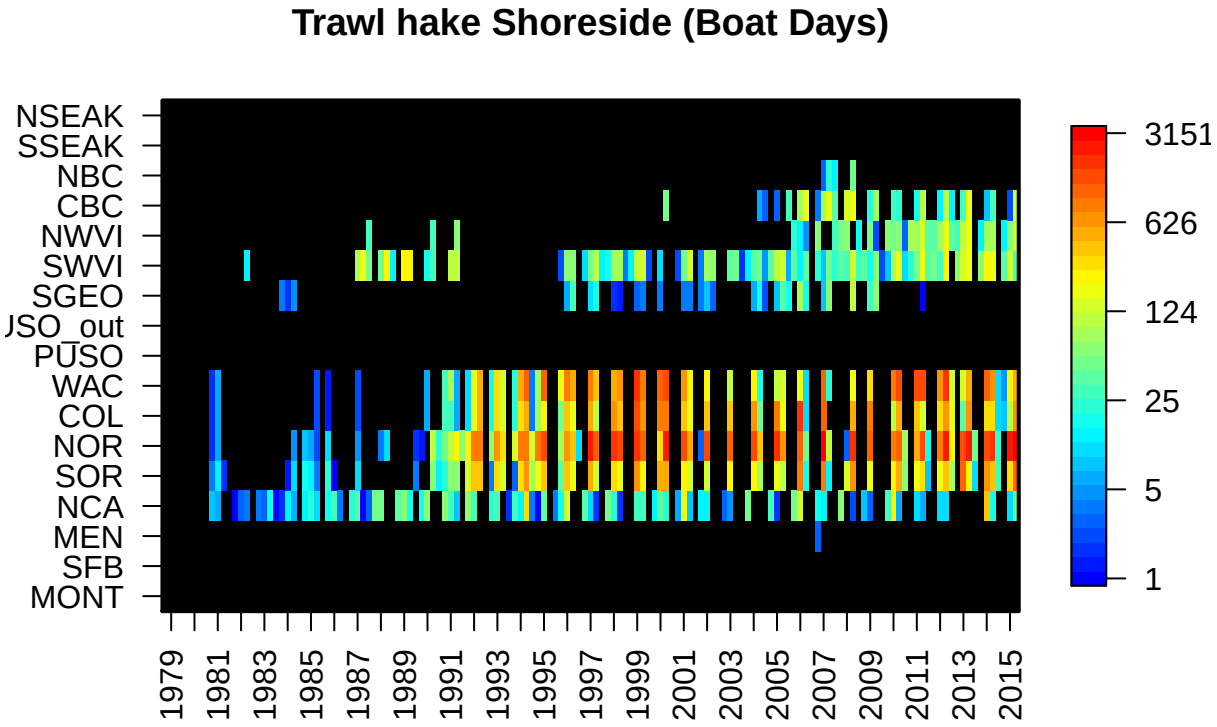
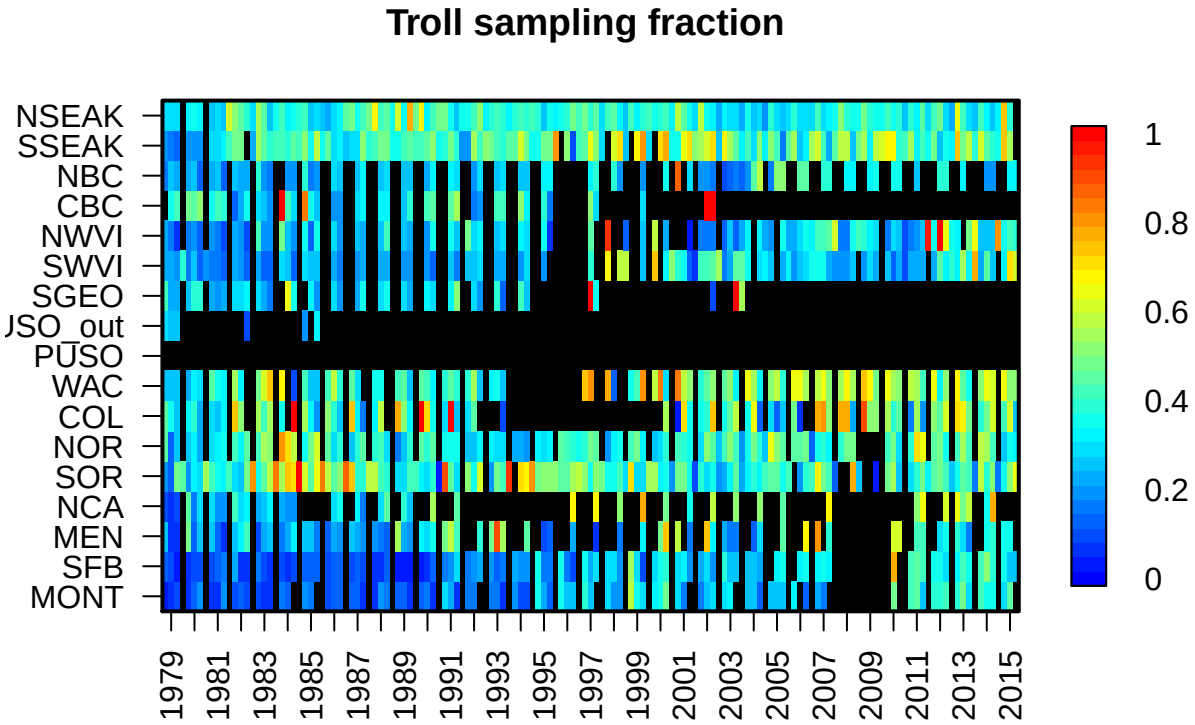
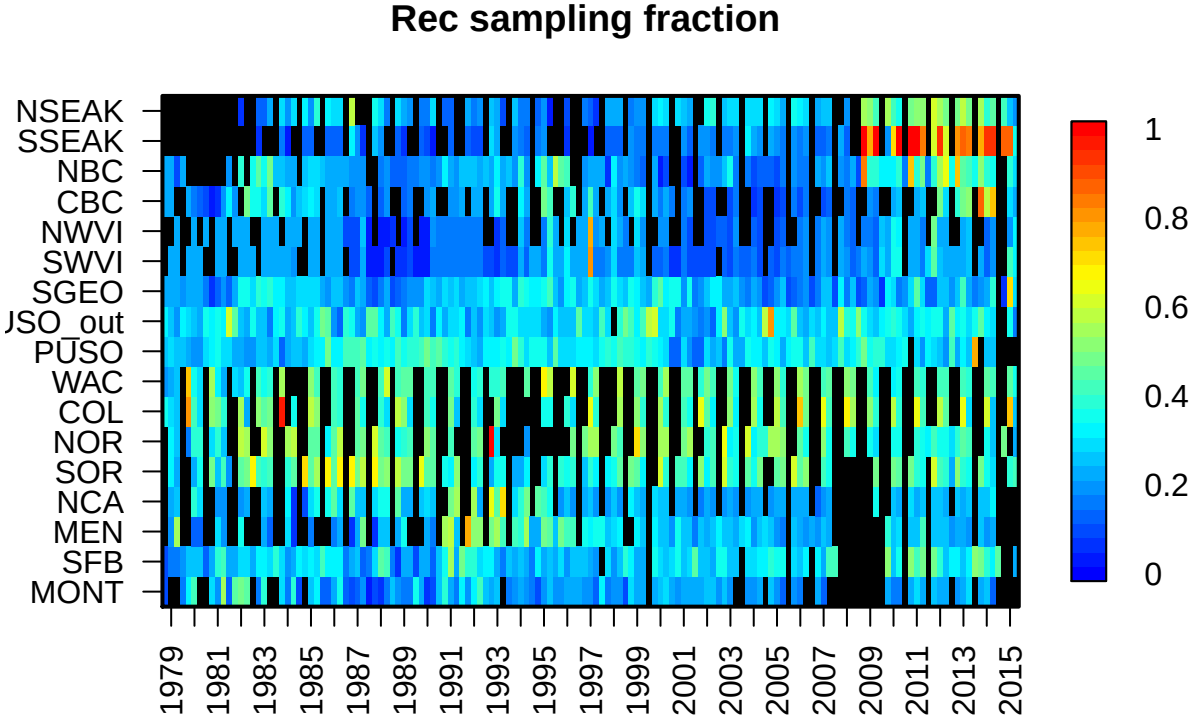
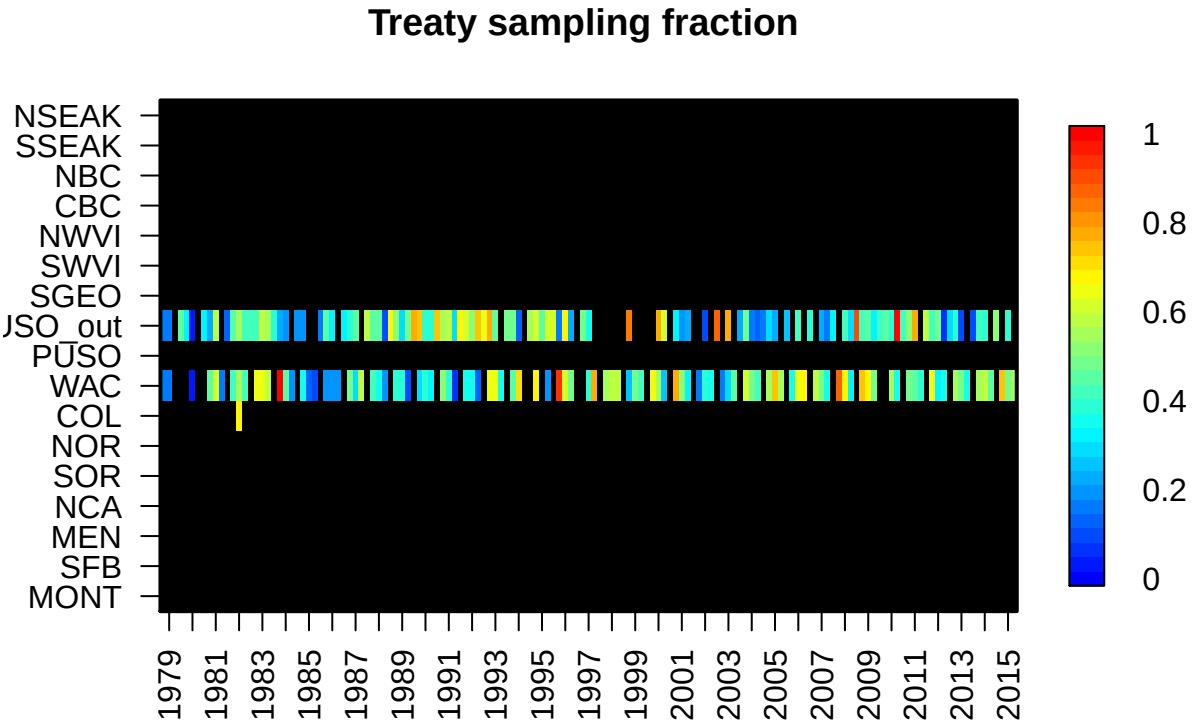
2011
2013
2015
2913
588
119
24
5
1


Trawl hake Shoreside (Boat Days)
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
3151
626
124
25
5
1

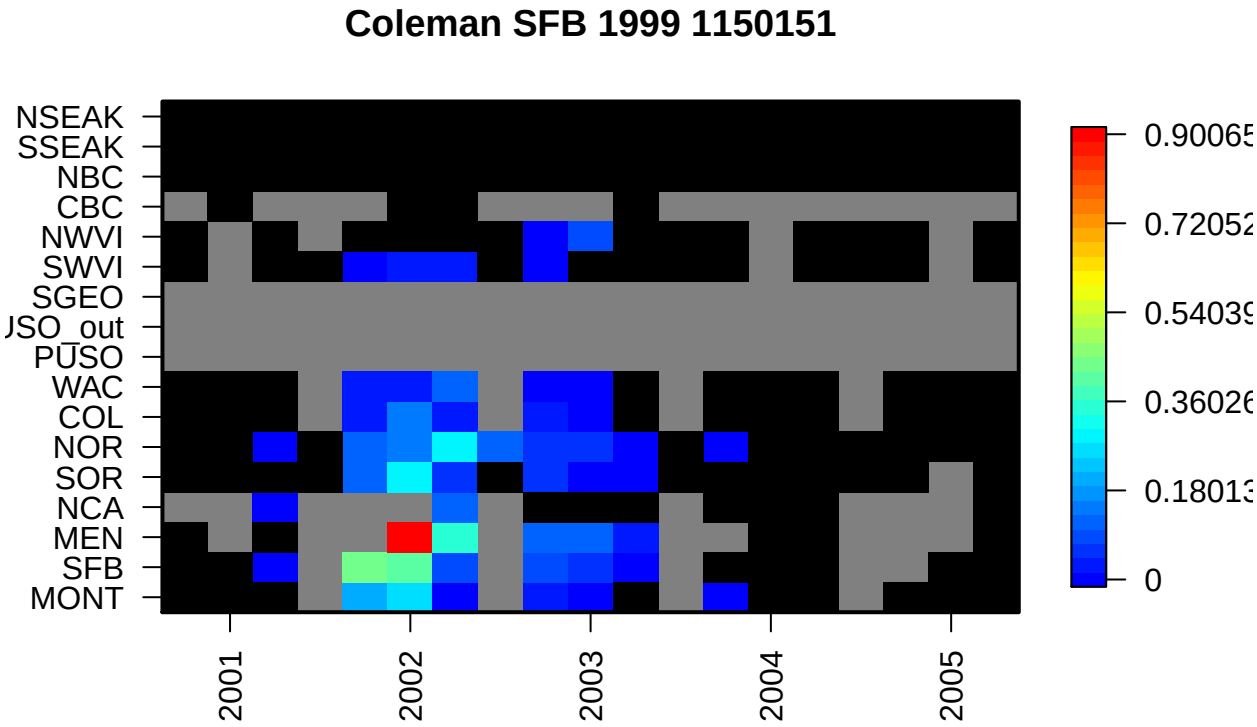
Here are some plots of the median sampling effort associated with each fleet. This is the raw data. There is some additional interpolation that occurs for some of the black boxes. Units are in the title.

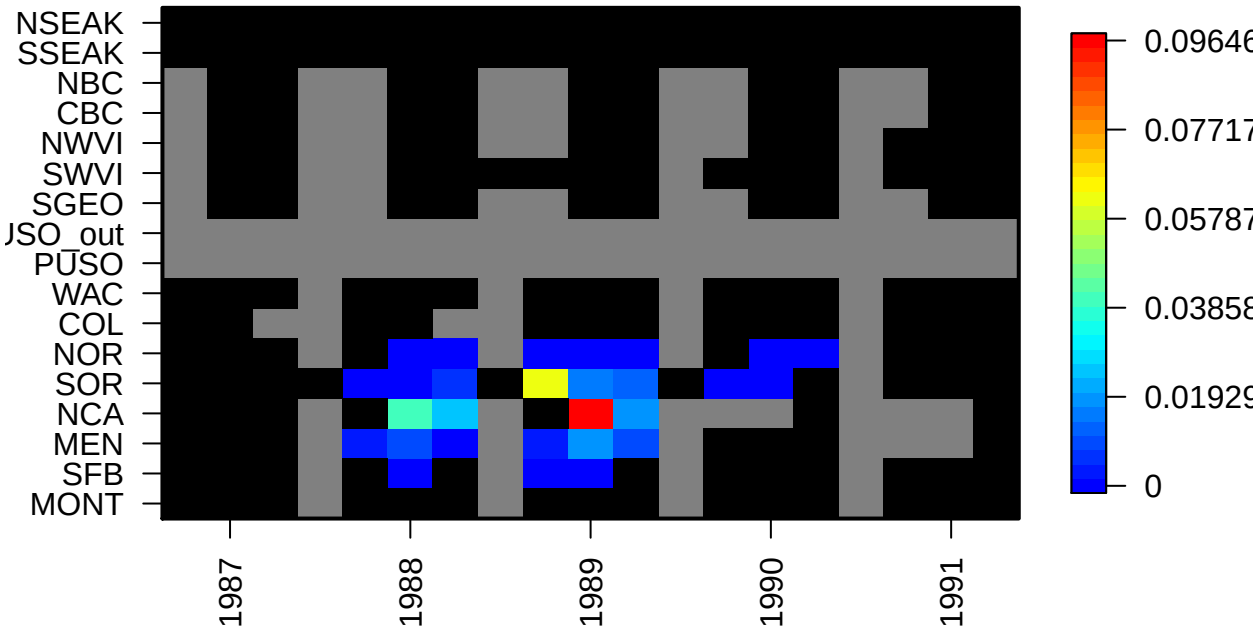


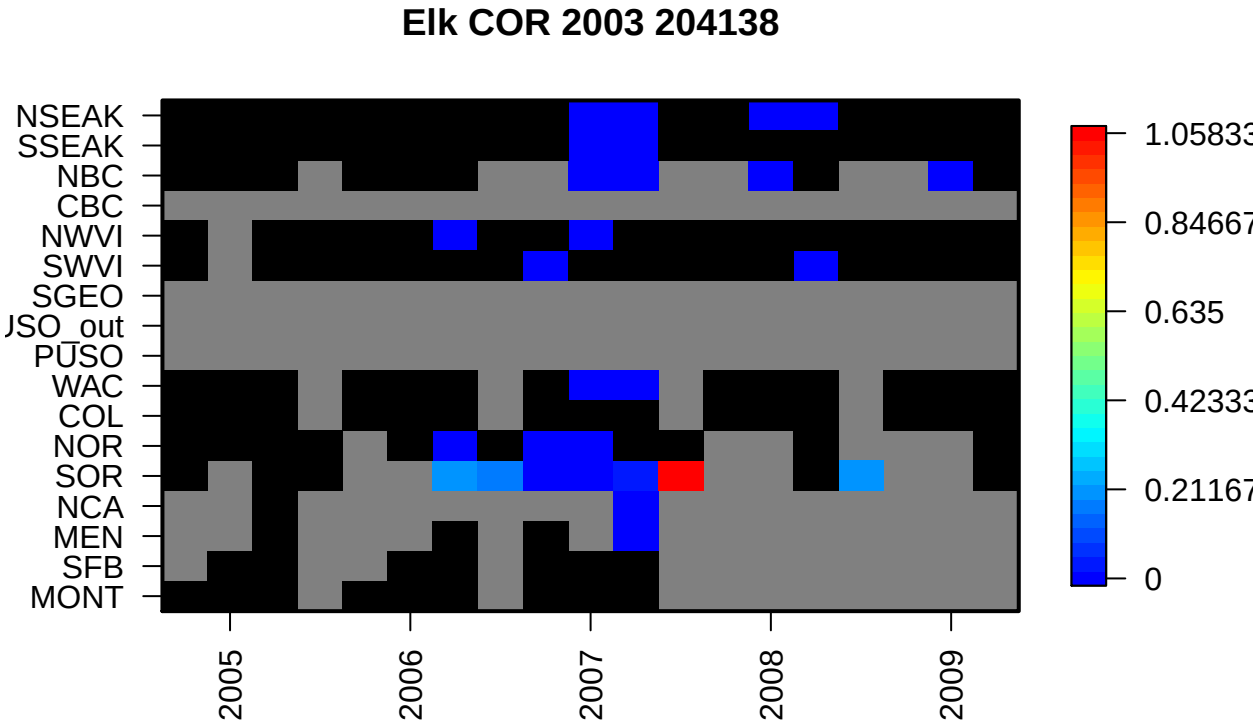


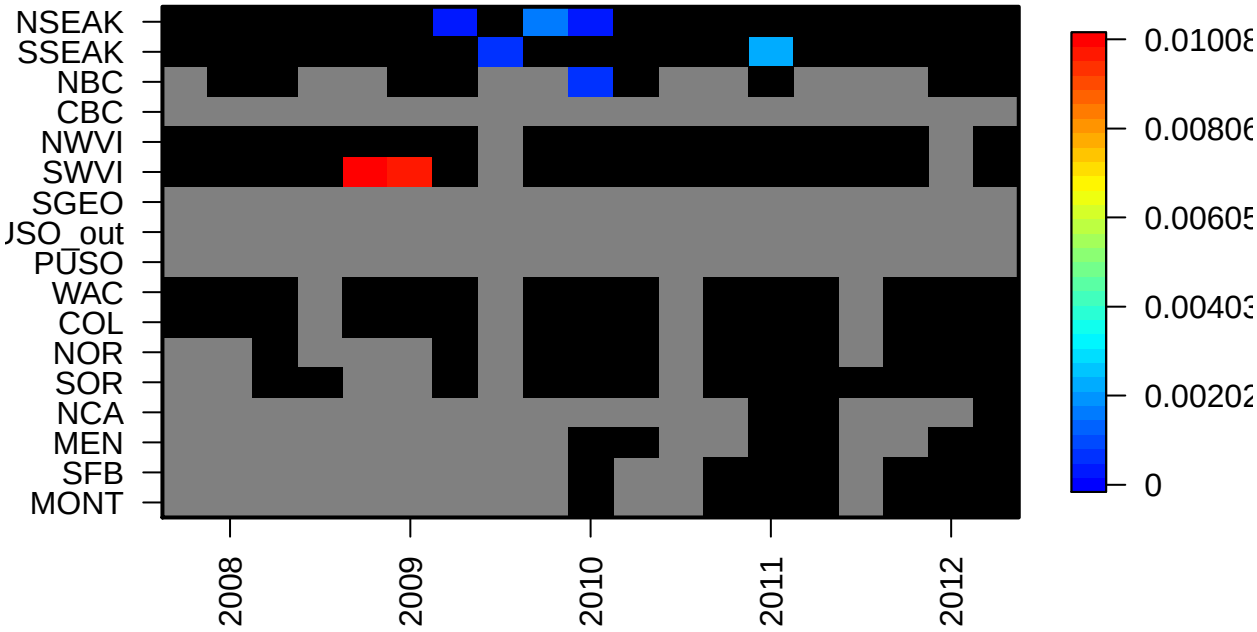

Treaty sampling fraction
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
1
0.8
0.6
0.4
0.2
0

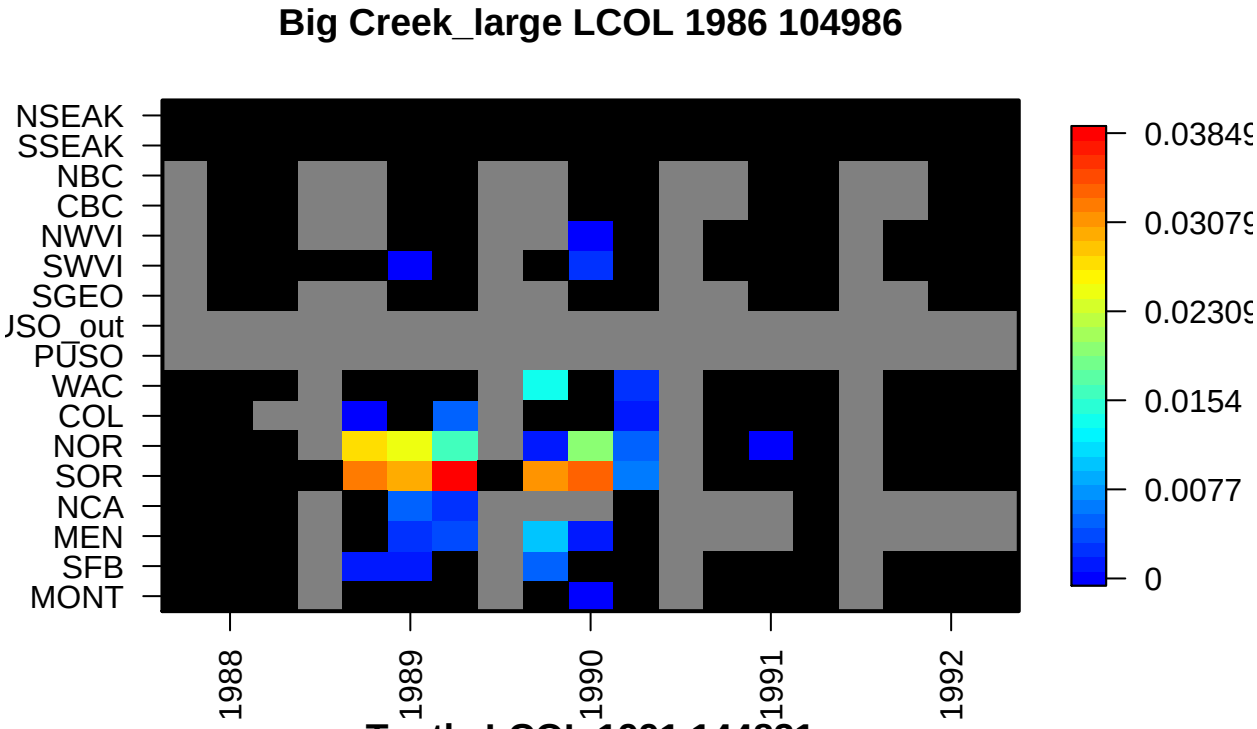
Here are few representative plots of CPUE from the troll fleet for individual releases. Grey means no observed effort. Black means no observed catch but non-zero effort. White means observed catch but no known effort (rare). Colors are non-zero CPUE. Not that the color scale varies among panels. Each y-axis starts in summer (May-June) and procedes through the 18 steps of the model.

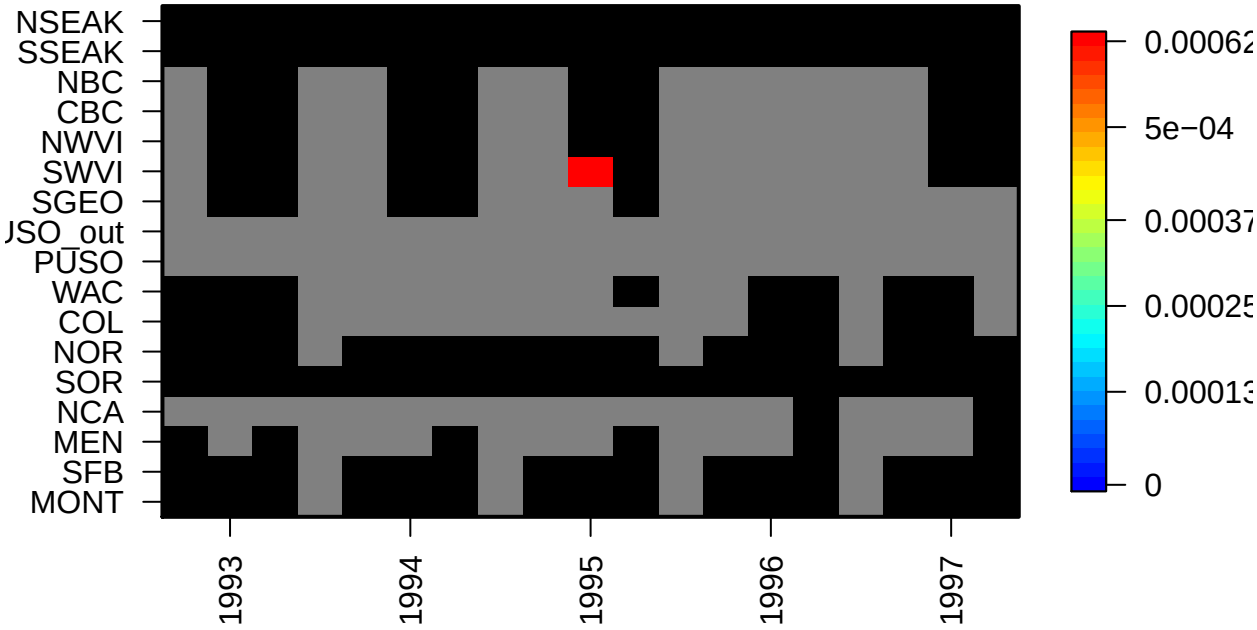


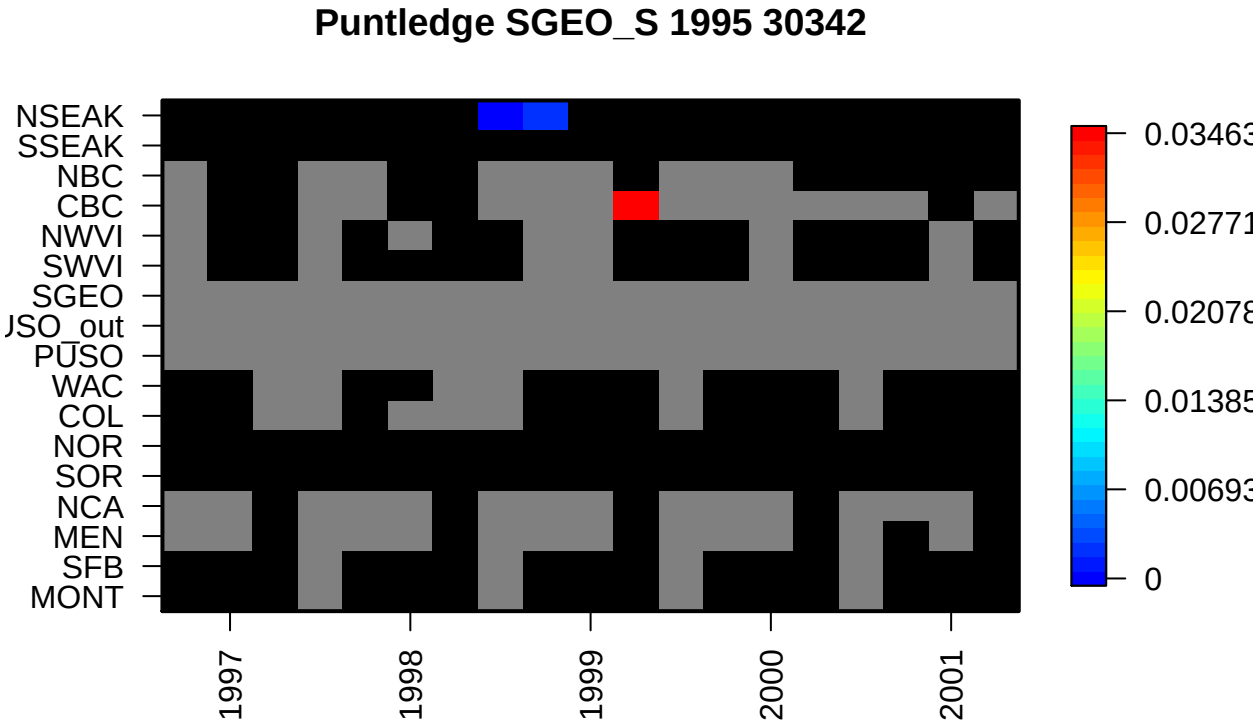


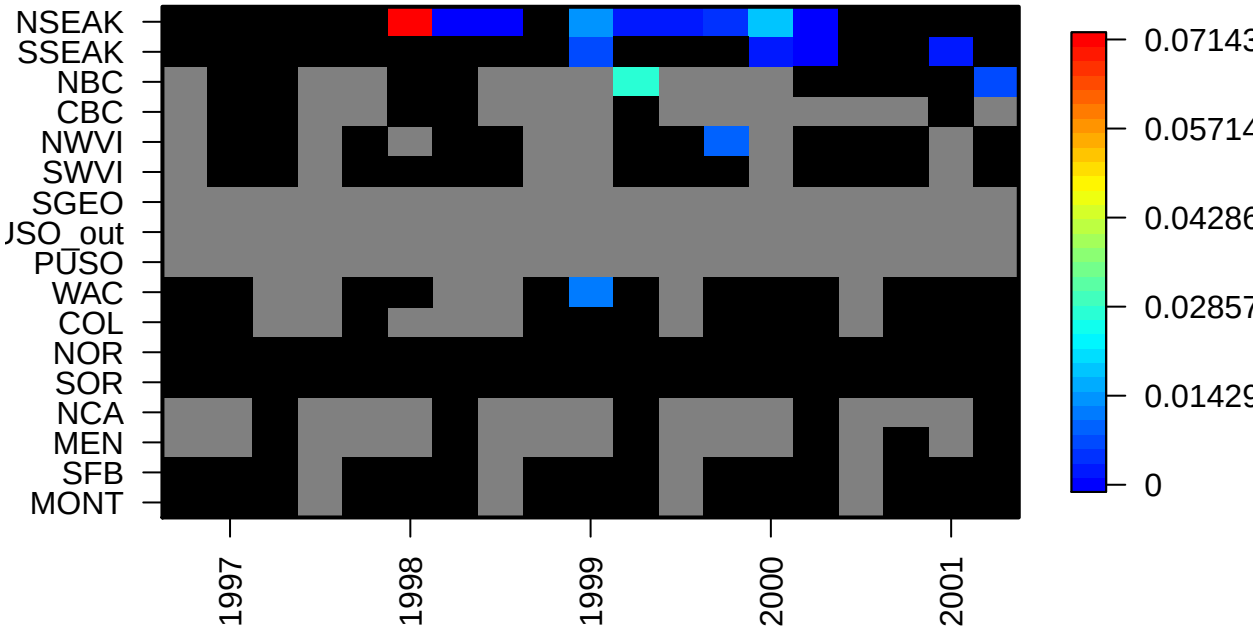

Elk COR 2003 204138
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
2005
2006
2007
2008
2009
1.05833
0.84667
0.635
0.42333
0.21167
0

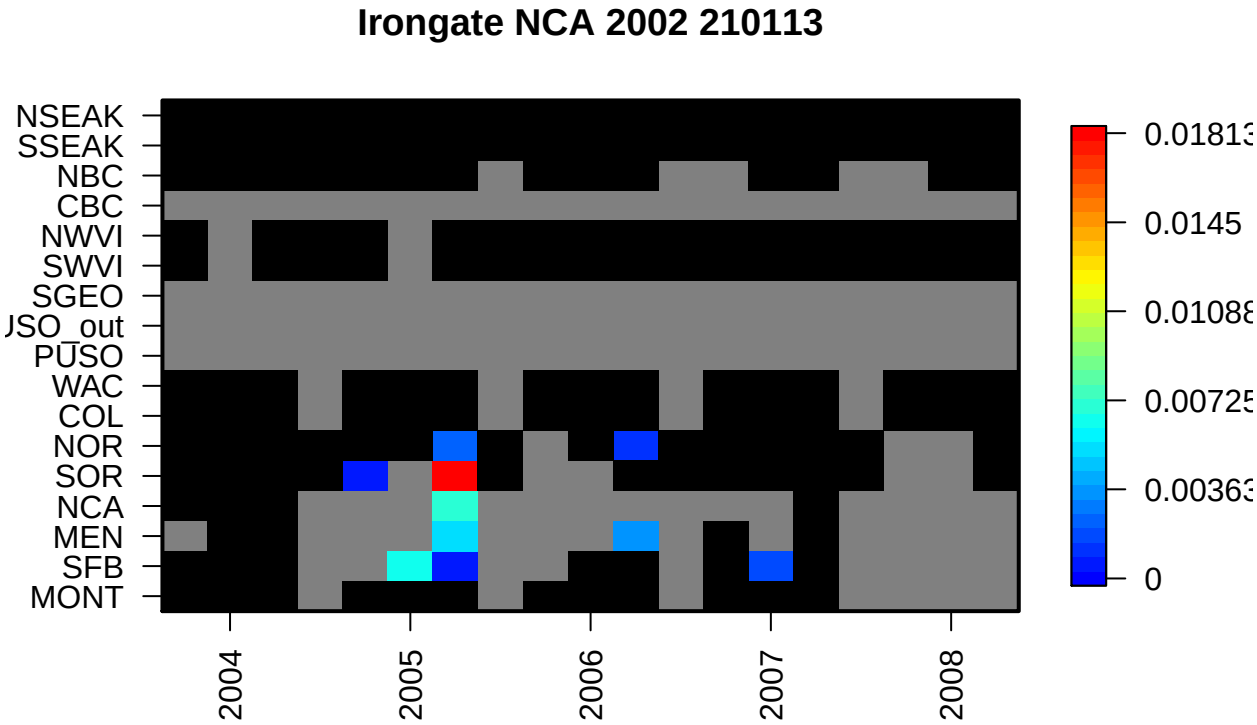

Skagit PUSO_N 2006 161018
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
2008
2009
2010
2011
2012
0.01008
0.00806
0.00605
0.00403
0.00202
0


Big Creek_large LCOL 1986 104986
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1988
1989
1990
1991
1992
0.03849
0.03079
0.02309
0.0154
0.0077
0


Toutle LCOL 1991 144831
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1993
1994
1995
1996
1997
0.00062
5e−04
0.00037
0.00025
0.00013
0


Puntledge SGEO_S 1995 30342
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1997
1998
1999
2000
2001
0.03463
0.02771
0.02078
0.01385
0.00693
0


Bonneville_late URB 1995 239982
NSEAK
SSEAK
NBC
CBC
NWVI
SWVI
SGEO
JSO_out
PUSO
WAC
COL
NOR
SOR
NCA
MEN
SFB
MONT
1997
1998
1999
2000
2001
0.07143
0.05714
0.04286
0.02857
0.01429
0


Irongate NCA 2002 210113
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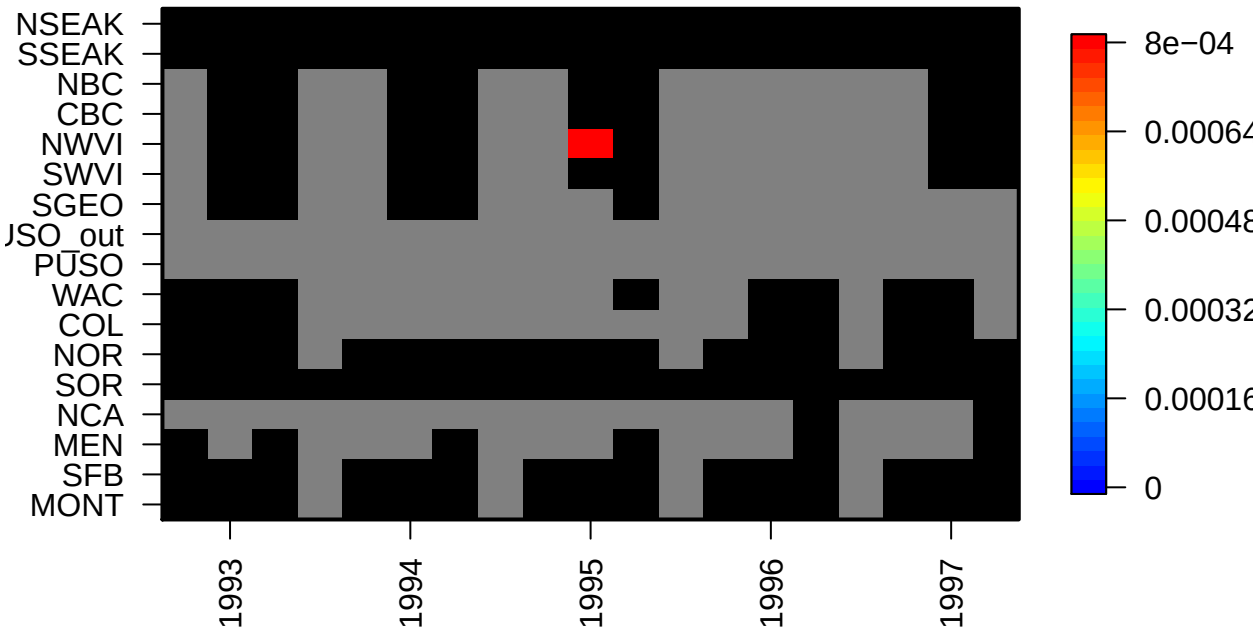
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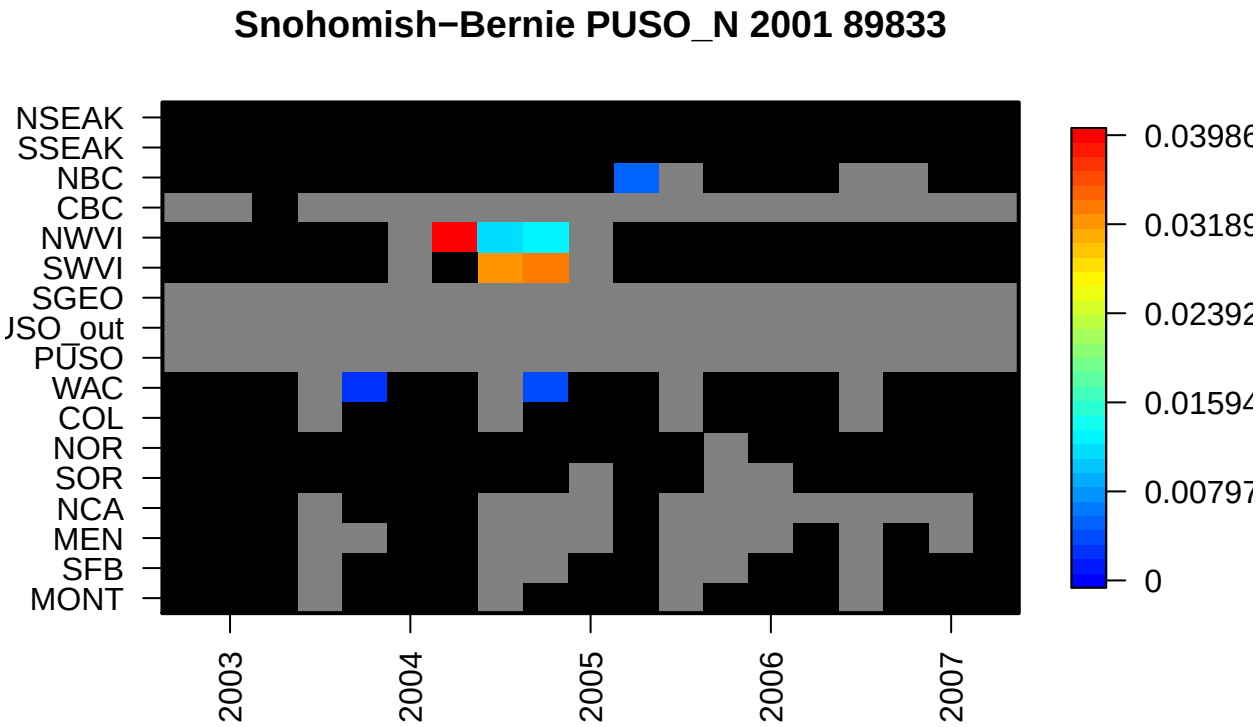
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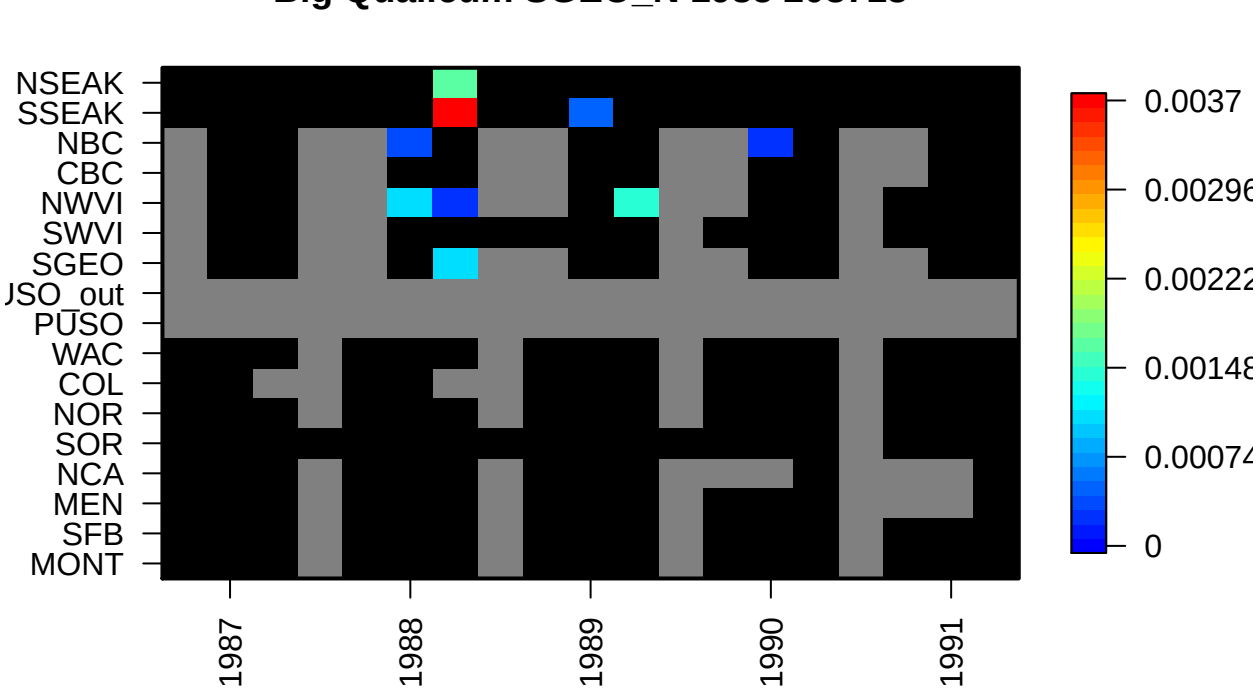
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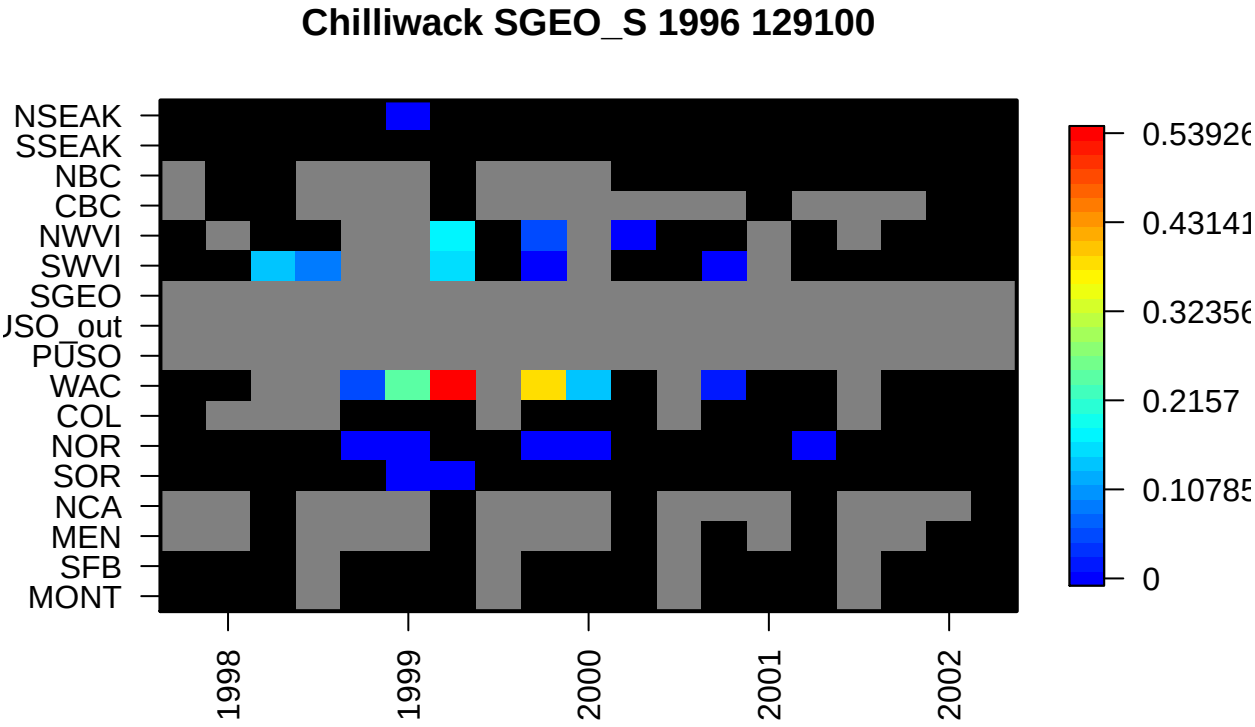
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