



MANE-VU

Mid-Atlantic Northeast Visibility Union

March 2019 AAPCA Spring Meeting

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Director, Bureau of Air Quality, Maine DEP

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Protecting Maine's Air, Land and Water

MANE-VU CLASS I AREAS



MAINE

- Acadia National Park
- Moosehorn Wilderness Area
 - Edmunds Unit
 - Baring Unit

NEW HAMPSHIRE

- Great Gulf Wilderness Area
- Presidential Range – Dry River Wilderness Area

VERMONT

- Lye Brook Wilderness

NEW JERSEY

- Brigantine Wilderness Area

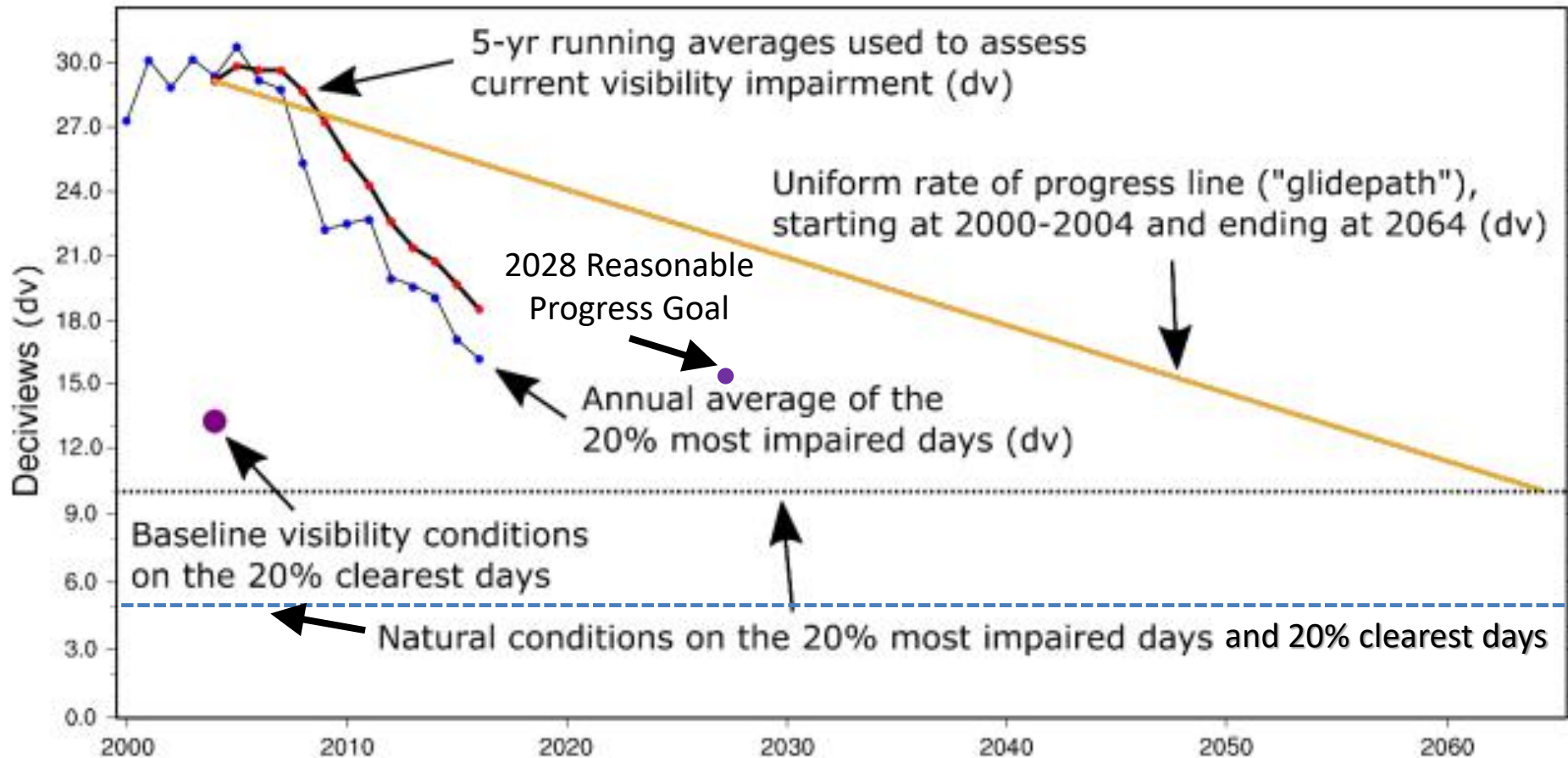
NEW BRUNSWICK CANADA

- Roosevelt Campobello International Park

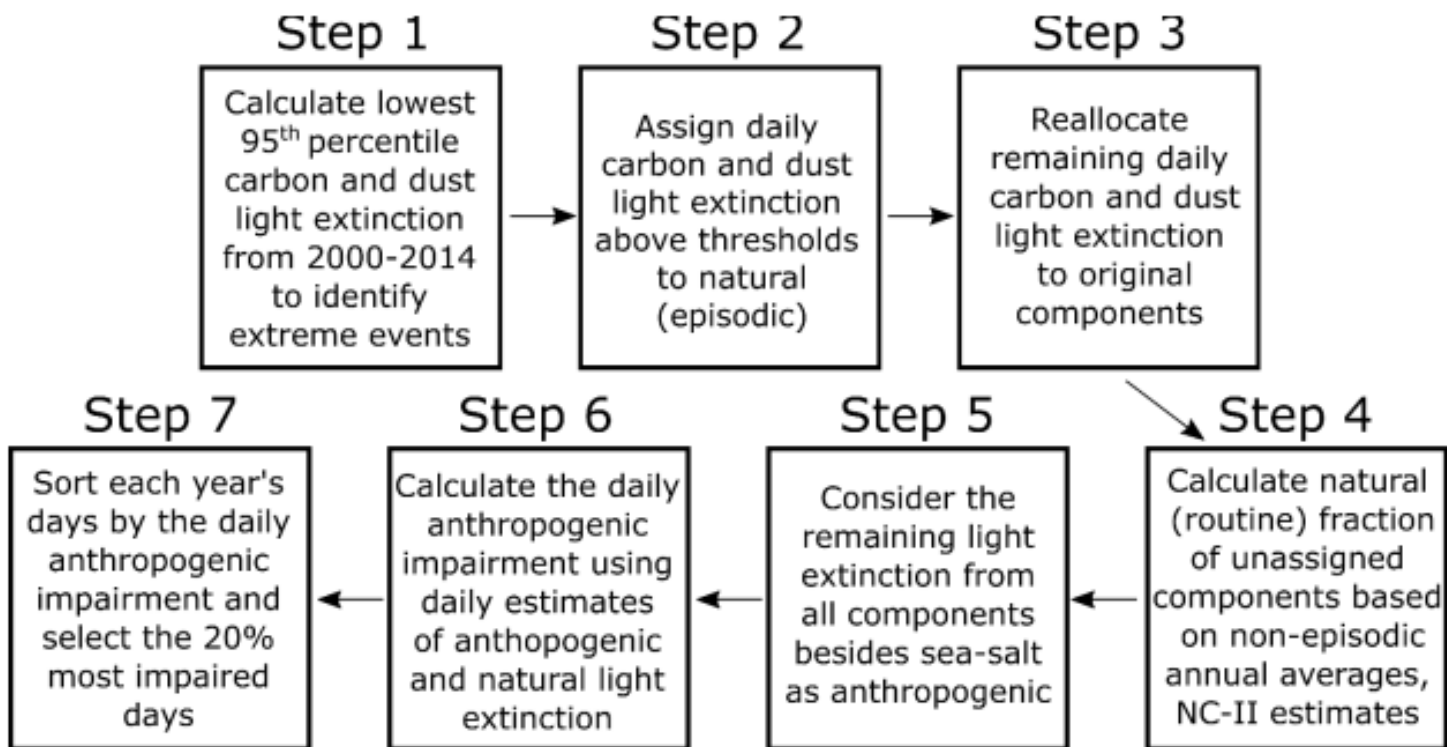
Metrics needed for 2nd Regional Haze State Implementation Plans and Trends analyses



Regional Haze Metrics



How are 20% most impaired days selected? Details for each step are in the December 20, 2018 guidance document (see link below).



Daily anthropogenic visibility impairment (deciviews (dv)) = $10 \times \ln (\text{daily total light extinction}/10) - 10 \times \ln (\text{daily natural light extinction})/10$

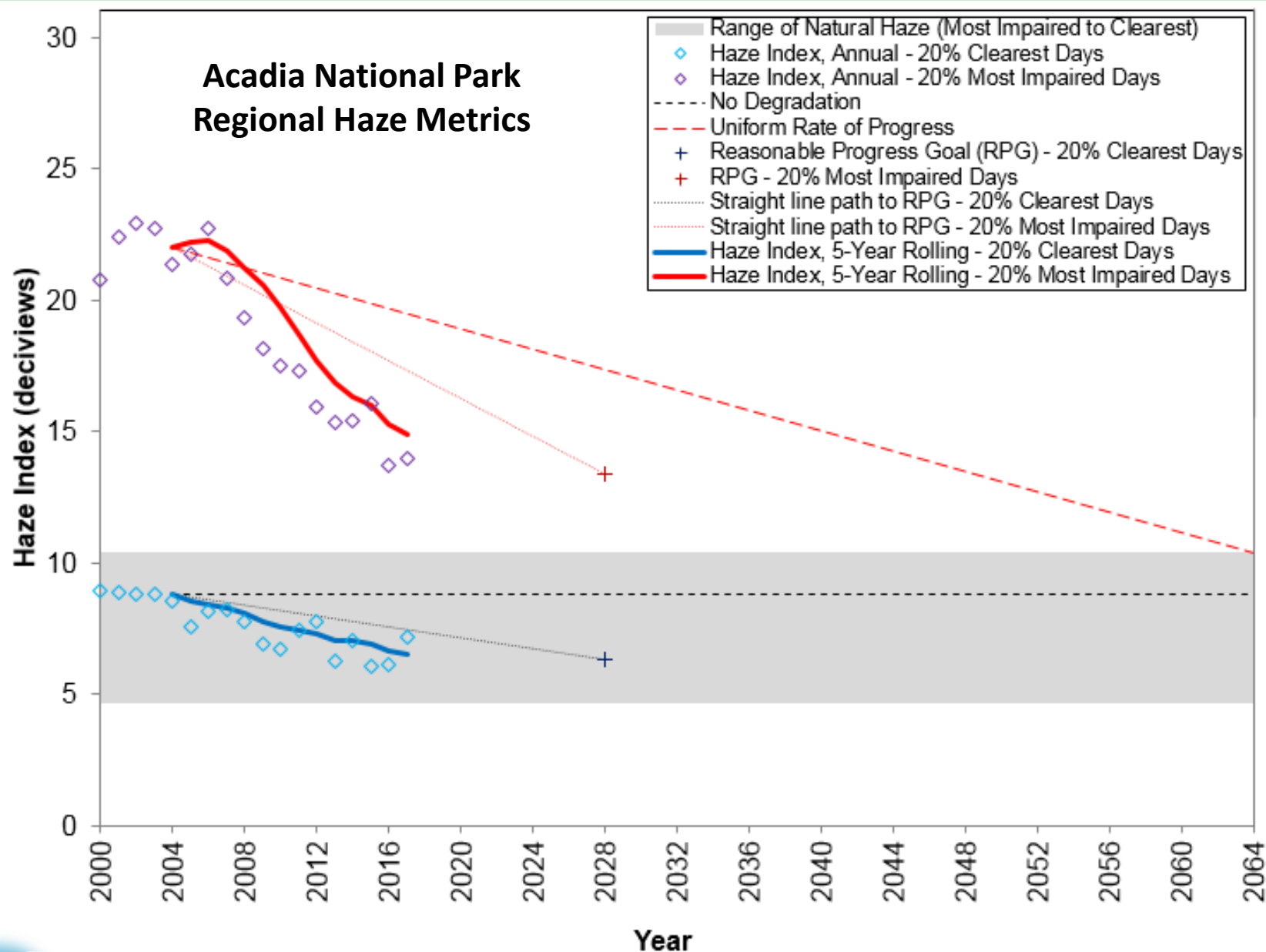
NC = natural conditions

https://www.epa.gov/sites/production/files/2018-12/documents/technical_guidance_tracking_visibility_progress.pdf

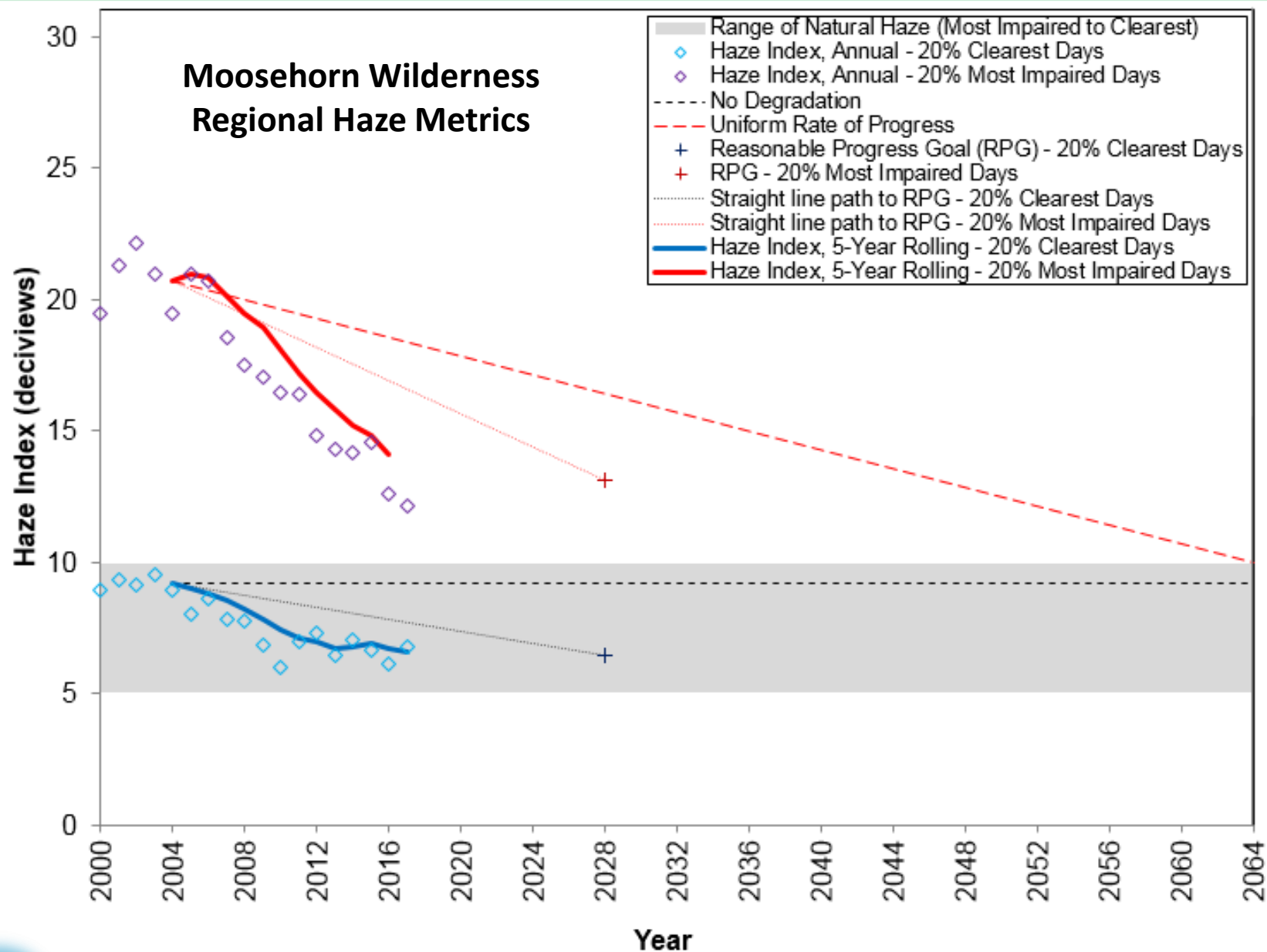
2000-2017 Regional Haze Trends



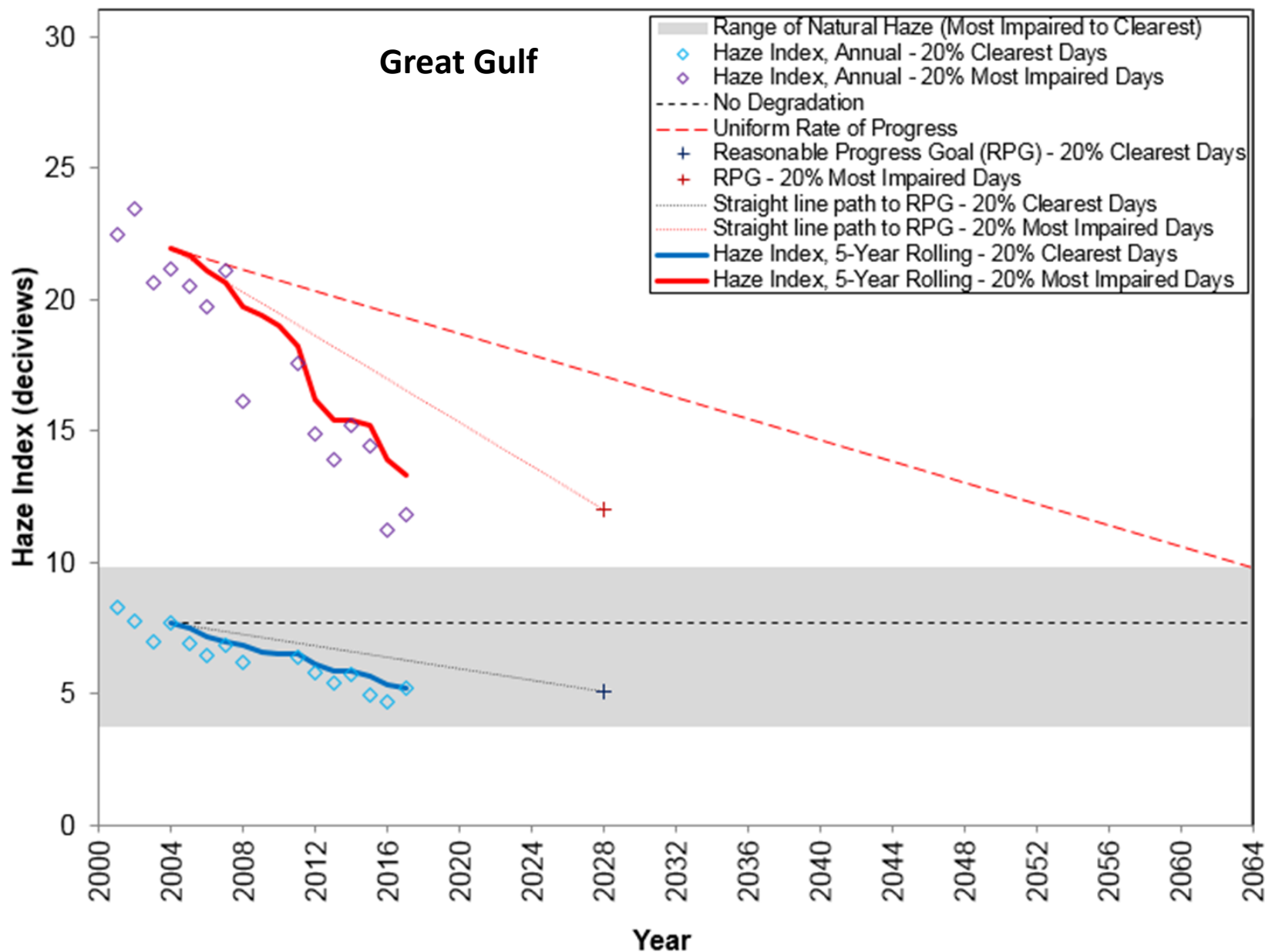
Acadia National Park Regional Haze Metrics



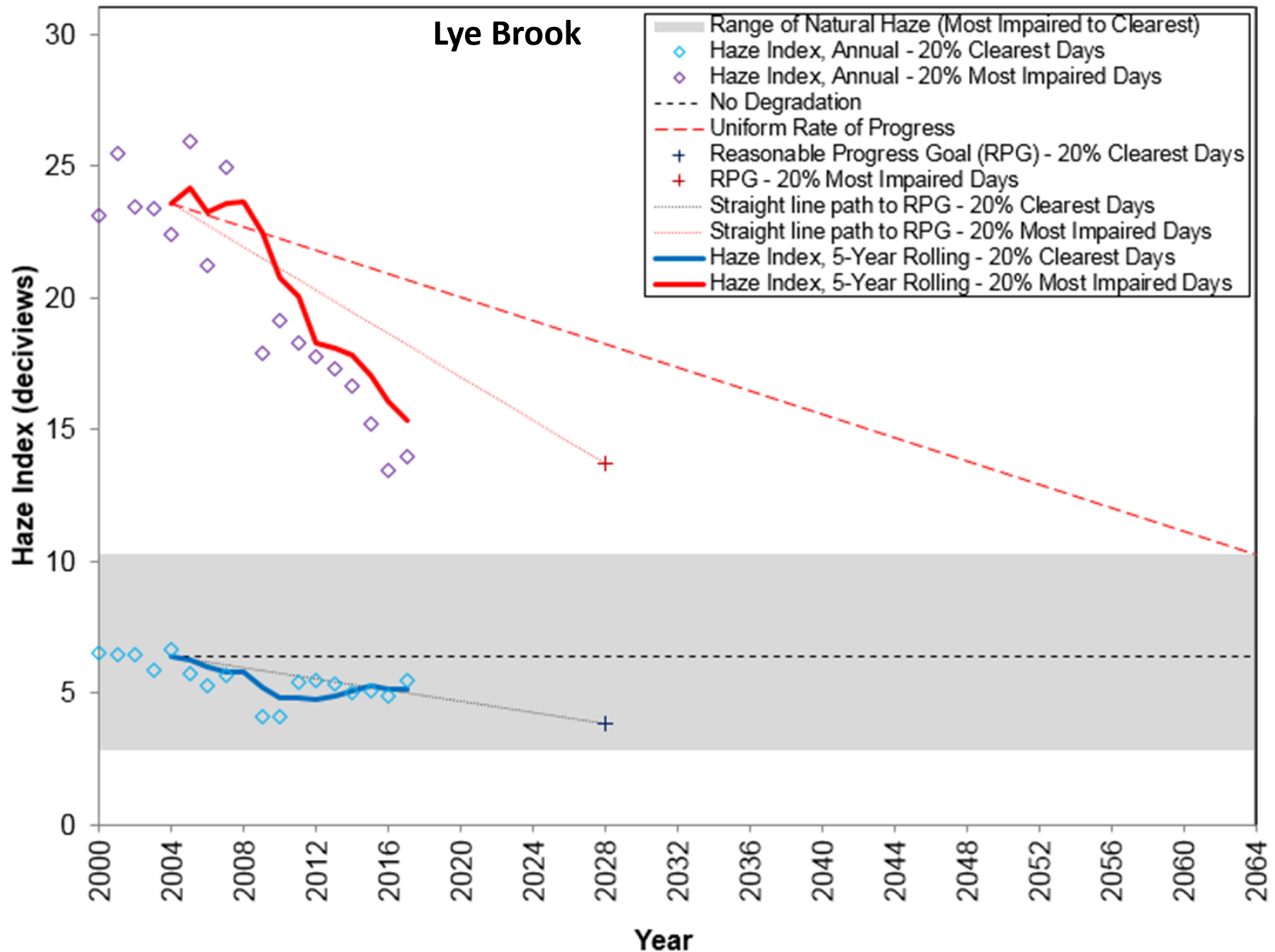
Moosehorn Wilderness Regional Haze Metrics

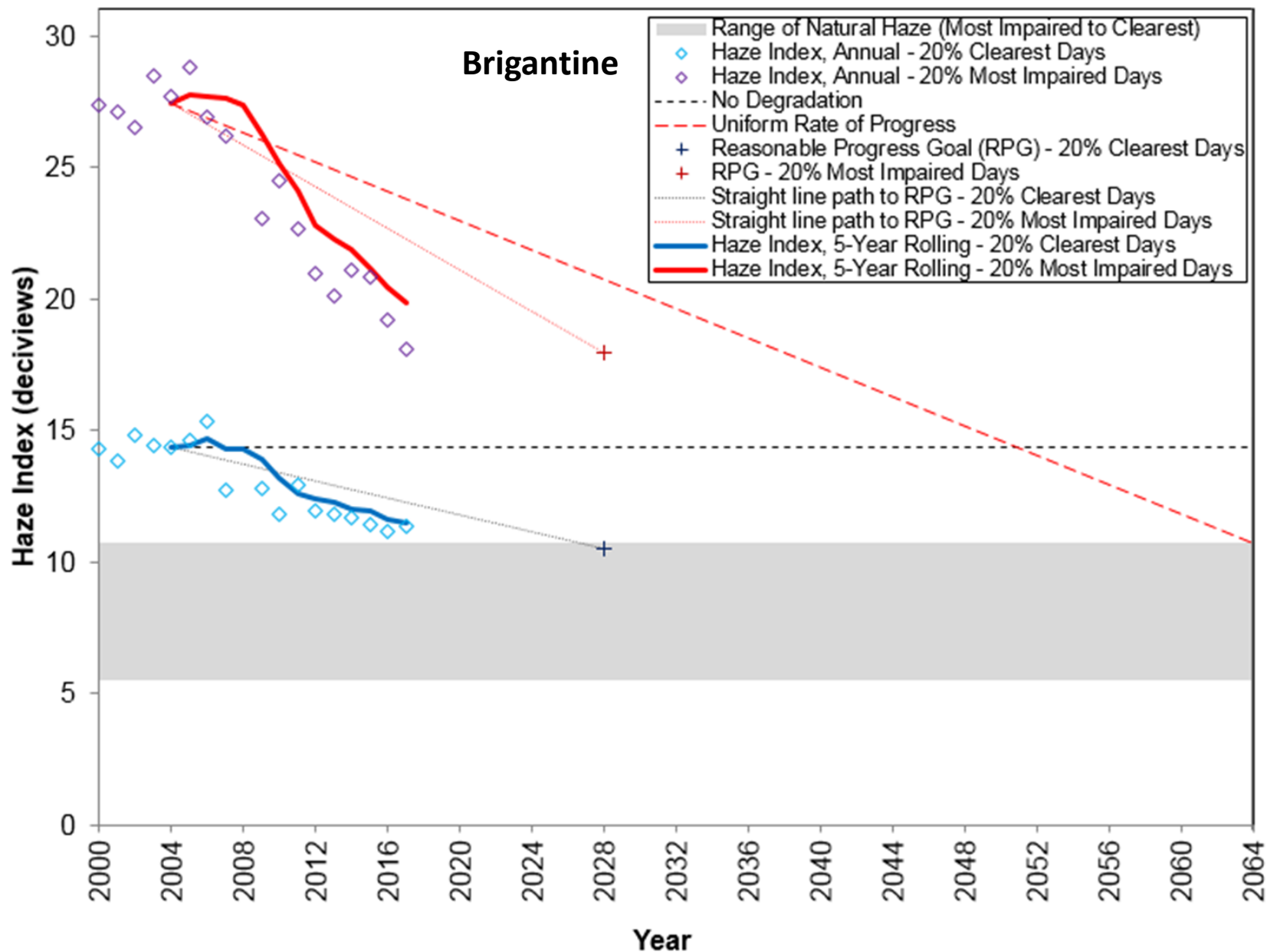


Great Gulf



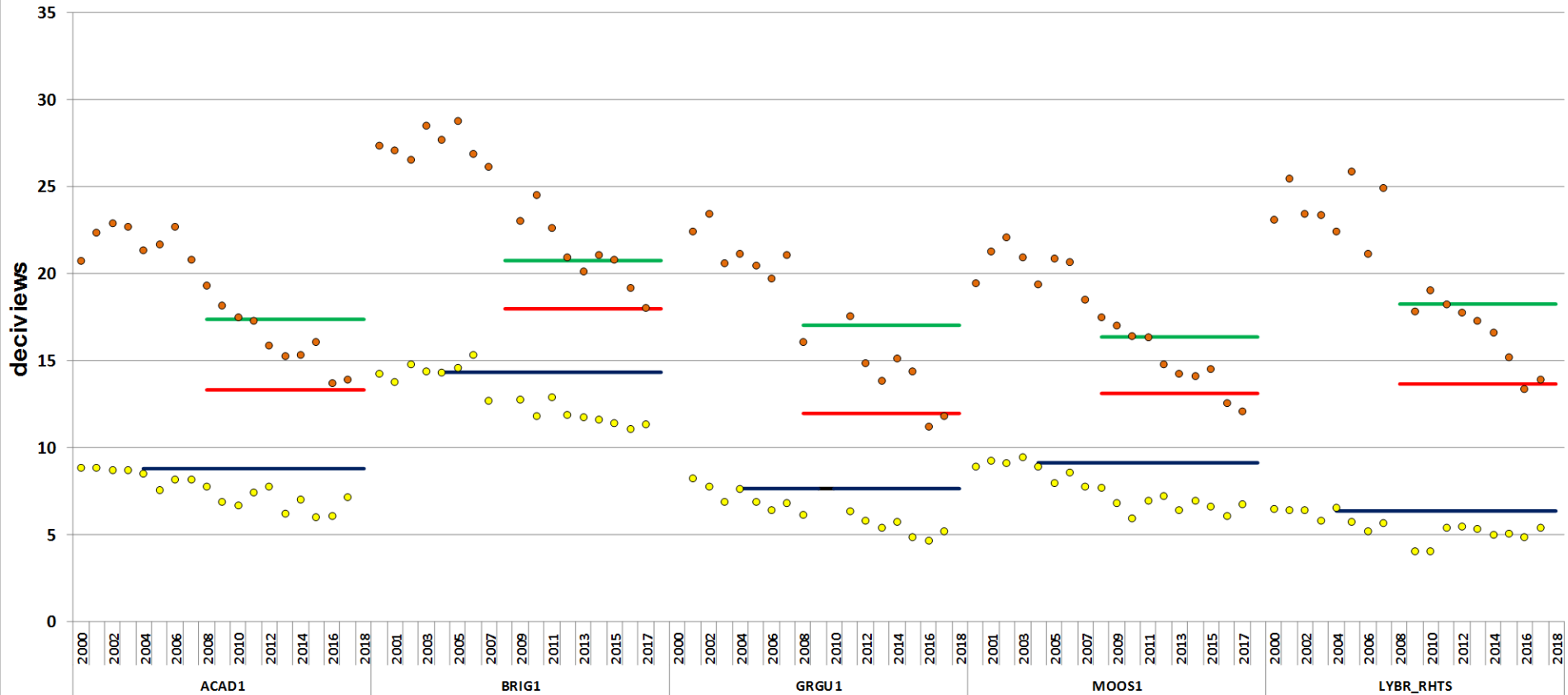
Lye Brook





20% MOST IMPAIRED DAYS METRICS / 20% CLEAREST DAYS METRICS

● 20% Most Impaired Days
 ● 20% Clearest Days
 — No Deg.
 — 2028 URP
 — 2028 RPG



**Acadia
National
Park
ME**

**Brigantine
Wilderness
NJ**

**Great Gulf
Wilderness
NH**

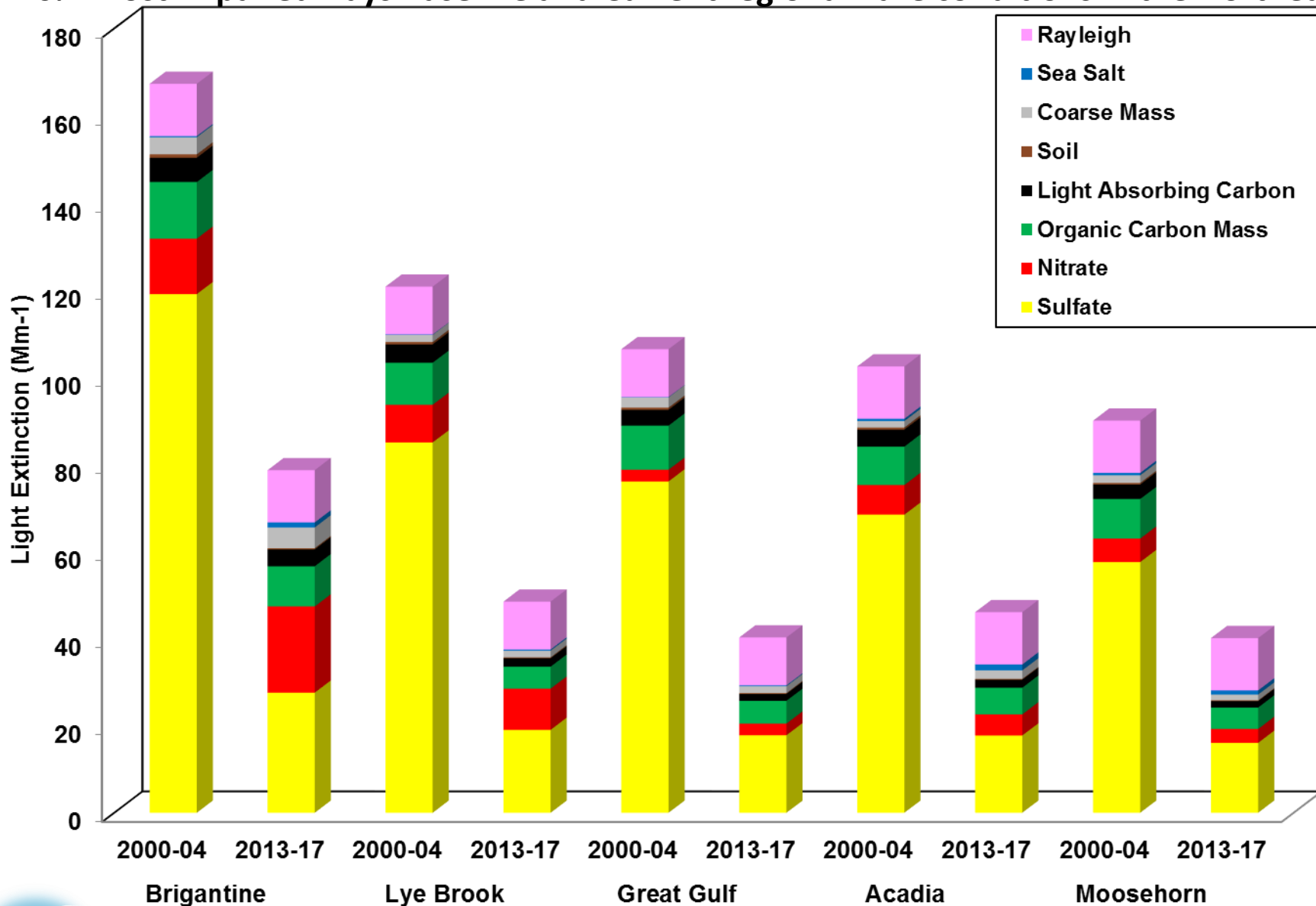
**Moosehorn
Wilderness
ME**

**Lye Brook
Wilderness
VT**

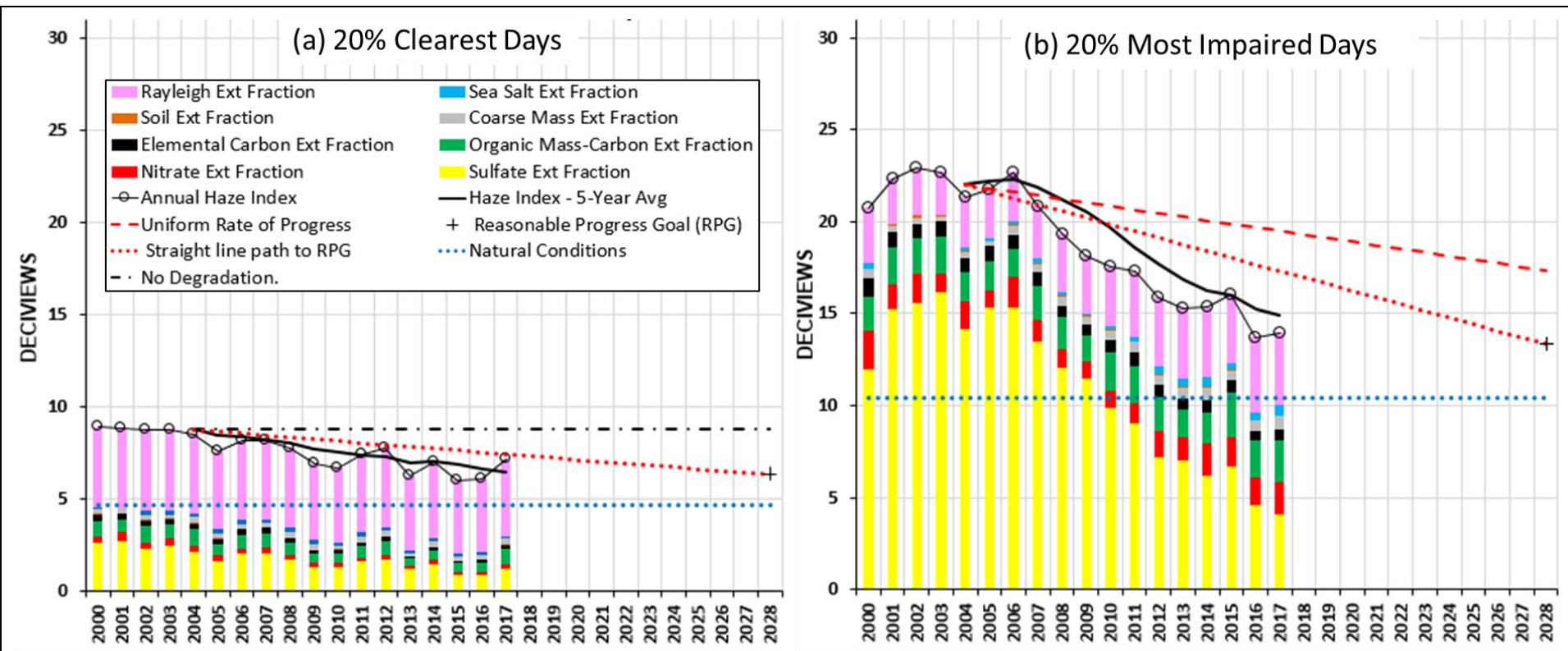
Regional haze components trends (speciation)



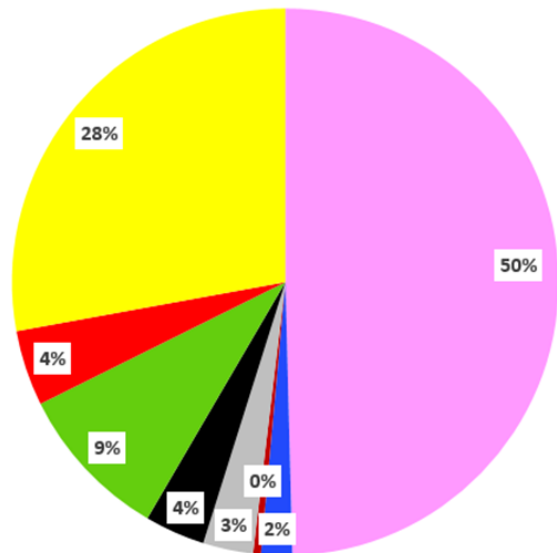
20% Most Impaired Days Baseline and Current regional haze conditions in the Northeast



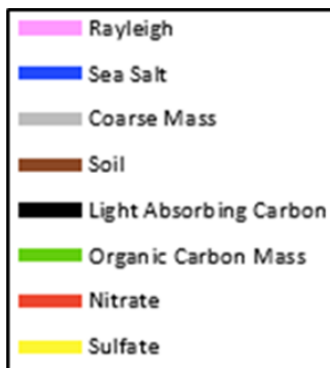
ACADIA NP



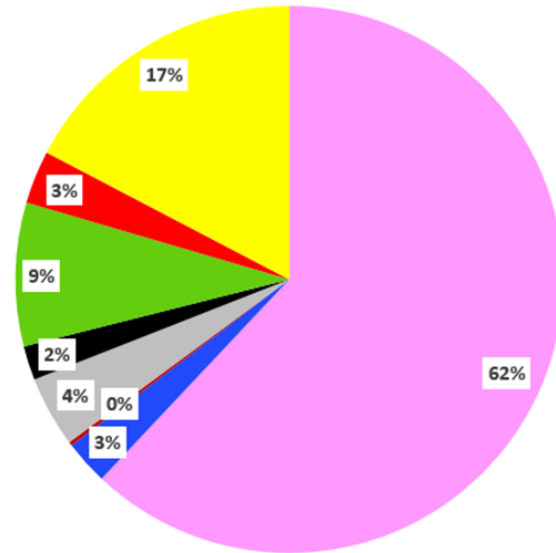
(a) 2000-04 20% Clearest Days



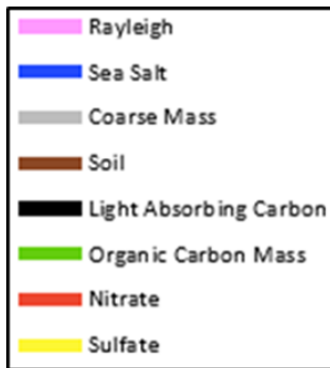
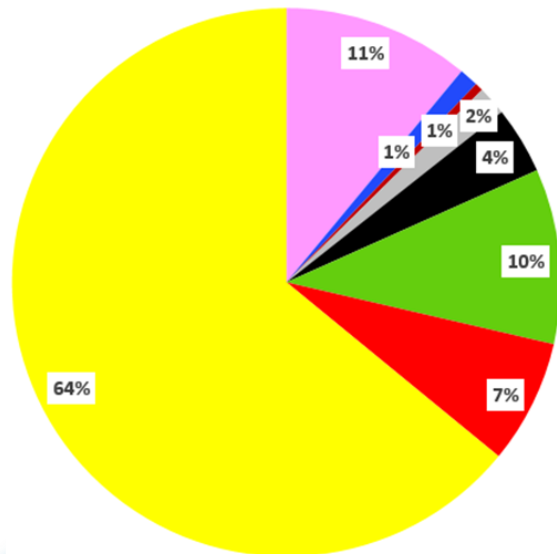
Acadia



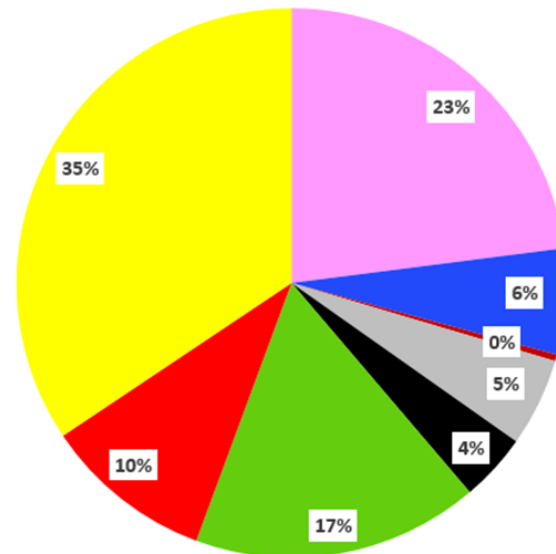
(b) 2013-17 20% Clearest Days



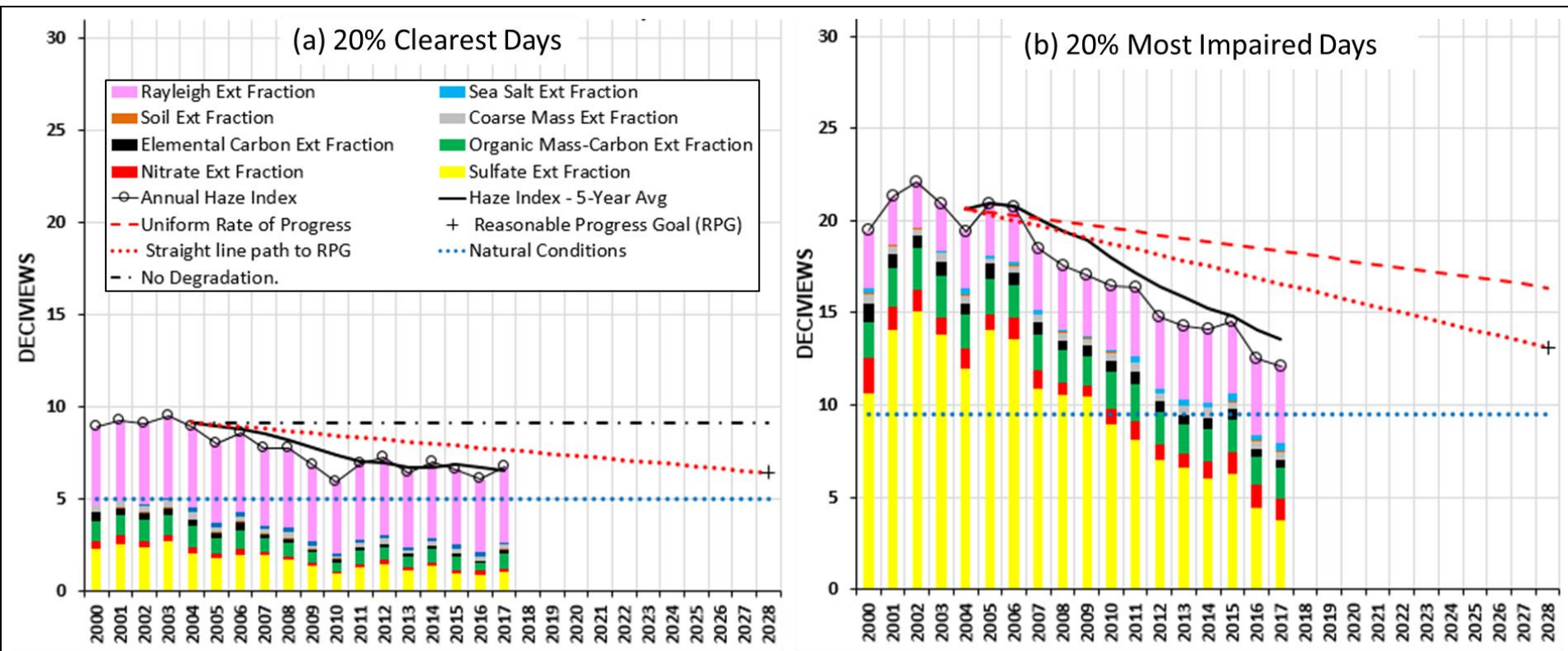
(c) 2000-04 20% Most Impaired Days



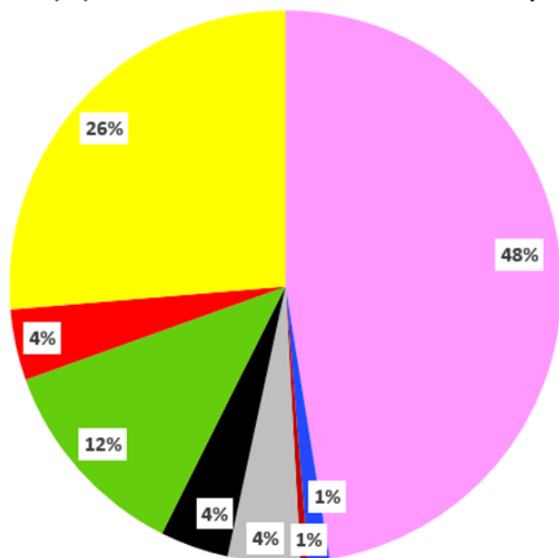
(d) 2013-17 20% Most Impaired Days



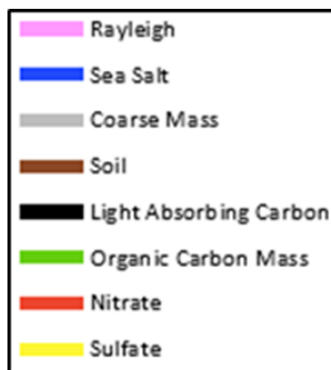
MOOSEHORN



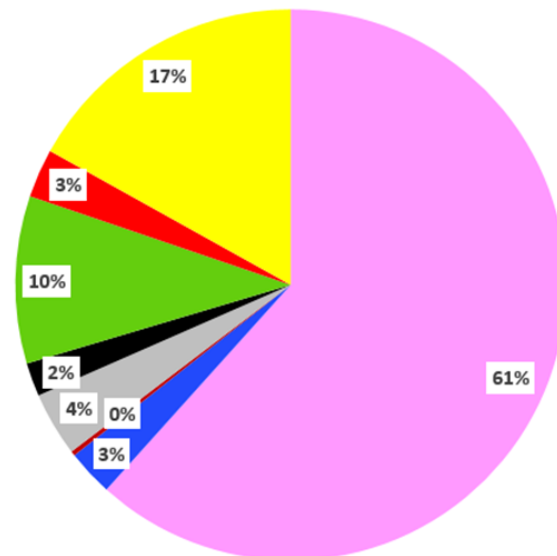
(a) 2000-04 20% Clearest Days



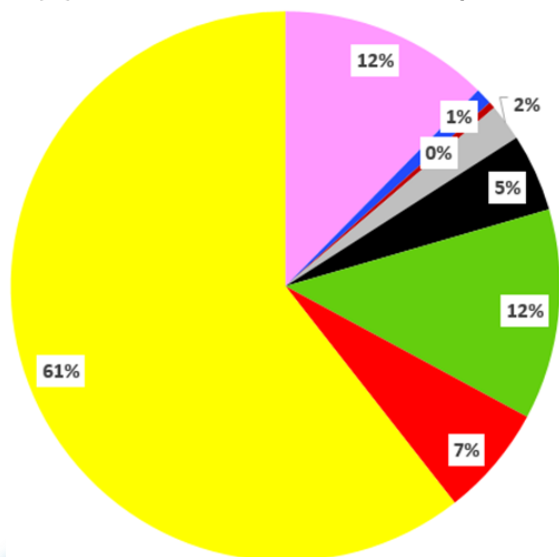
Moosehorn



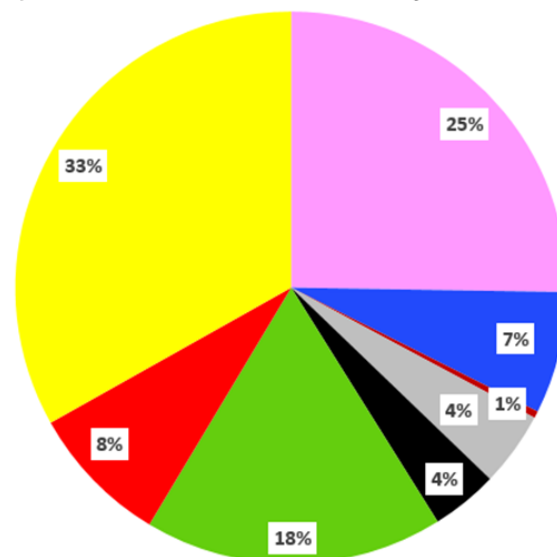
(b) 2013-17 20% Clearest Days



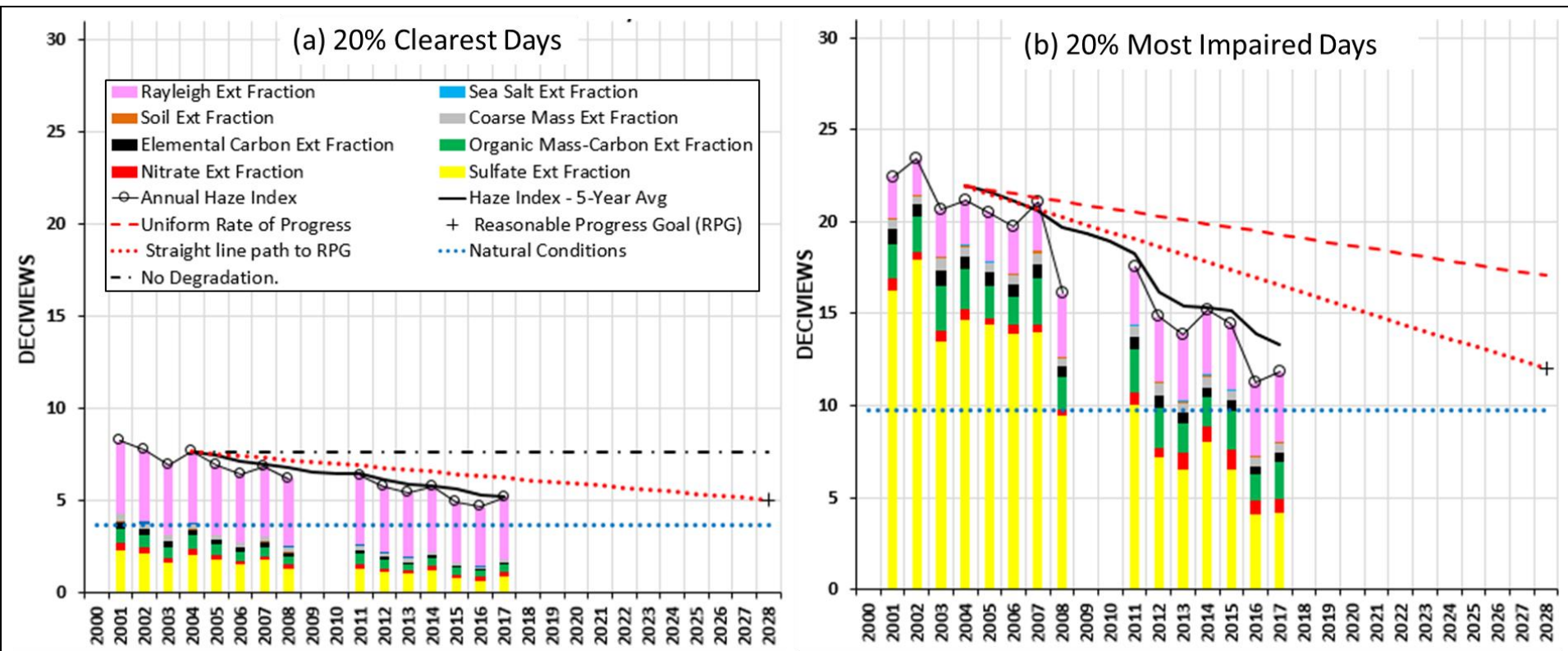
(c) 2000-04 20% Most Impaired Days



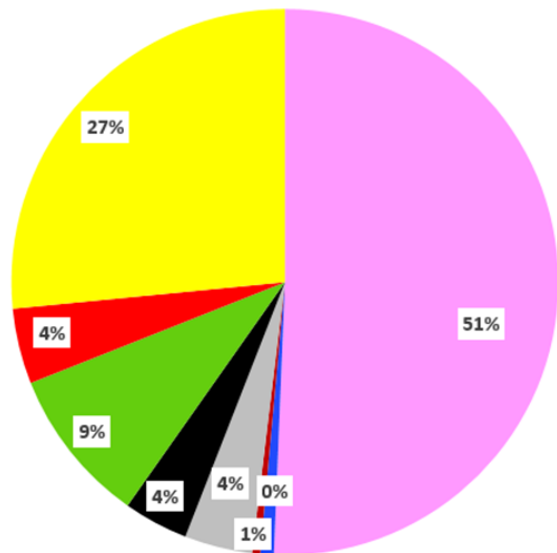
(d) 2013-17 20% Most Impaired Days



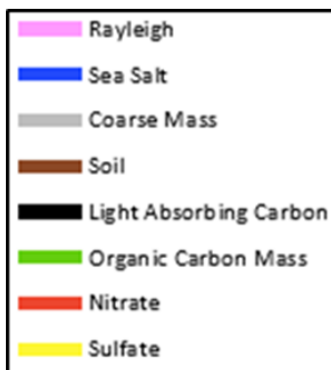
GREAT GULF



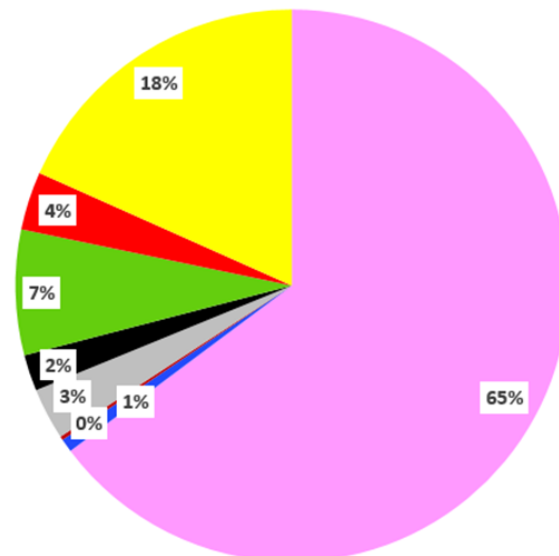
(a) 2001-04 20% Clearest Days



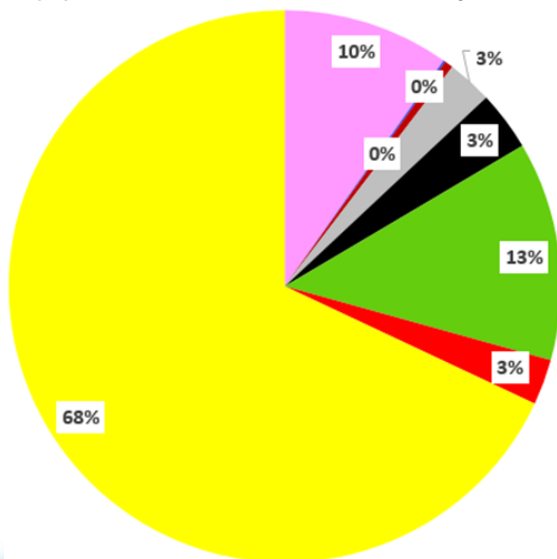
Great Gulf



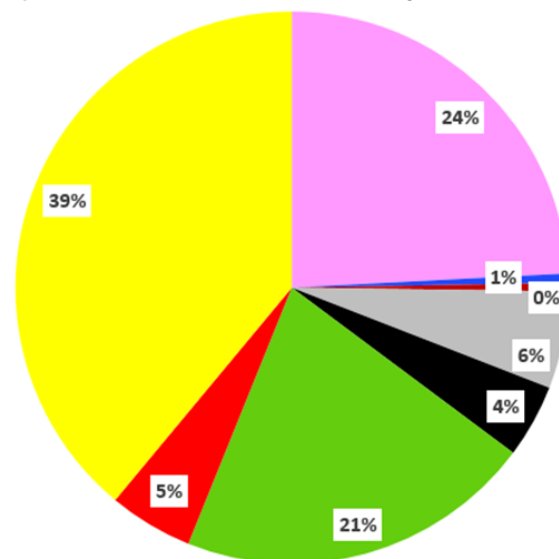
(b) 2013-17 20% Clearest Days



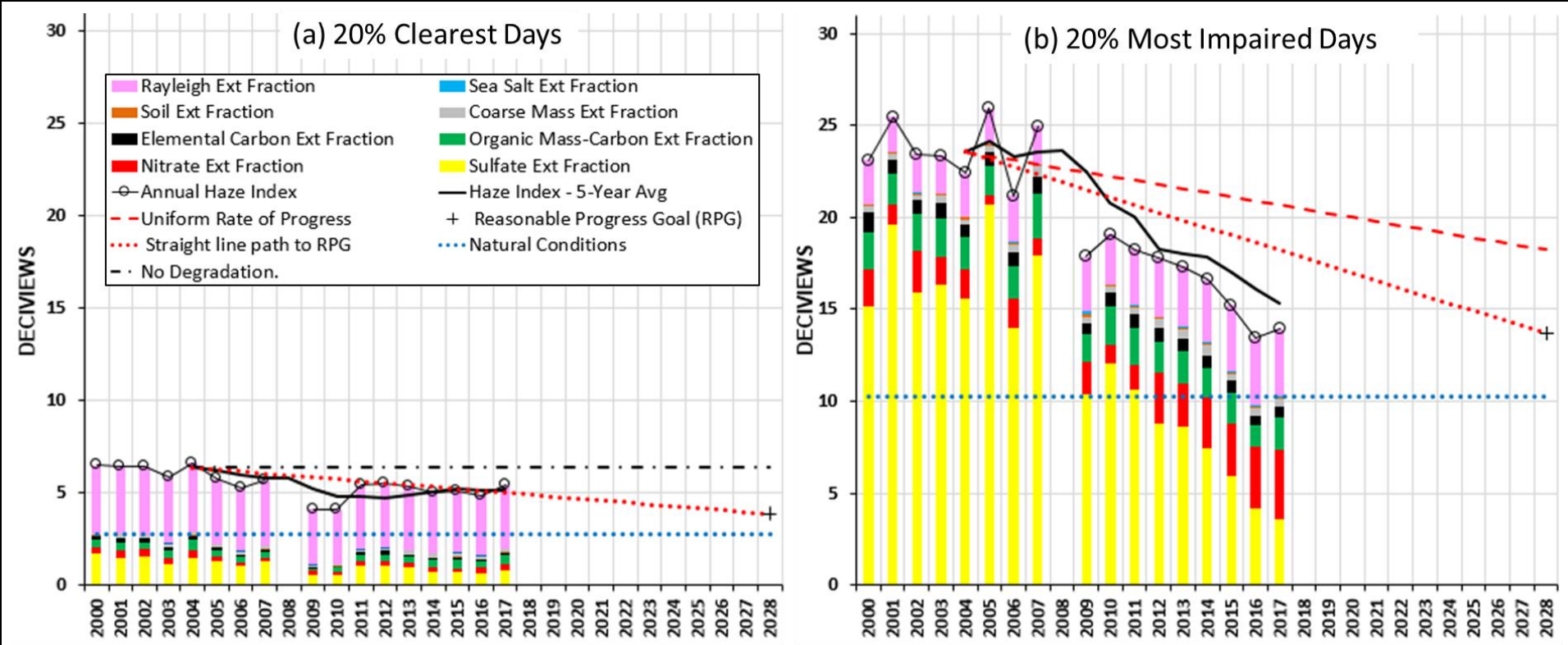
(c) 2001-04 20% Most Impaired Days



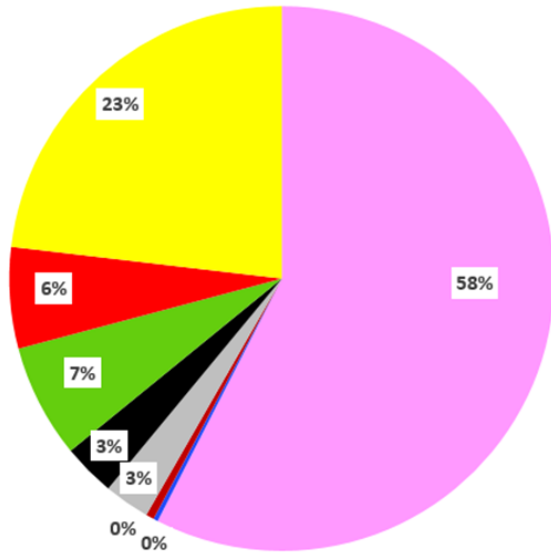
(d) 2013-17 20% Most Impaired Days



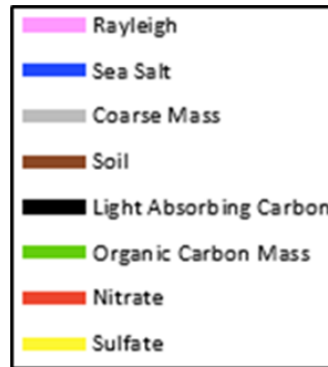
LYE BROOK



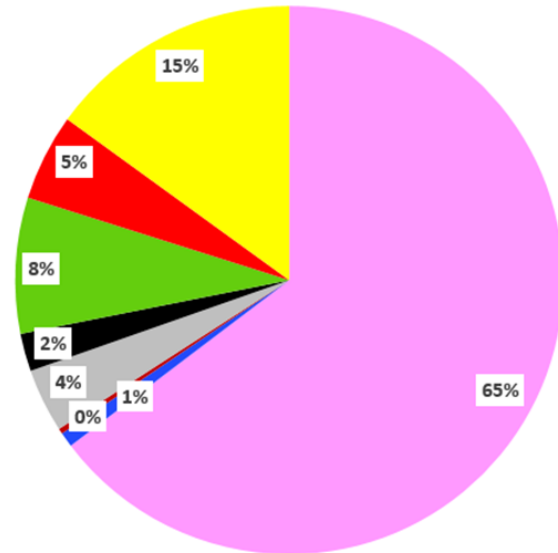
(a) 2000-04 20% Clearest Days



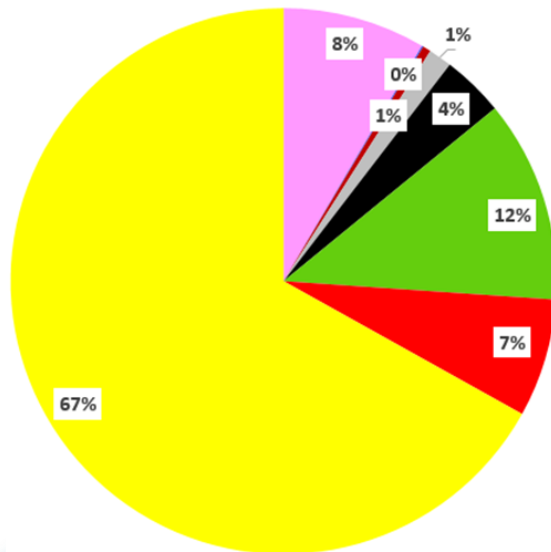
Lye Brook



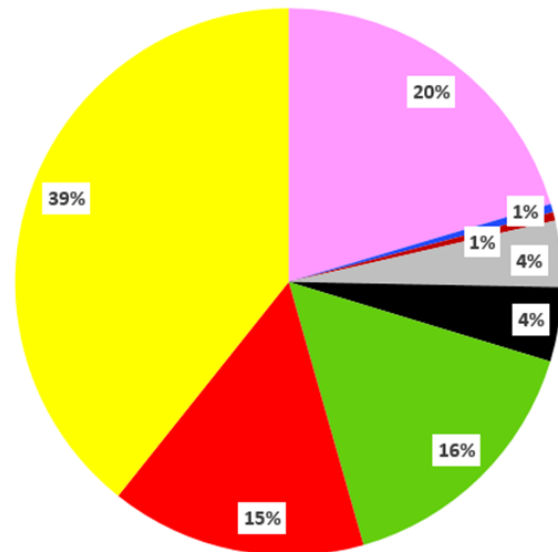
(b) 2013-17 20% Clearest Days



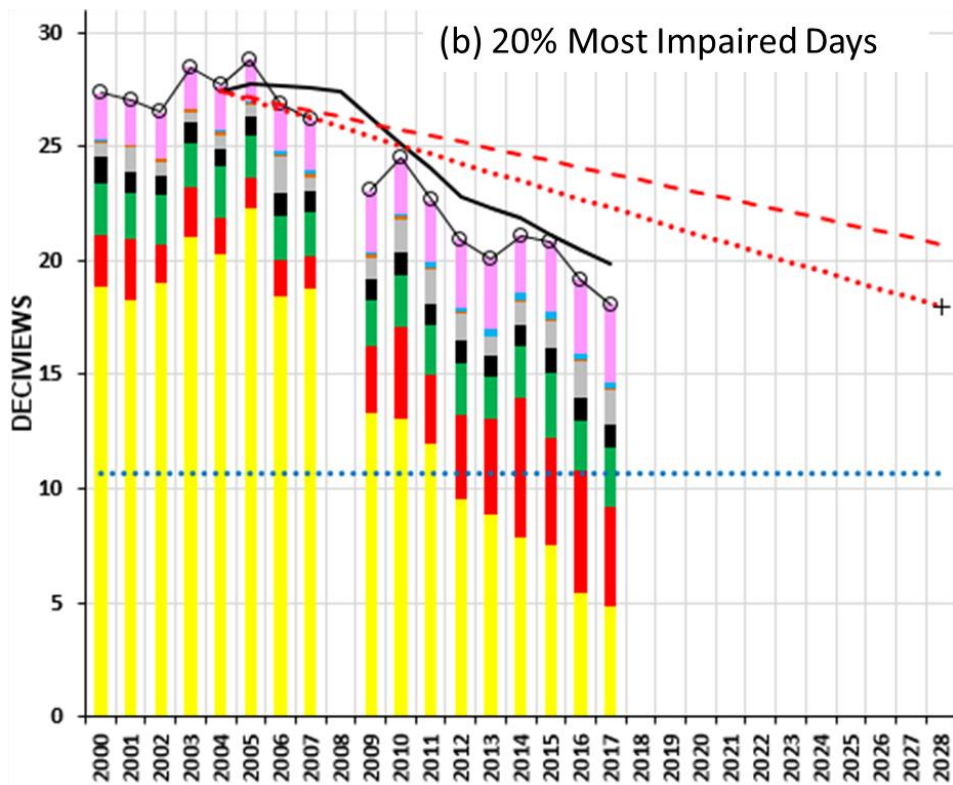
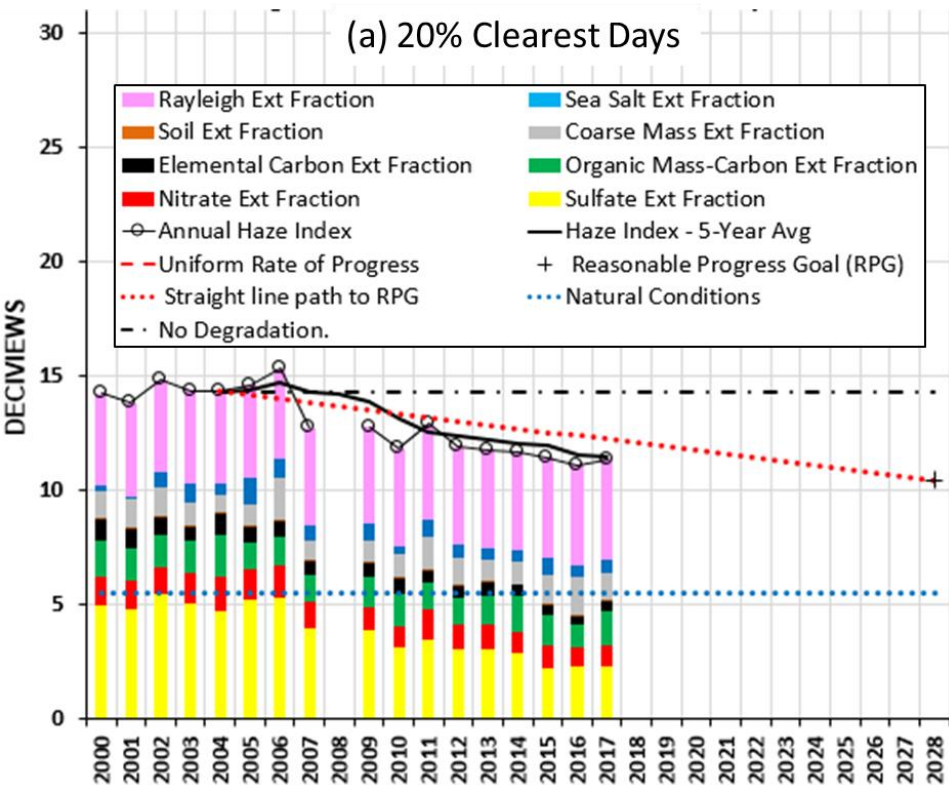
(c) 2000-04 20% Most Impaired Days



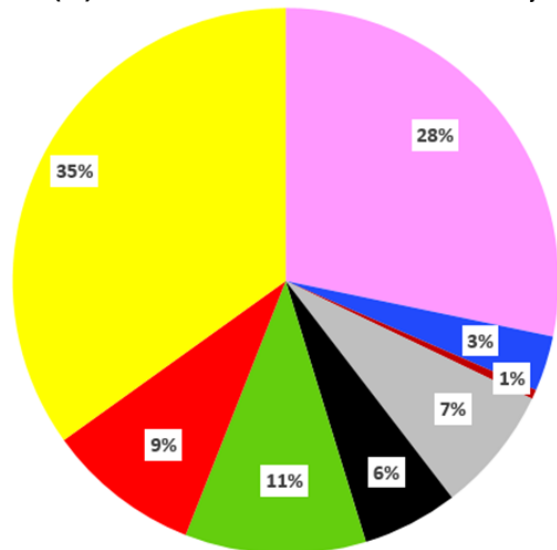
(d) 2013-17 20% Most Impaired Days



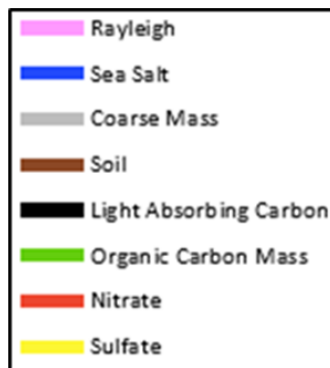
BRIGANTINE



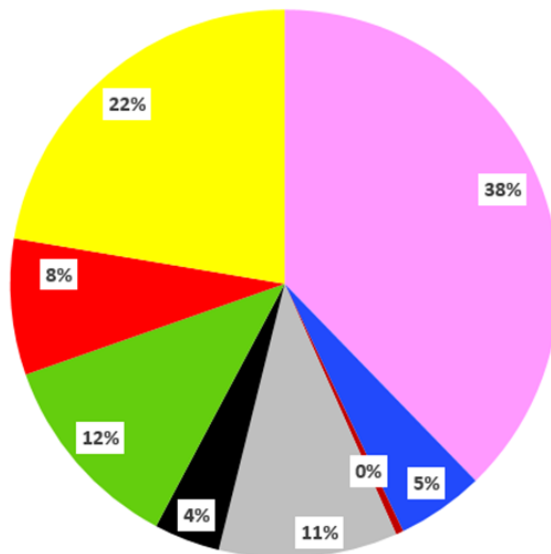
(a) 2000-04 20% Clearest Days



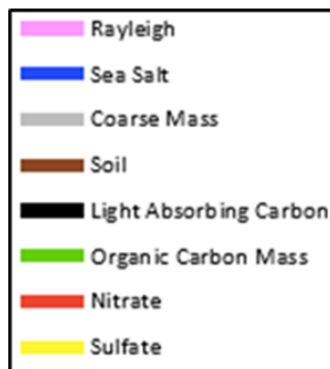
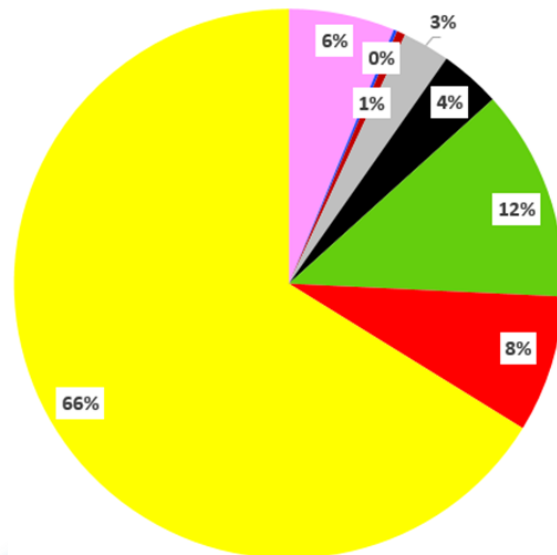
Brigantine



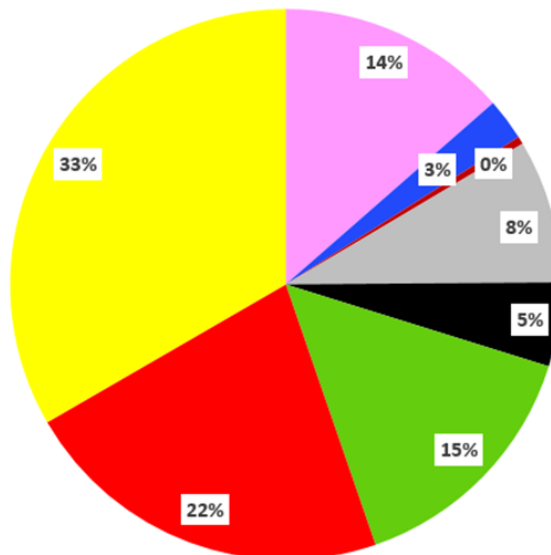
(b) 2013-17 20% Clearest Days



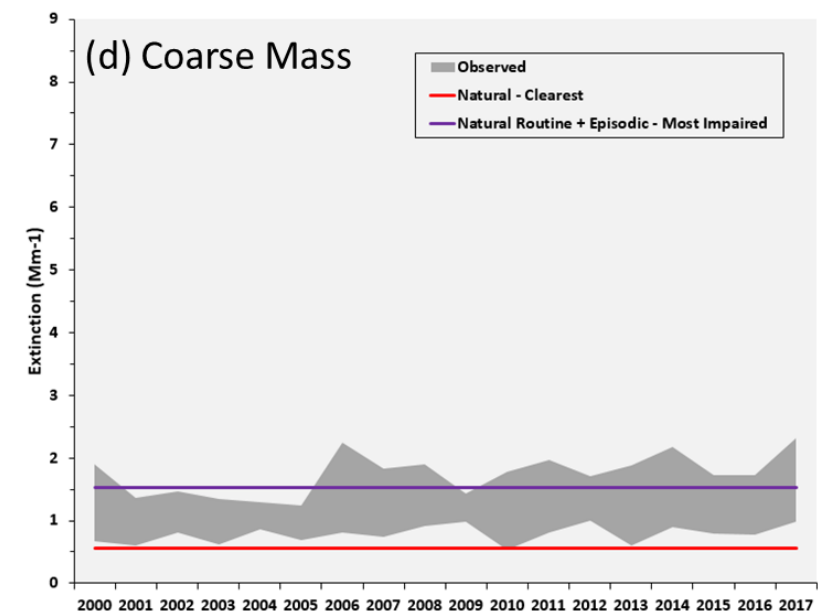
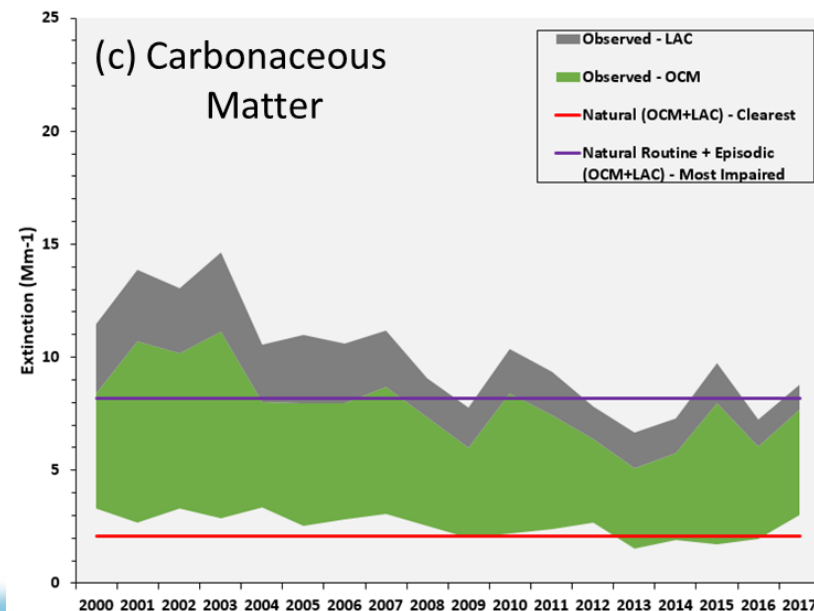
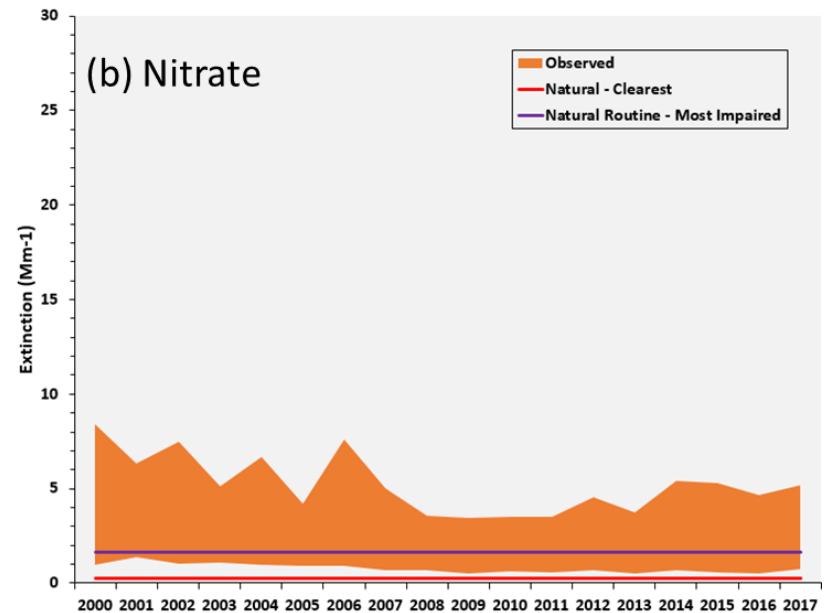
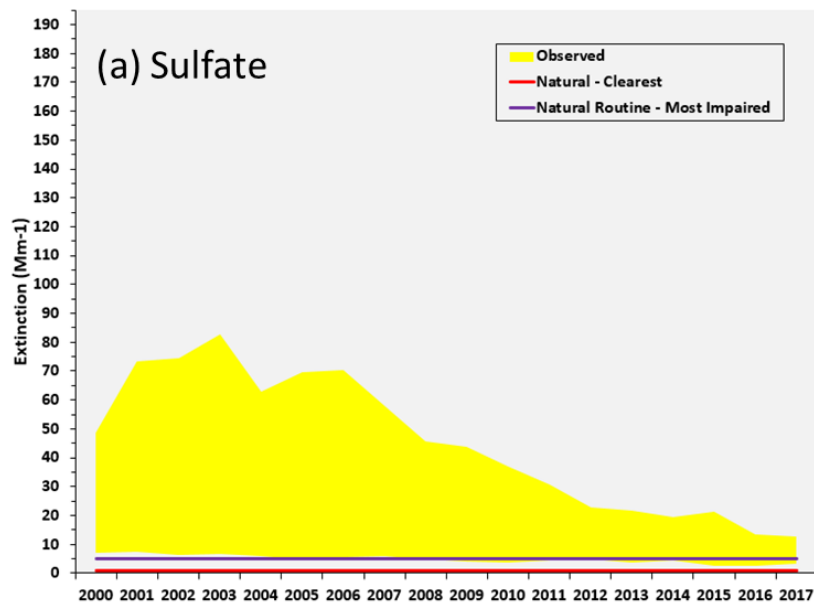
(c) 2000-04 20% Most Impaired Days



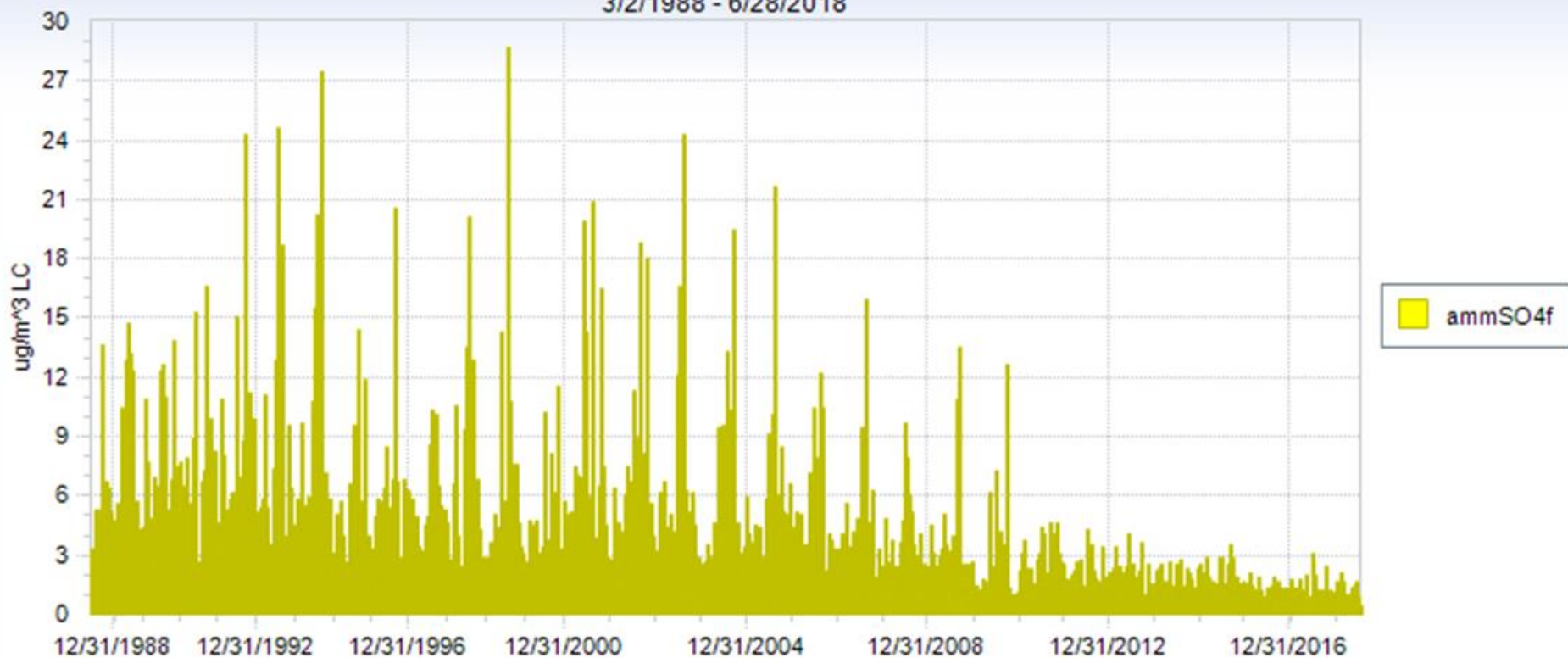
(d) 2013-17 20% Most Impaired Days



Acadia National Park

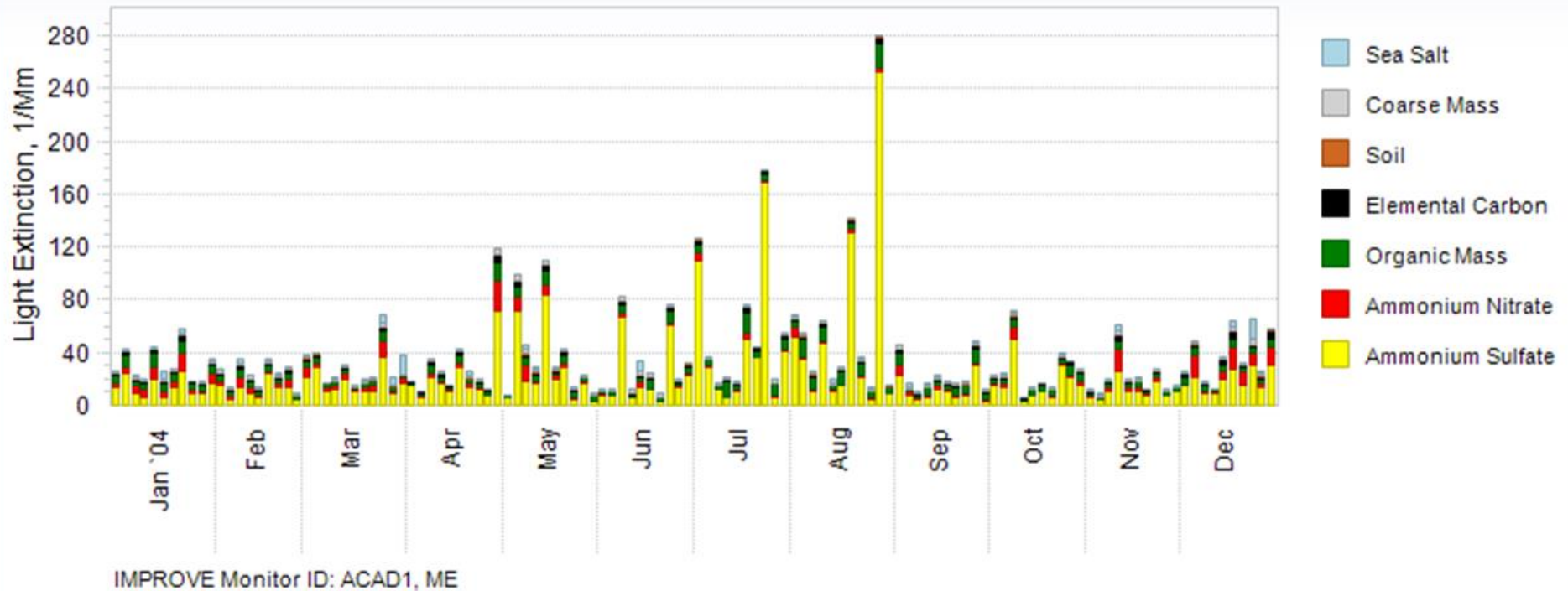


Ammonium Sulfate (Fine) - ACAD1
3/2/1988 - 6/28/2018

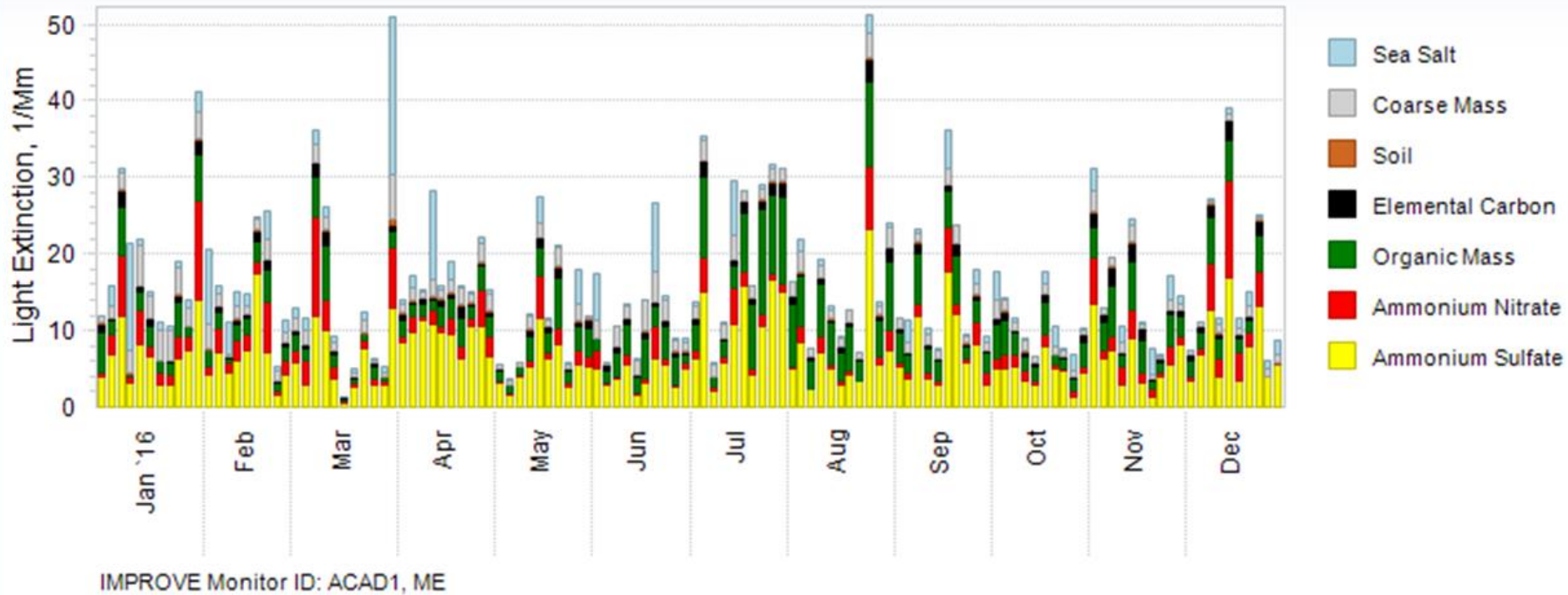


Acadia NP

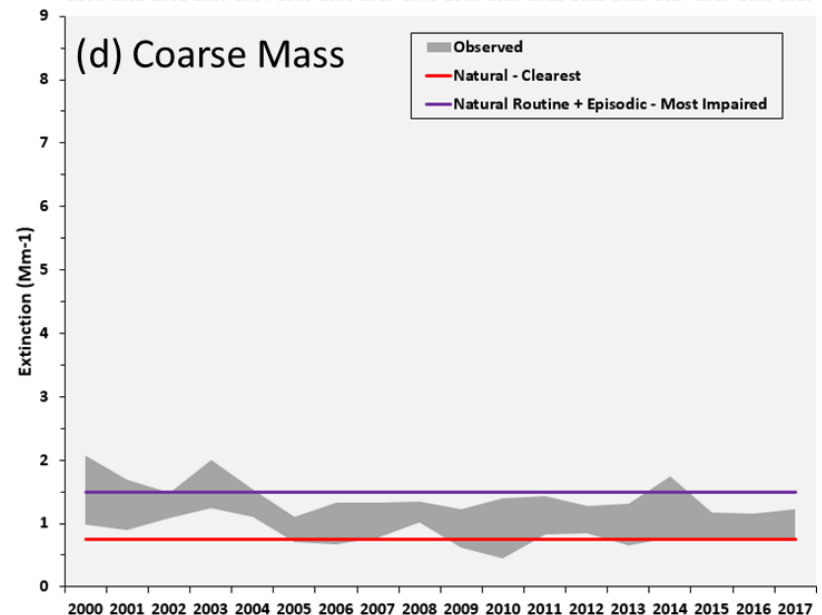
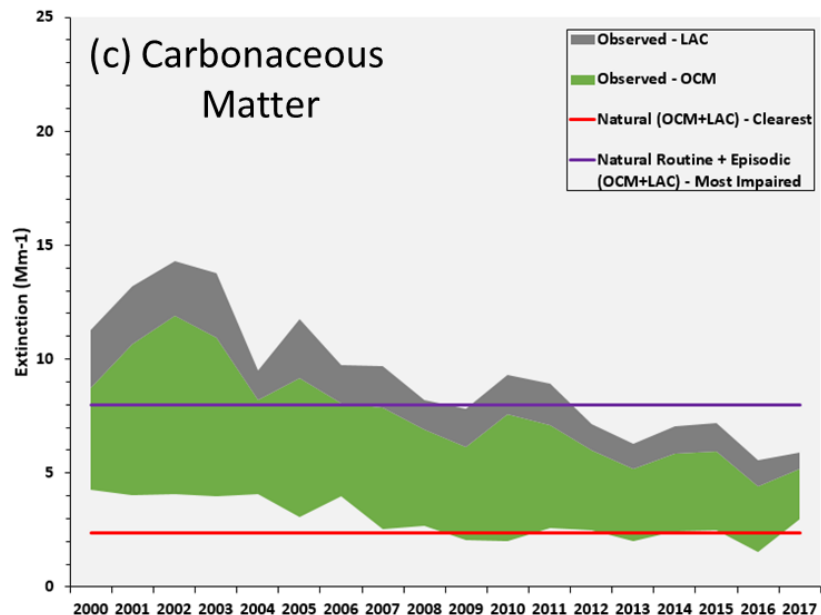
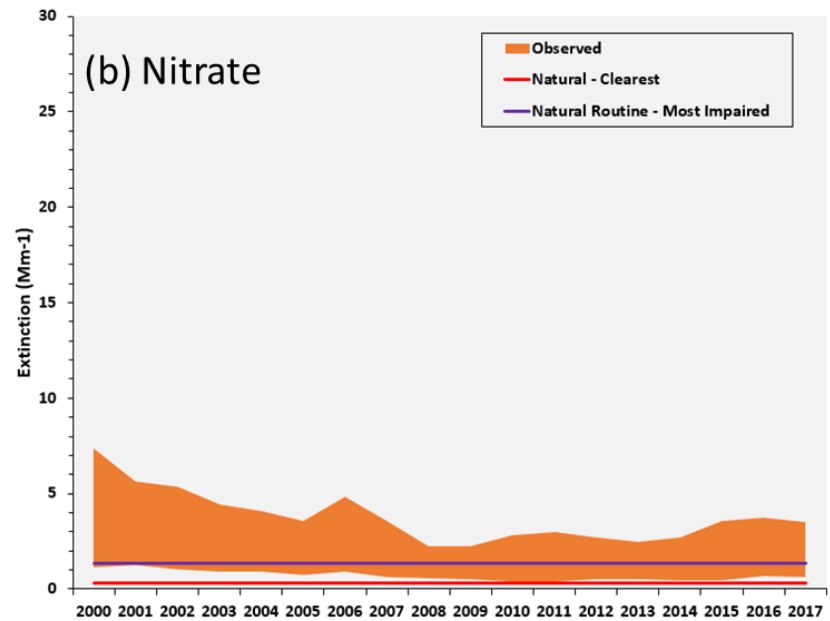
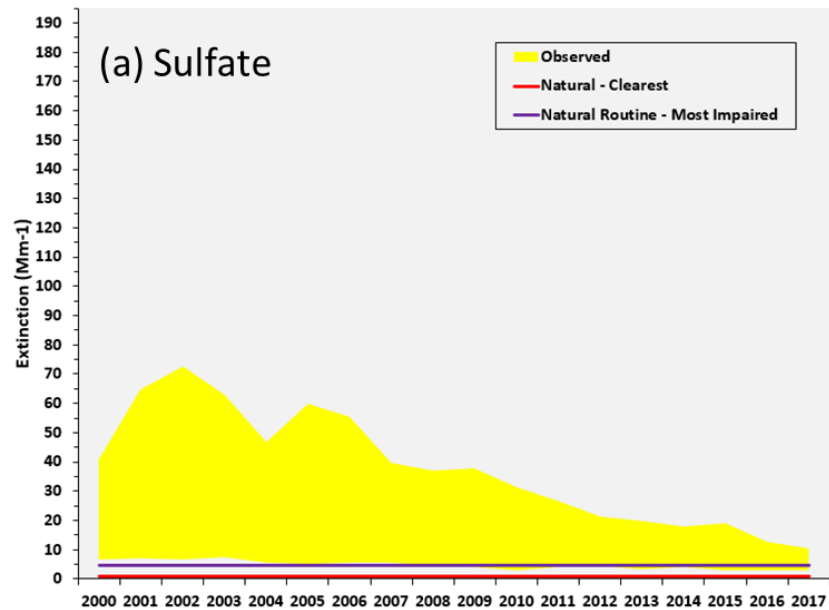
Daily Extinction Budgets, 2004

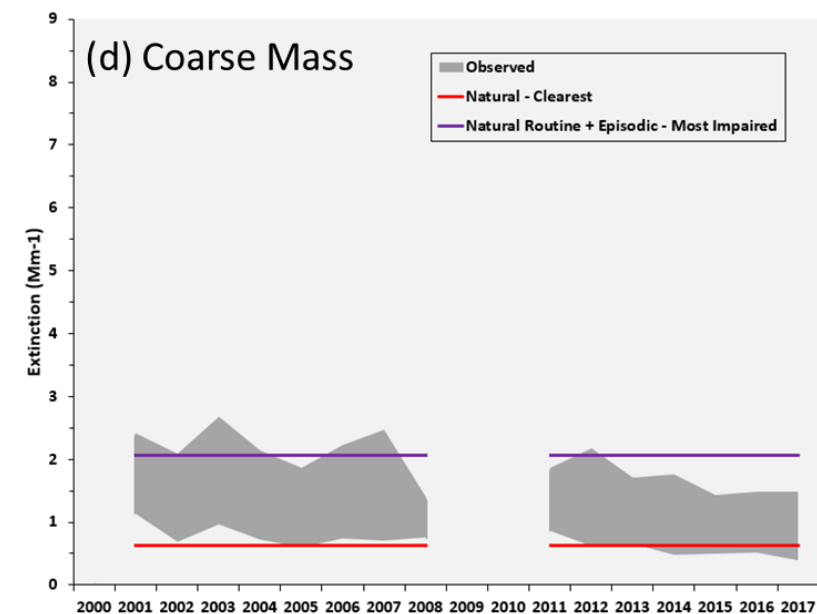
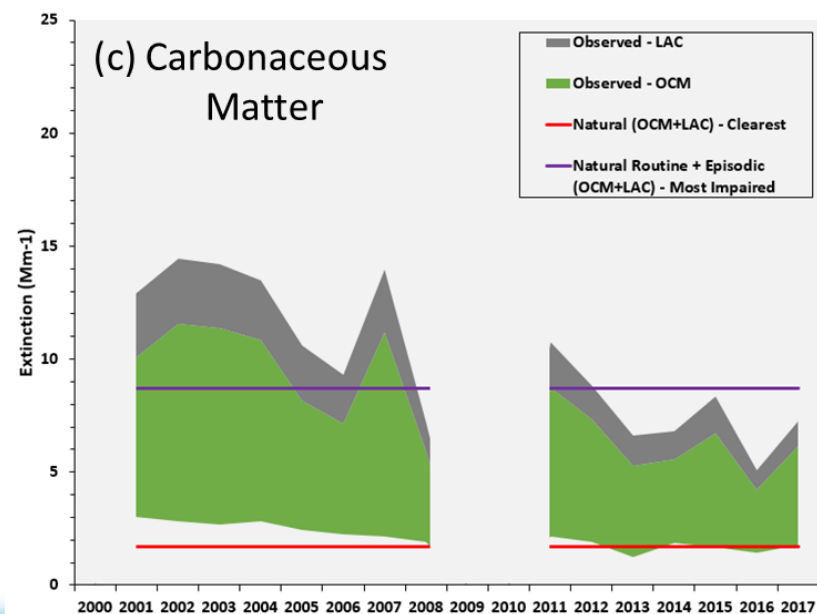
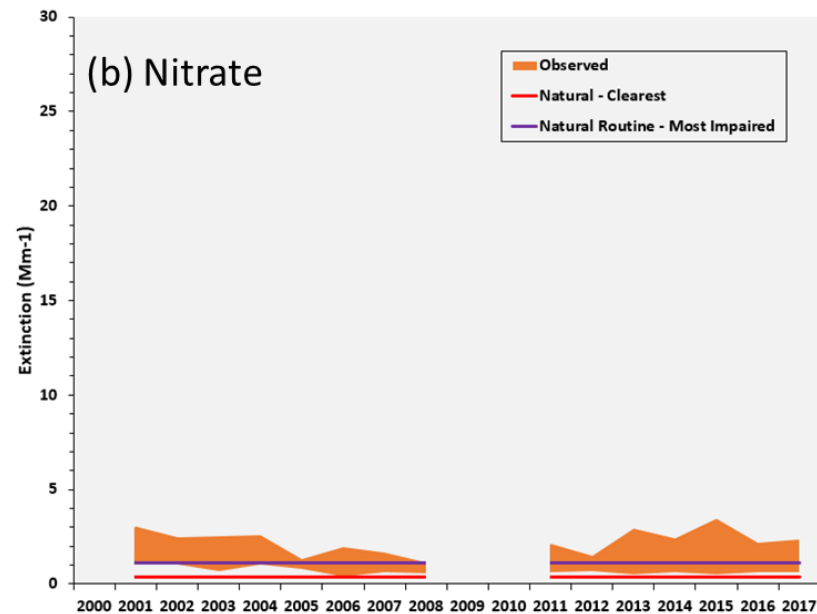
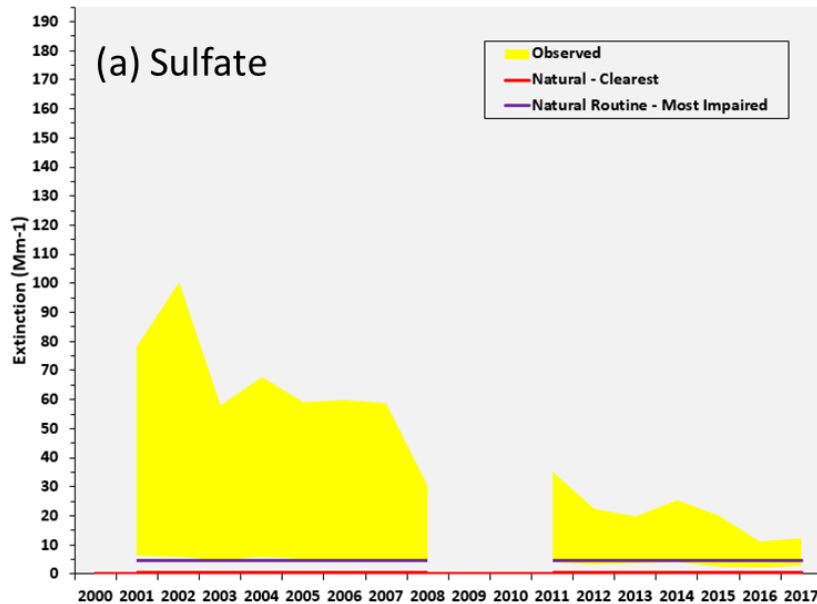


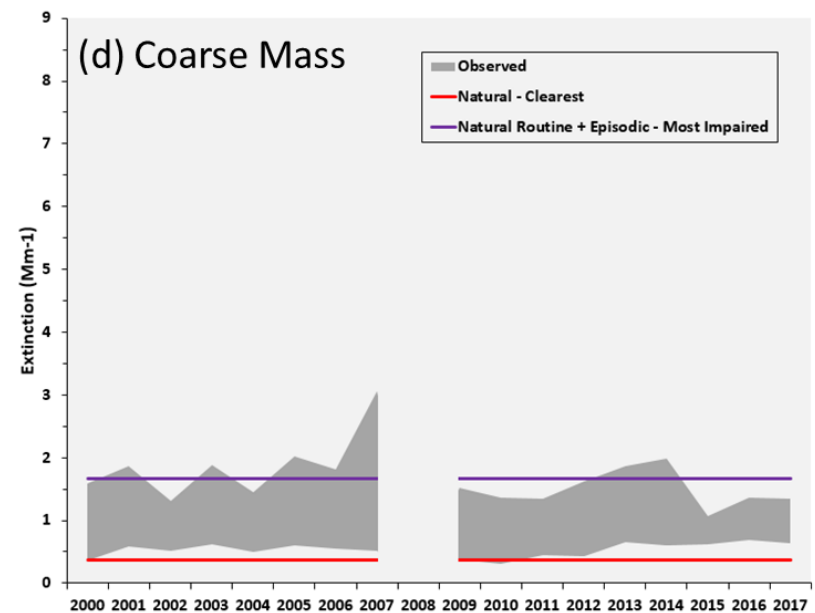
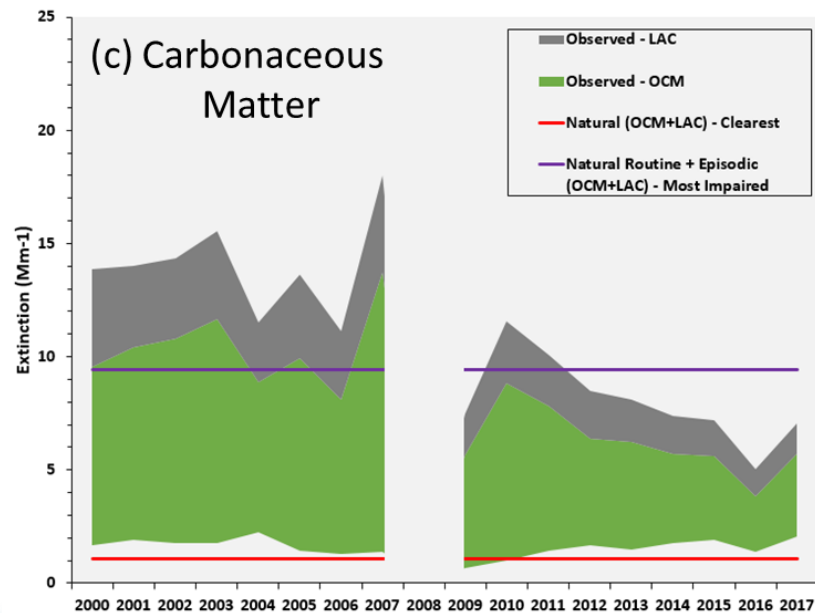
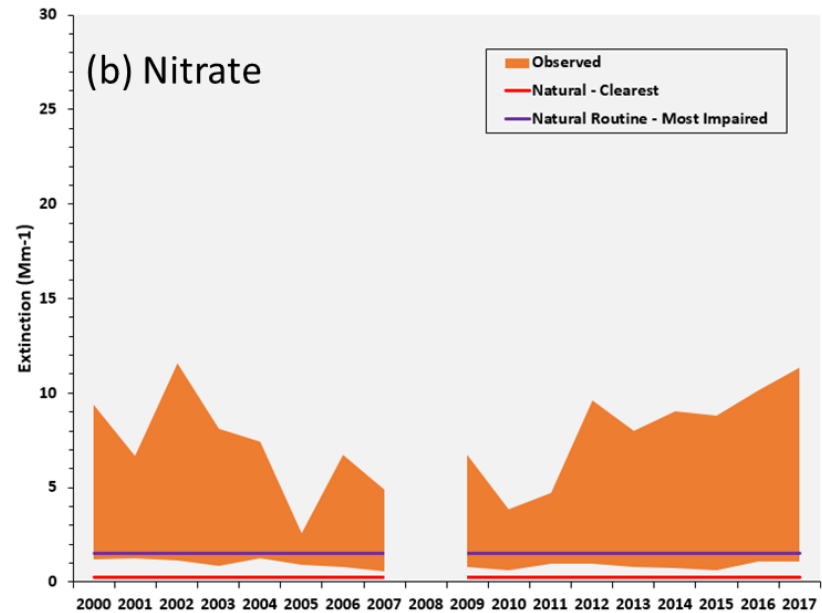
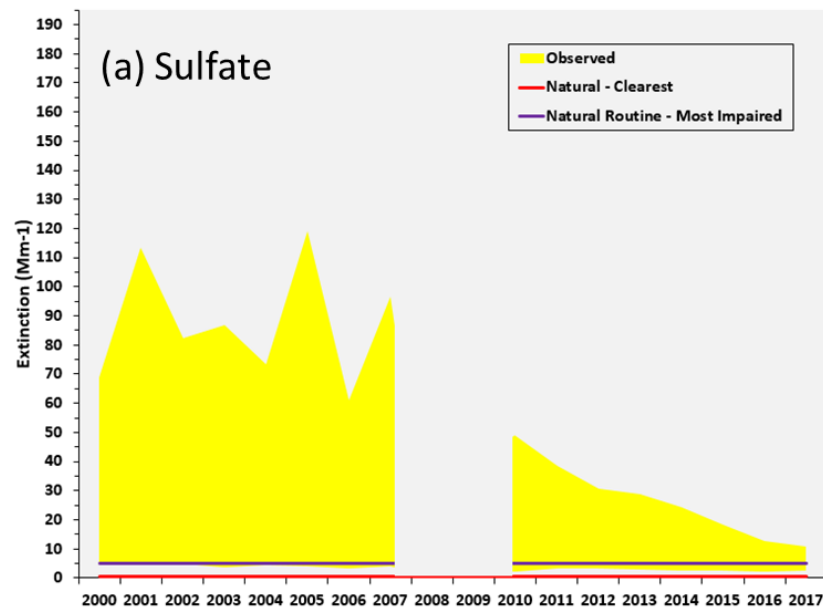
Acadia NP Daily Extinction Budgets, 2016

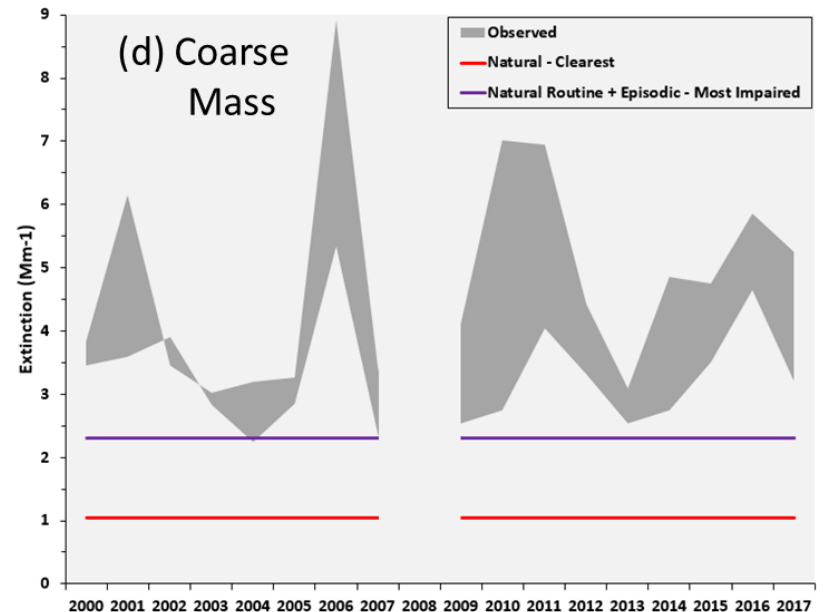
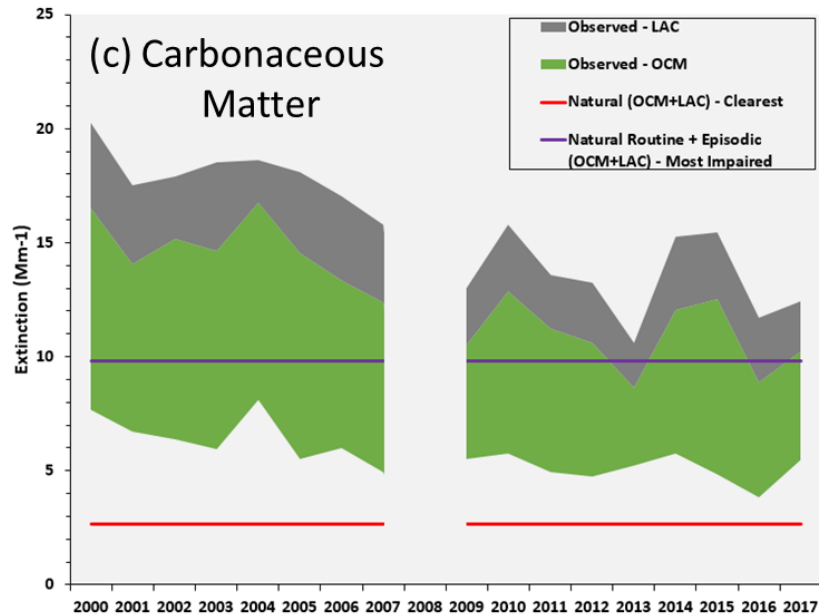
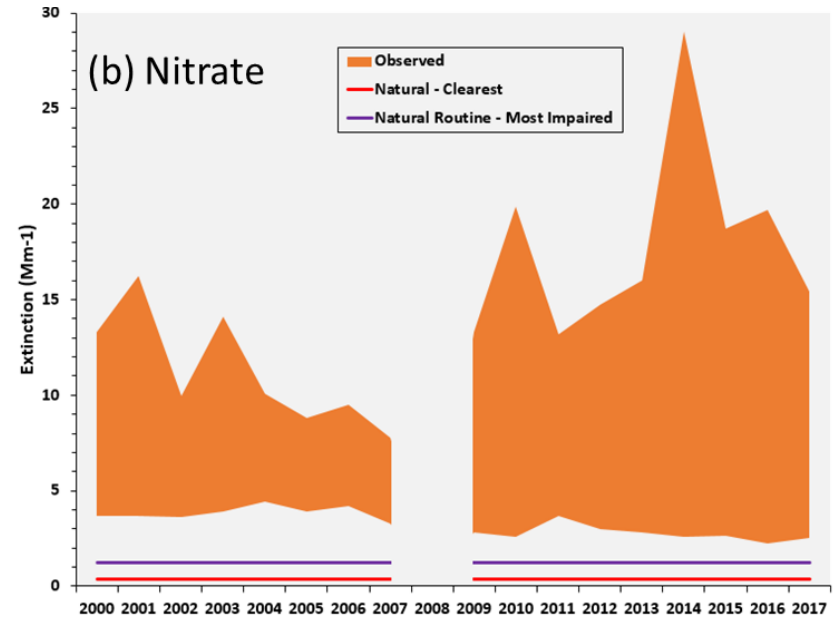
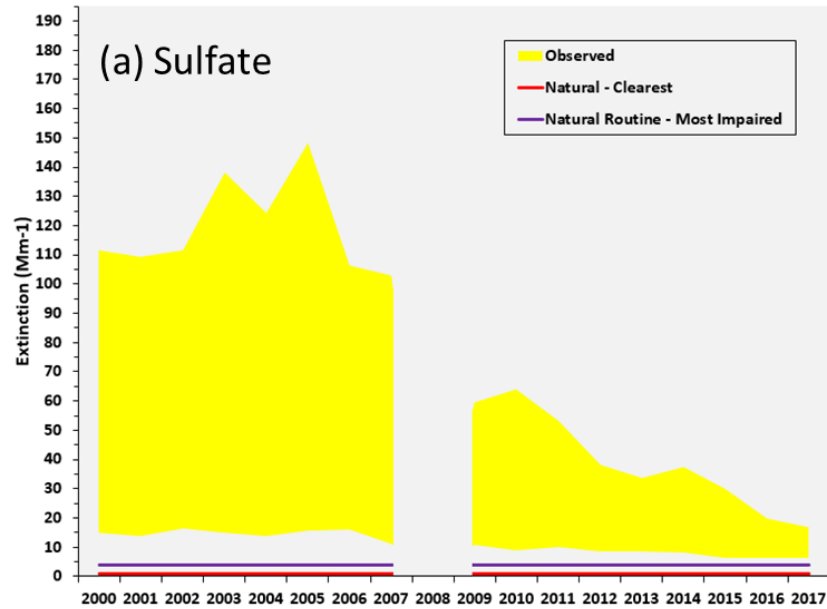


Moosehorn

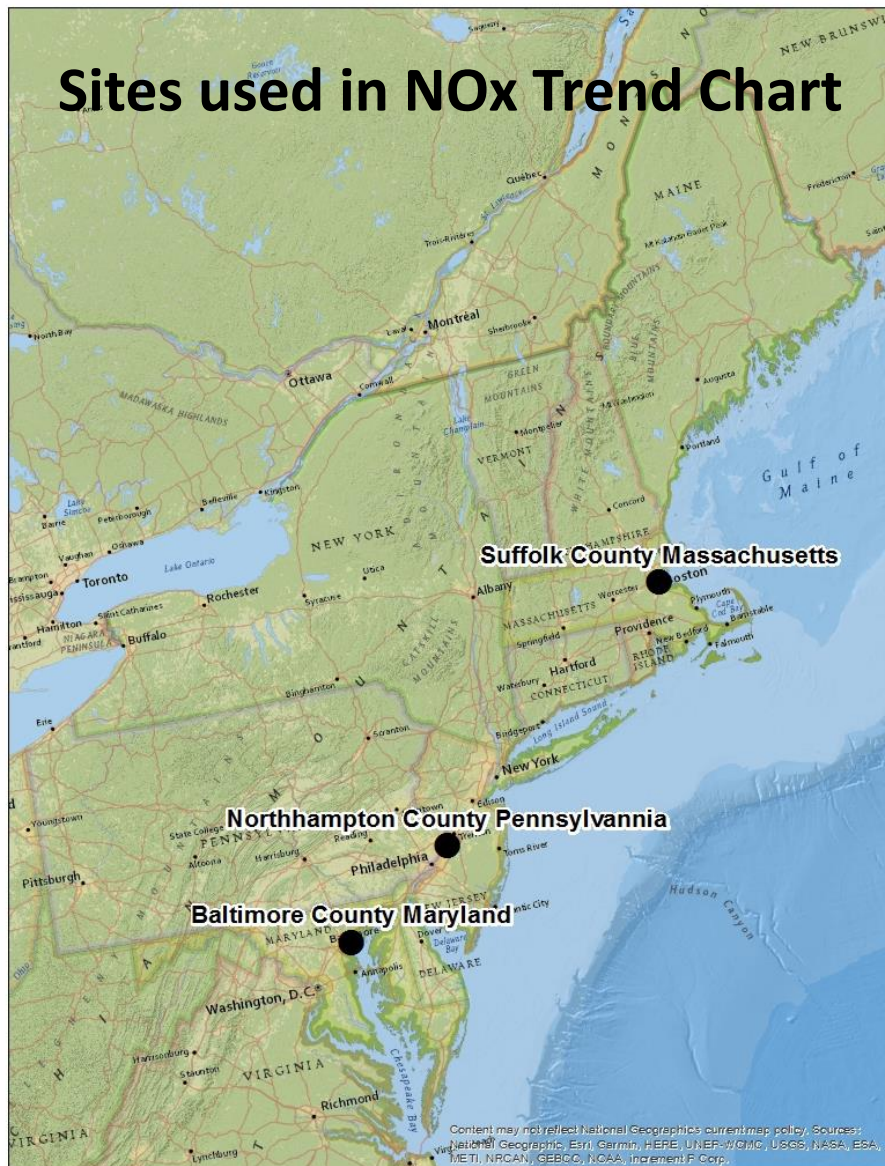




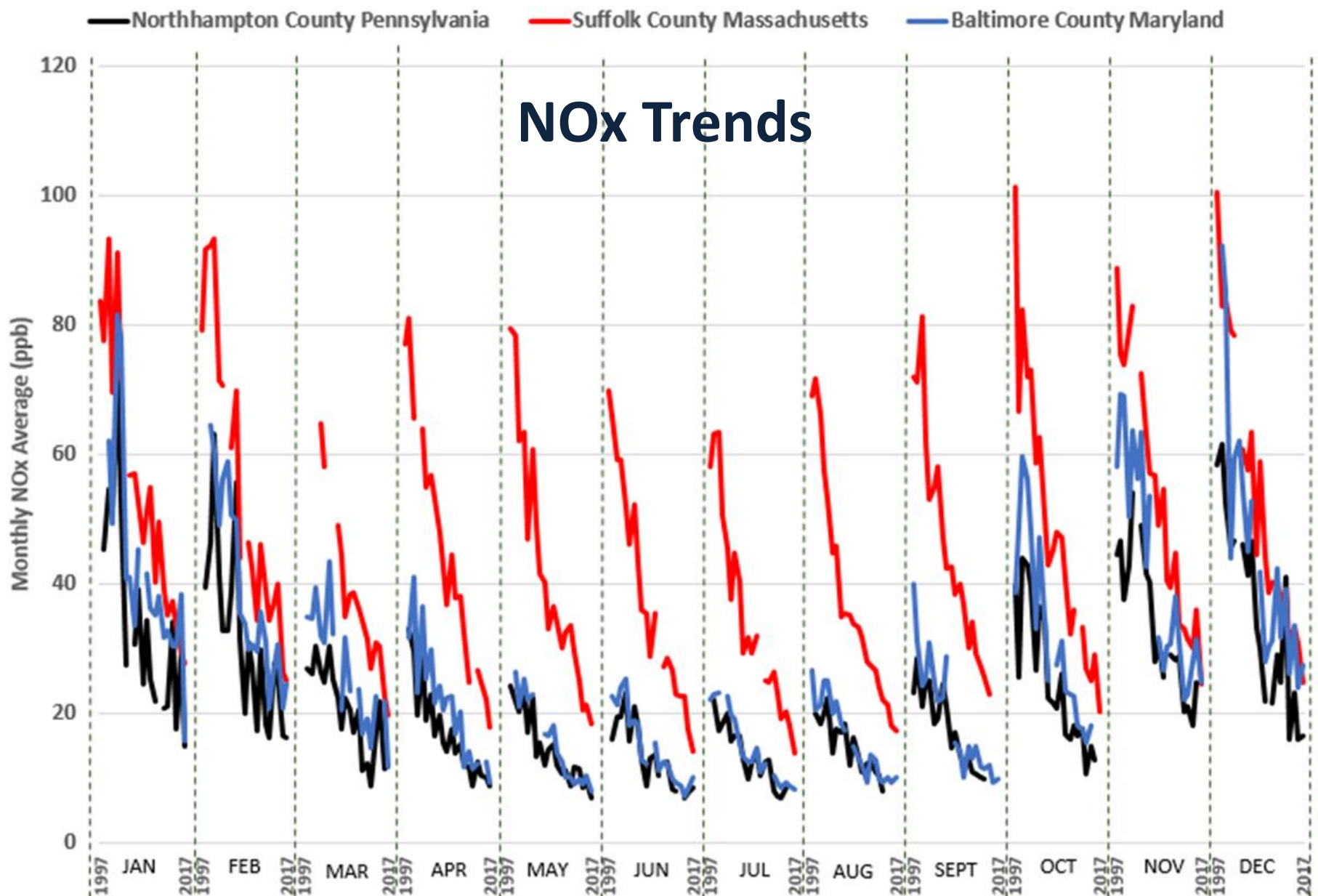




Sites used in NOx Trend Chart

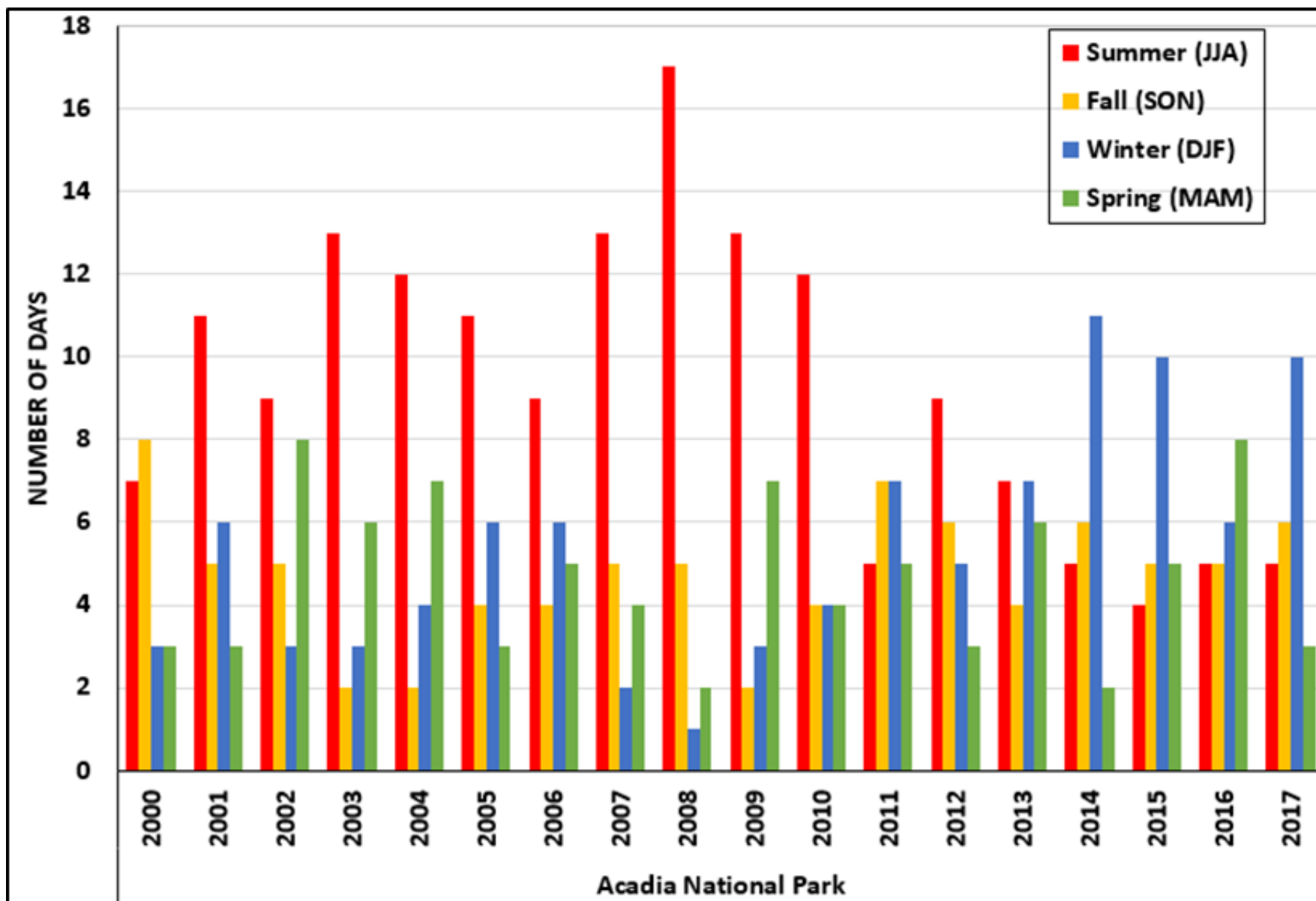


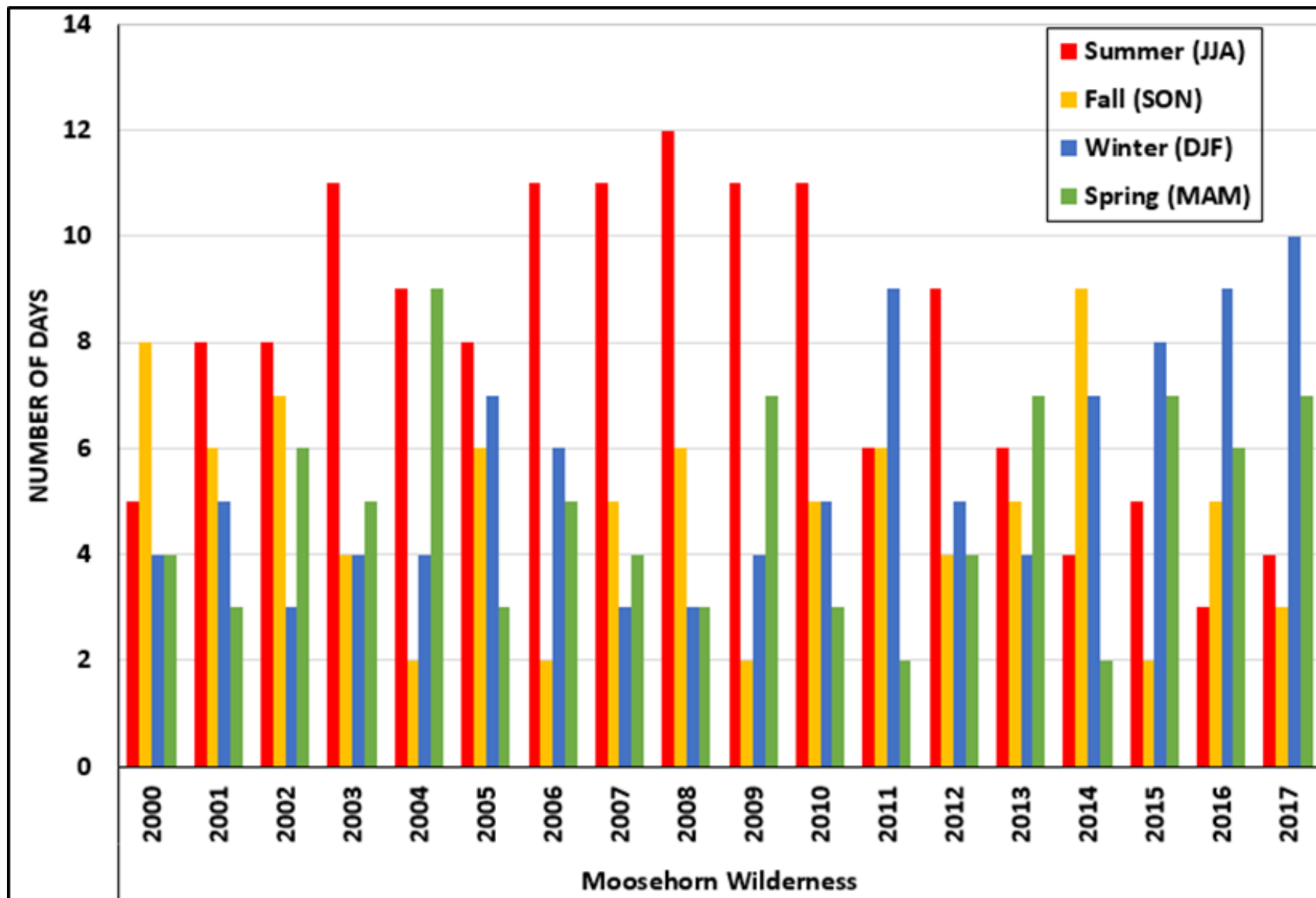
NOx Trends

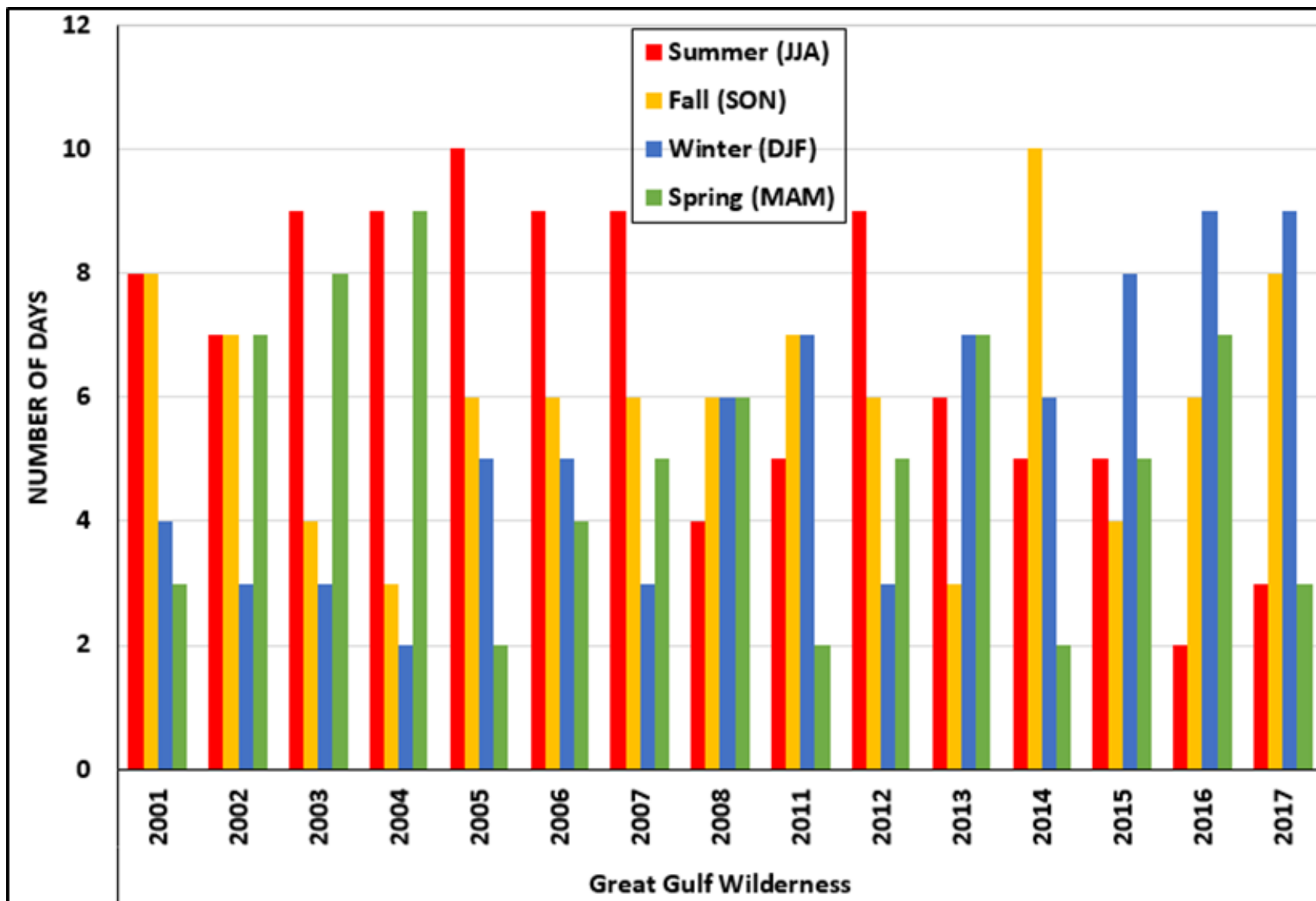


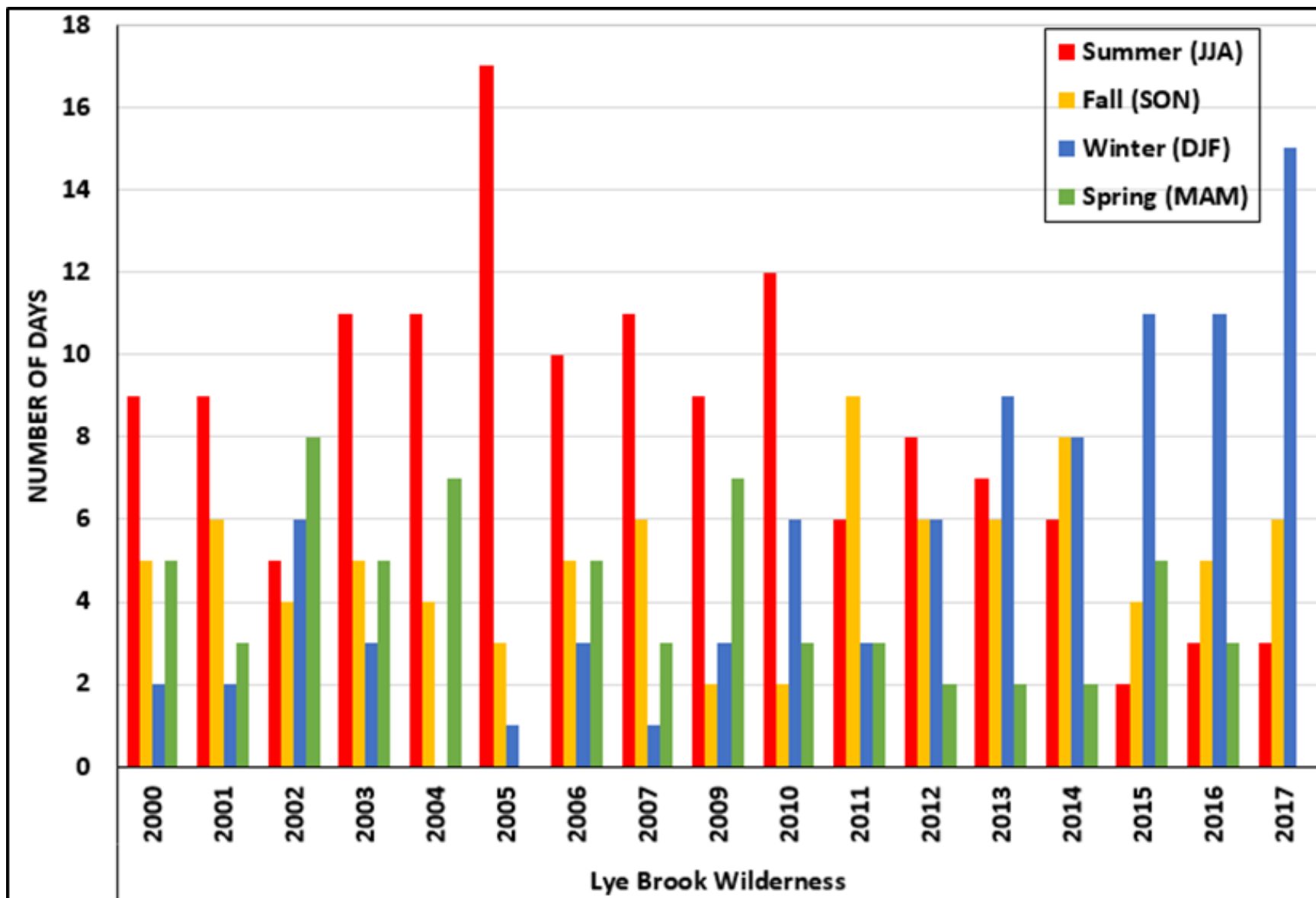
**What time of the year do 20% most
impaired visibility days occur?**

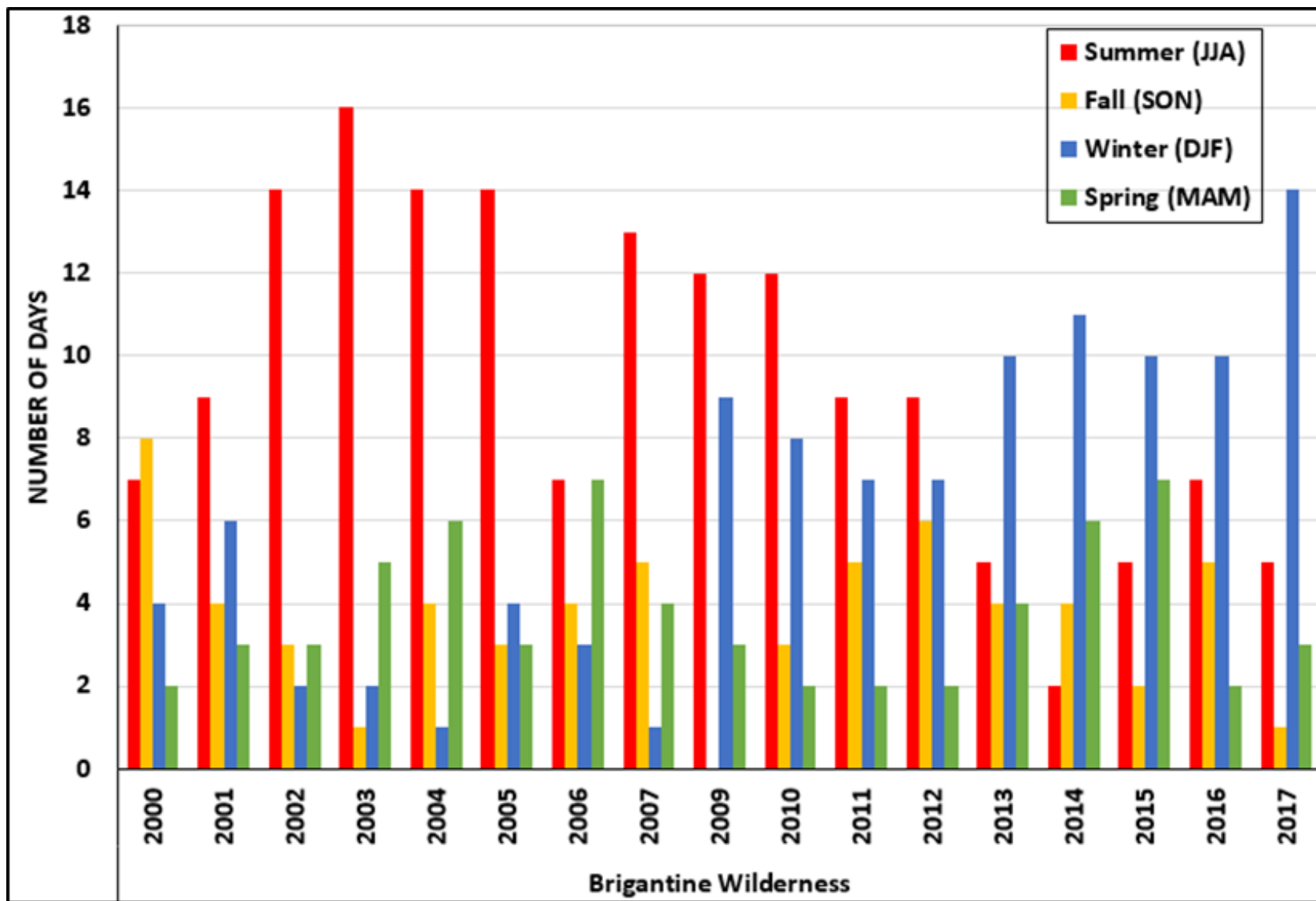








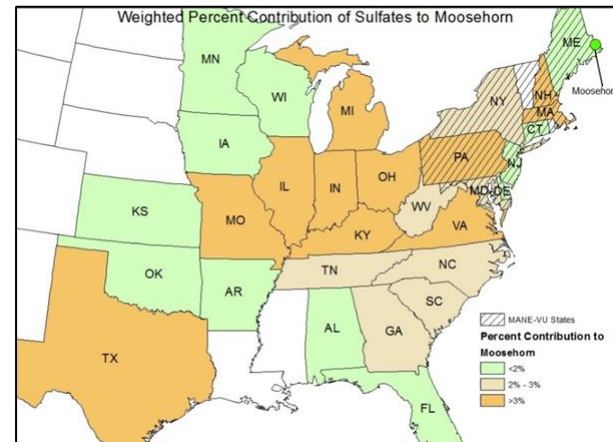
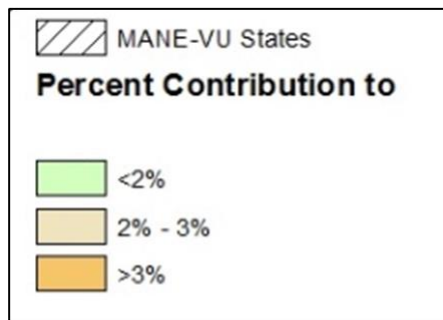
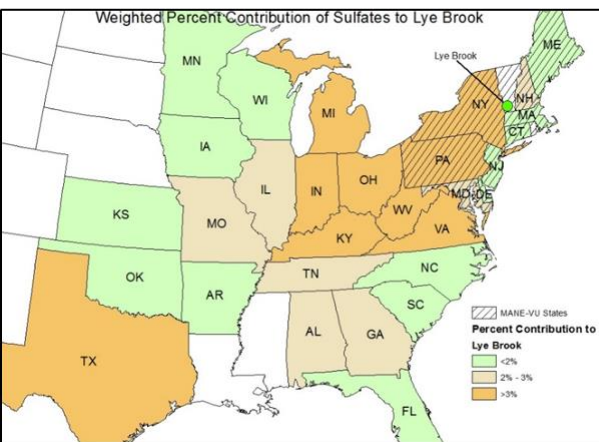
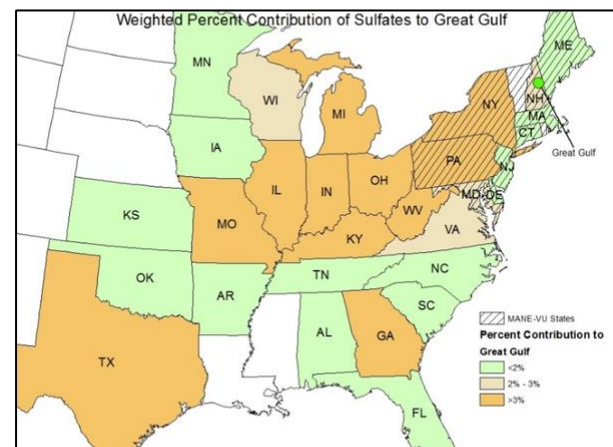
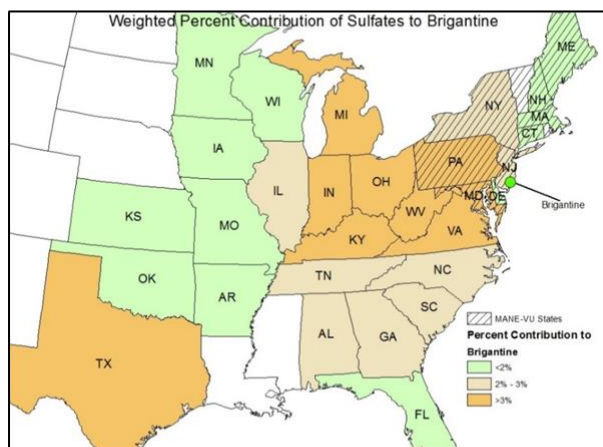
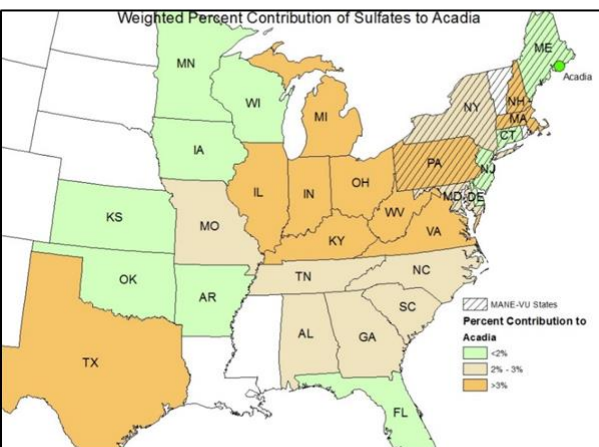




State Contributions to Impairment



Weighted Percent Contribution of Sulfates



MASS WEIGHTED PERCENT RANKINGS

	Acadia		Brigantine		Great Gulf		Lye Brook		Moosehorn	
1	OH	17	OH	18	OH	18	OH	19	OH	17
2	PA	12	PA	13	PA	12	PA	14	PA	11
3	IN	8	IN	7	IN	10	IN	8	IN	9
4	MI	6	VA	6	MI	7	MI	6	MI	7
5	VA	4	MD	5	KY	4	NY	5	KY	4
6	KY	4	MI	5	IL	4	KY	4	VA	4
7	MA	3	WV	4	NY	3	WV	4	IL	4
8	NH	3	KY	4	WV	3	VA	3	TX	3
9	IL	3	TX	3	TX	3	TX	3	MA	3
10	TX	3	GA	3	GA	3	IL	2	MO	3
11	WV	3	NJ	2	MO	3	NH	2	NH	3
12	NY	2	NC	2	NH	2	MD	2	WV	2
13	GA	2	TN	2	VA	2	MO	2	NY	2
14	MO	2	IL	2	WI	2	GA	2	GA	2
15	MD	2	AL	2	MD	2	TN	2	MD	2
16	NC	2	SC	2			AL	2	NC	2
17	SC	2	NY	2					TN	2
18	TN	2							SC	2
19	AL	2								



Contact:

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Marc.A.Cone@maine.gov**

www.maine.gov/dep

