

## SMOKE MANAGEMENT PROGRAM (SMP)



SMP - a 2<sup>nd</sup> level in "Progressive Approach" to manage smoke from Wildland Fire



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## What can a Smoke Management Program be?

- ◆ Flexible combinations of elements from Basic Smoke Management Practices & those elements unique to SMP
- ◆ Voluntary or mandatory
- ◆ Commensurate with prescribed fire impacts



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## BSMP elements ( \* critical )

1. Review & Evaluation of Meteorology & Smoke Dispersion.\*
2. Monitoring smoke dispersion & effects on air quality.\*
3. Track Fire Activity.\* (record blackened acres, location, date, & time as a base minimum)
4. Share the Air-shed
5. Public notification.
6. Exposure reduction if smoke does not disperse as planned.
7. Deploy use of ERTs.
8. Retain documentation for 3 1/2 years.



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## SMP elements ( \*critical )

1. Meteorological\*
2. Tracking Fire Information\*
3. Public Education and Awareness\*
4. Authorization to Burn
5. Surveillance and Enforcement
6. Program Evaluation



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## NC and its developing SMP

- ◆ NC's SMP has at its "core BSMP" elements.
- ◆ Serves as a reference & guidance on how emitted "wildland fire" smoke can be managed in the South Atlantic Gulf and Tennessee Air-sheds.
- ◆ Future SMP provides a "Program of choice" for the PF practitioner.
- ◆ Future SMP represents change - voluntary to involuntary program .



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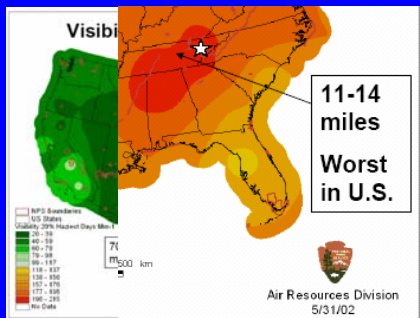
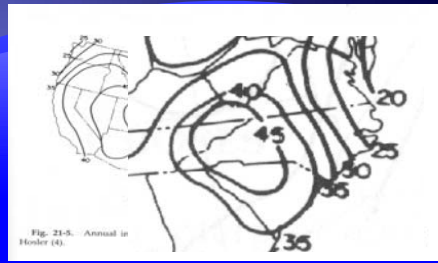
## Why evolve from a voluntary SMP to a more structured SMP.

- ◆ Request by sister agency NCDAQ to revisit & change the existing program
- ◆ Request from strategic partners to improve the current program as it was too restrictive
- ◆ Changing Regulatory Environment
- ◆ Directive from the previous State Forester to develop a program that fosters opportunities to burn



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# NC's Air-shed present situation



# NCDFR SMP Objective back in 1974

- to minimize particulate concentrations and smoke in smoke sensitive areas resulting from prescribed burning activities by defining those days and volumes of vegetative debris that may be burned

Afternoon Ventilation Rate*	Smoke Management Burning Category	Interpretation for Managers	Criteria
0 - 33,499	1 **	No Burning - unless ASA are not present for 36 hrs and favorable spot forecast acquired.**	Air Stagnation Advisory conditions are present***
33,500 - 44,999	2	Mid afternoon burning or burn initiated when burn off temperature is reached. Favorable spot forecast acquired Day burning only if very poor or poor night time smoke dispersion. Ignition initiated when	Air Stagnation Advisory conditions met but last less than 36 hours. Afternoon airport visibility 3 to 5 miles in haze.
45,000 - 59,999	3	Daytime burning only if very poor or poor night time smoke dispersion. Ignition initiated when inversion has burned off. Fire Weather Forecast to specify burn-off temperature	Night time and early morning inversions. Airport visibilities initially less than 3 miles in ground fog, haze or smoke in early morning but 5 to 7 miles in haze during the afternoon.
60,000 - 111,999	4	Burn anytime	Airport visibility 7 miles plus.
112,000 or greater	5	Unstable, windy. Excellent smoke dispersal but possible severe fire weather. Burn with caution - favorable spot forecast acquired	Airport visibility 12 miles plus.




## Permissible Emissions in Tons / 16,000 acres or 25 sq. mi.

DAYTIME VENTILATION RATE (mph-ft) (Transport Wind x Mix Height)	BURN CATEGORY
0 TO 33499	1
33500 TO 44999	2
45000 TO 59999	3
60000 TO 111999	4
112000 OR GREATER	5


NIGHT DISPERSION	FORECAST SURFACE WIND
STAGNANT	NEAR CALM
VERY POOR	2 TO 4 MPH
POOR	5 TO 8
FAIR	9 TO 12 MPH
GOOD	> 12 MPH

Distance to SSA (mi.)	BC 1	BC 2	BC 3	BC 4	BC 5
0 - 1/2	0	0	0	(1030)	(1350)
1/2 - 5	0	360 (720)	450 (900)	720* 1440+ (1440)* (2160)+	900* 1800+ (1800)* (2700)+
5 - 10	0	720 (1440)	900 (1800)	1400* 2880+ (2880)* (4320)+	1800* 3600+ (3600)* (5400)+
10 - 20	0	1080 (2160)	1350 (2700)	2160* 4320+ (4320)* (6480)+	2700* 5400+ (5400)* (8100)+
20 - 30	0	1200 (2400)	1600 (3200)	2500* 5000+ (5000)* (7500)+	3000* 6000+ (6000)* (9000)+
30+	0	1440 (2880)	1800 (3600)	2880* 5760+ (5760)* (8640)+	3600* 7200+ (7200)* (10800)+


\*NTD= VP/P  
+NTD = F/G  
( ) only UB



## OREBS results as of today & what it has done for Prescribe Fire in NC



Fiscal Year	Tract Units	Acres Burned	Burning Days
2004	14	8,422	5
2005	4	8,116	3
2006	47 (14)	20,723 (90)	17 (2)
2007	20	6,729 *	5
<b>Totals</b>	<b>85 + (14)</b>	<b>43,020 + (90)</b>	<b>30 + (2)</b>



## 32 Prescribed Burns & two incidents

March 13th, 2007  
Alligator FD Sta.

NFDRS Values

model 78 / 88

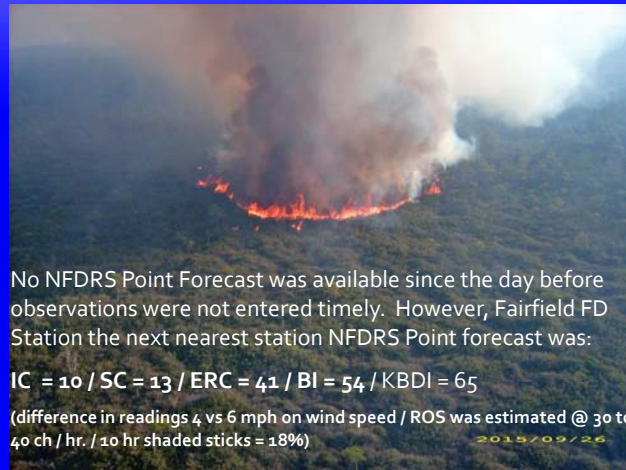
IC = 10 / 7

SC = 19 / 14

ERC = 42 / 36

BI = 68 / 52

KBDI = 65 / 65



## The Future NC SMP & Impact to Prescribed Fire Practitioners

- ◆ Participate in mandatory program which is a program of choice
- ◆ Have increased opportunities to conduct prescribed fires
- ◆ Examine closer atmospheric conditions for burning
- ◆ Facilitate better assessment of smoke impacts on downwind Smoke Sensitive Areas (SSAs)
- ◆ SSAs viewed as "old" SSAs by position & distance under VIS or as "new" SSAs assessing impact as to Visibility and PM concentrations under ADM.
- ◆ Responsible for entering burn information into an "real time electronic database"



## For the NC SMP to be implemented what has to be in place first

- ◆ Develop the NCDFR & NCDAQ MOU
- ◆ Develop operational Smoke Management Database
- ◆ Develop operational Fire Intelligence website
- ◆ Develop training modules & conduct training sessions
- ◆ Amend Forestry Laws and Air Rules
- ◆ Conduct "intervention meetings" for NCDFR & NCDAQ
- ◆ Funding for the FE & SMP
- ◆ Complete NC SMP "SID"- supporting information document



## To manage smoke and in establishing a SMP

- ◆ The most important aspect is that the practices or the program need to be commensurate with the Prescribed Fire impacts.
- ◆ If there are impacts, then what are the developing patterns that are causing concerns?
- ◆ The most stringent solution in a "Progressive Approach" is an Enhanced Smoke Management Program.





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