WATER HANDLING
&
FIRE IN ORGANIC SOILS

Managing Forested Wetlands with Fire in a Changing Climate
November 20, 2013

Portable Pumps and Water Use S-211

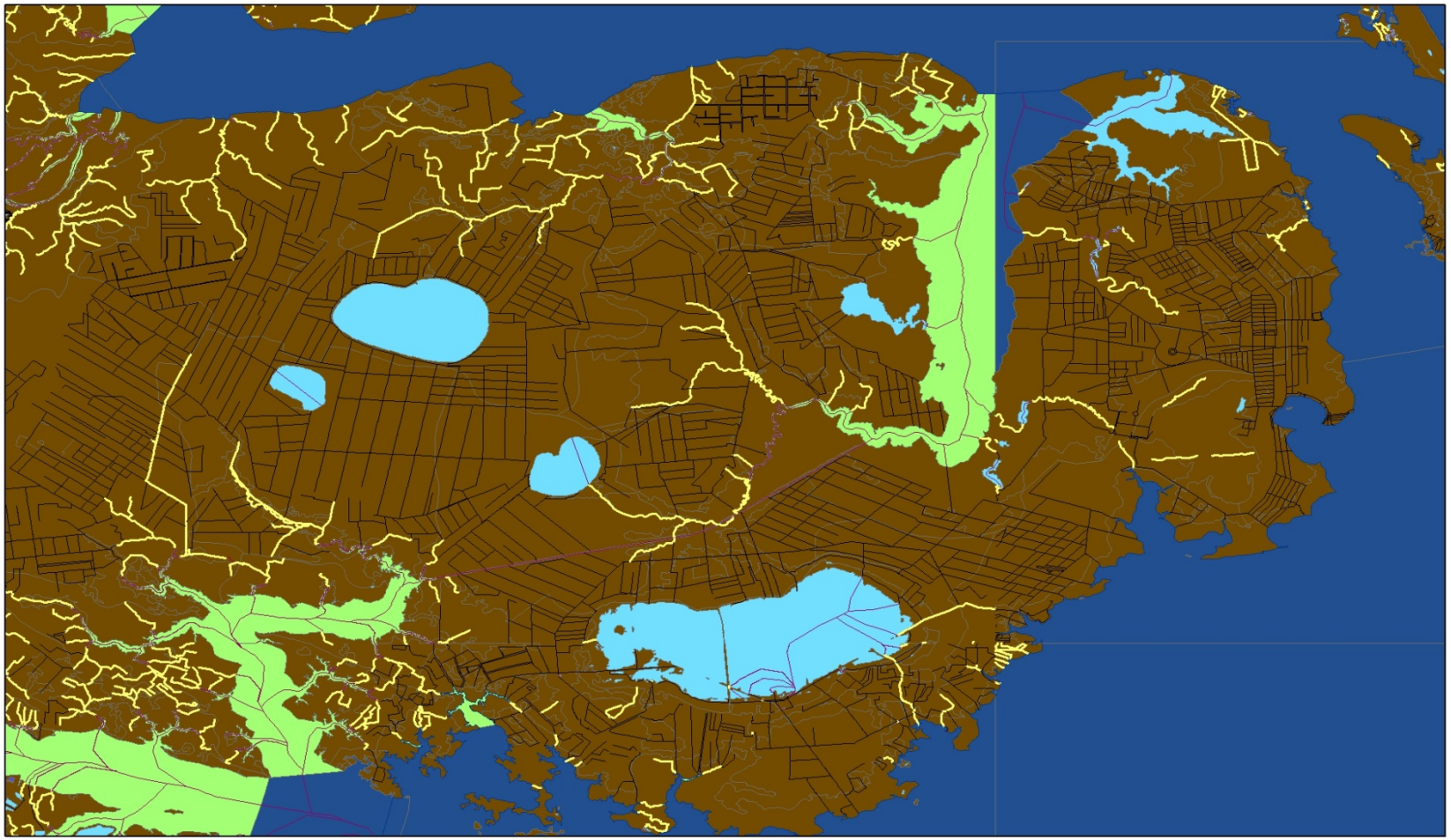
NFES 003026

Instructor Guide

MARCH 2012

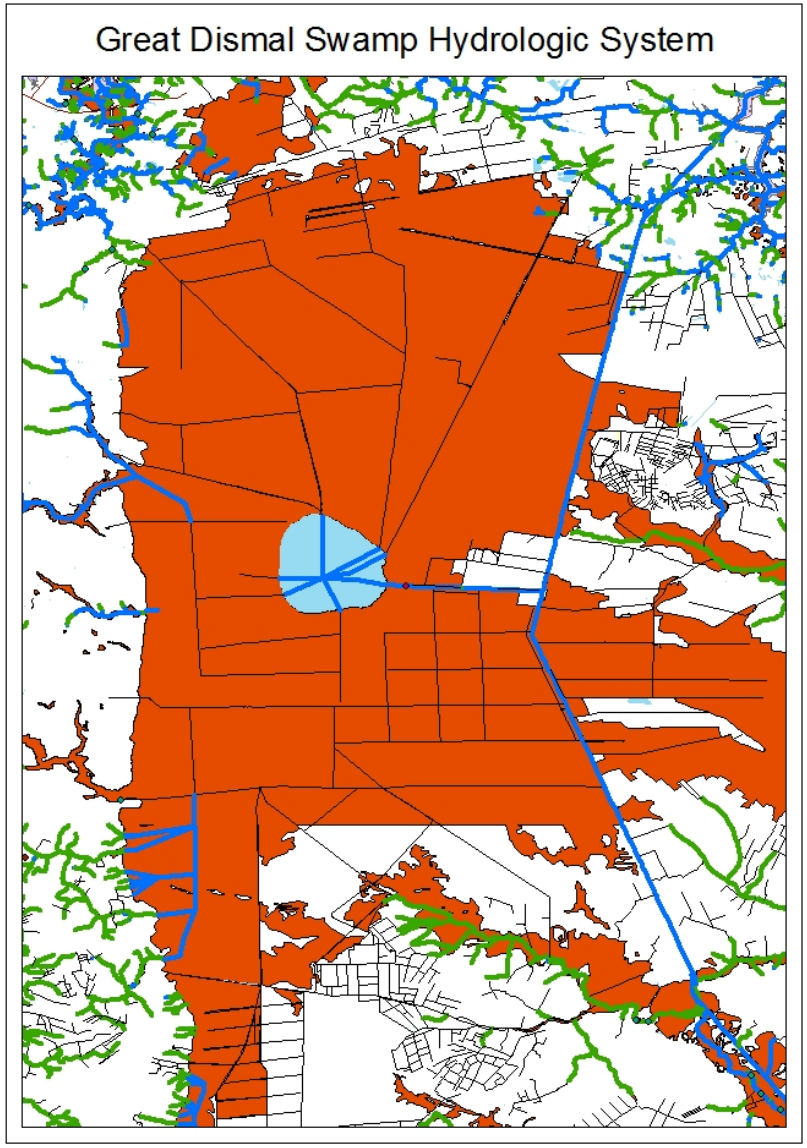

FIRE
VA-GDR-S1
F550
U.S. GOVERNMENT
MARK 3

Hydrologic System of Alligator River Peninsula

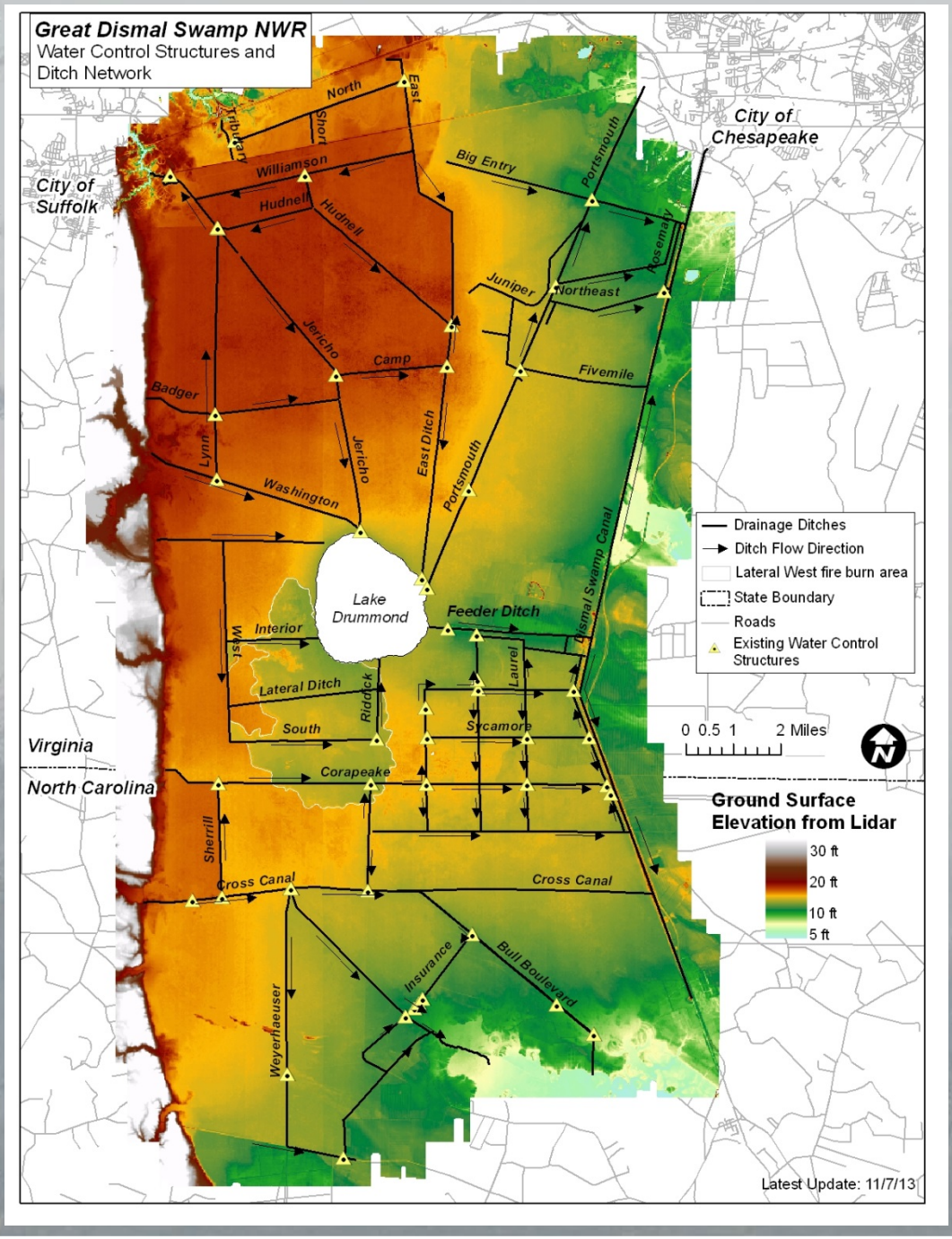


0 5 10 20 Miles

Source: USGS National Hydrography Dataset



Source: USGS National Hydrography Dataset


Great Dismal Swamp NWR
Water Control Structures and
Ditch Network
City of Suffolk
City of Chesapeake
Virginia
North Carolina
North
East
Short
Tributary
Williamson
Hudnell
Hudnell
Big Entry
Portsmouth
Rosemary
Juniper
Northeast
Jericho
Camp
Fivemile
Badger
Lynn
Jericho
East Ditch
Portsmouth
Washington
Lake Drummond
Feeder Ditch
Dismal Swamp Canal
Interior
West
Lateral Ditch
Riddick
Laurel
South
Sycamore
Corapeake
Sherrill
Cross Canal
Cross Canal
Insurance
Bull Boulevard
Weyerhaeuser
Drainage Ditches
Ditch Flow Direction
Lateral West fire burn area
State Boundary
Roads
Existing Water Control Structures
0 0.5 1 2 Miles
N
Ground Surface Elevation from Lidar
30 ft
20 ft
10 ft
5 ft
Latest Update: 11/7/13

HOW DO YOU TURN THAT INTO A WATER DELIVERY SYSTEM?

Water Handling Plan

Pains Bay Fire

NC-ALR-111006

Revised by Rodney Black, Water Handling Group Supervisor
and Jim Prevette, OSC
June 25, 2011

The Pains Bay Fire started on May 5, 2011 by a lightning strike that occurred on land owned by the US Fish and Wildlife Service. The fire spread to the north and eventually onto US Department of Defense lands (Dare Bomb Range). As of June 25, the fire footprint was sized at 45,294 acres and water handling operations have been in place for several weeks. A substantial portion of the fire burned on organic soils. These peat soils have ignited and ground fire is actively burning on approximately 7000 acres.

Irrigation and flooding of the ground fire could occur naturally by an extreme precipitation event (hurricane, tropical storm) or by blocking the existing canal systems and pumping water to flood the blocks. Initially water delivery efforts focused on wetting the northern containment lines. Most of the southern portion of the fire is in a very large block of pocosin unbroken by roads. Water movement into that block to extinguish ground fire is essentially impossible and not compatible with the suppression strategy of the US Fish and Wildlife Service.

Current water handling efforts are focused on preventing fire escape and eliminating ground fire. Seven distinct operations draw water from various sources and deliver it to different areas of the fire. The seven operations are the 264 canal, Long Curve Rd, Stumpy Point Bay, Milltail Creek, Beechland Road, Stomper Road, and Air Force Perimeter

With a high KBDI, and with hotter and dryer conditions forecasted it is recommended that all pumping operations should continue to maintain a wet perimeter around the fire where possible until the fire area receives sufficient rainfall to suppress the ground fire. Exceptions to a wet line could be mitigated by the use of rainbirds, sprinkler systems, and direct hose lays.

HOW ABOUT PRE-EVENT?

Ground Fire Suppression

&

Volume Water Handling Guide

INCIDENT MANAGEMENT

- ***The further things get from local control, the harder it is to influence operations.***

FIRE BEHAVIOR/STRATEGY AND TACTICS

- ***Fire incidents on organic soils are multi-phase events.***
- ***Get a water handling specialist on board early.***
- ***If you set it on fire, you have to be able to put it out.***
- ***Flooding operations must be maintained over a sufficient period of time to ensure that the ground fire is extinguished.***
- ***Develop and implement water handling in tandem with other fire operations.***

TOPOGRAPHY, INFRASTRUCTURE & WATER MOVEMENT

- ***It may look flat, but it's not.***
- ***Pre-event water levels/water tables effects timing and level of difficulty in moving water.***
- ***Existing and temporary WCS.***
- ***Earthen ditches are not efficient water transport devices.***
- ***Take advantage of the topography, but know there are limits.***

PUMPS AND PUMPING

- ***Not all pumps are created equal.***
- ***Not all water sources are created equal.***
- ***All pumps have an estimated capacity or pumping rate, however actual measurements of flow and results in the field may vary.***
- ***The laws of physics apply.***

REGULATORY REQUIREMENTS & ENVIRONMENTAL BMPS

- ***Clean Water Act – USACOE***
- ***Assign resource advisors for the water-handling ops.***
- ***Improving or establishing infrastructure.***
- ***Heavy equipment and pumps should be cleaned before and after use to prevent the spread of invasive plants.***
- ***Evaluate water sources for suitability***

RESOURCES AND COSTS

- ***Contracted vs. force account - What do we have/What do we need?***
- ***Contracted cost history - $1.8 m Pains Bay, $2.2 m LW***
- ***Some contracting and cost alternatives to EERAs- BPAs, IDIQs***
- ***Pre-season or pre-suppression water movement.***

LOGISTICS NEEDED TO SUPPORT

- ***Heavy equipment w/ operators***
- ***Fill material and delivery for plugs***
- ***Pump and tractor service and maintenance***
- ***It all adds up to time, money and personnel***

CONSEQUENCES OF DOING IT WRONG

- ***Duration***
- ***Cost***
- ***Ecological damage***
- ***Public and FF Safety***

NEXT STEPS

R-1 School
Advanced Water Handling 2012
Dare Bomb Range
Dare County

Incident Action Plan
October 22-26, 2012
0730-1930 hrs

Minnesota Peat Fire Suppression Course

- Course Development by the following Minnesota DNR Forestry employees:
  - Mike Aultman
  - Brian Pisarek
  - Dana Carlson
  - John Faulkner
  - Kip Nelson
  - Gene Mannelin

QUESTIONS?