



Refuge Purpose and Establishment

- Pungo Unit (formerly Pungo NWR)
 - 12,350 acres
 - Established in 1963
 - Waterfowl and Migratory Bird Sanctuary
- Pocosin Lakes NWR
 - 110,106 ac (including Pungo Unit)
 - Established in 1990
 - Conserve the unique pocosin wetlands



POCOSIN LAKES NWR IS LOCATED IN THE ALBEMARLE-PAMLICO PENINSULA, SURROUNDED BY THE ALBEMARLE AND PAMLICO SOUNDS. THE REFUGE ENCOMPASSES APPROXIMATELY 110,106 ACRES OF WASHINGTON, HYDE, AND TYRRELL COUNTIES IN NORTH CAROLINA.

THE PUNGO UNIT, ORIGINALLY PUNGO NATIONAL WILDLIFE REFUGE, IS 12,350 ACRES AND WAS ESTABLISHED IN 1963 AS A WATERFOWL AND MIGRATORY BIRD SANCTUARY. IN 1990, THE US FISH AND WILDLIFE SERVICE ESTABLISHED POCOSIN LAKES NWR AND DESIGNATED PUNGO NWR AS A UNIT OF THE NEW REFUGE. POCOSIN LAKES NWR WAS ESTABLISHED PRIMARILY TO CONSERVE UNIQUE POCOSIN WETLANDS. A KEY COMPONENT OF REFUGE MANAGEMENT IS TO RESTORE AND MAINTAIN NATURAL PROCESSES AND BIODIVERSITY OF A FUNCTIONAL POCOSIN WETLAND AND PROVIDE HABITAT FOR THREATENED, ENDANGERED, AND OTHER FEDERAL TRUST SPECIES AS WELL AS OTHER WILDLIFE THAT OCCUR IN POCOSINS ALL OR PART OF THE YEAR.



PURPOSE AND NEED

- Pocosin Lakes NWR Comprehensive Conservation Plan
 - Describes future desired conditions
 - Provides long range guidance and management direction
 - Establishes goals and objectives for wildlife populations, habitat management and resource protection
- Water Management Plan
 - Step down management plan from CCP
 - Charts the course for refuge management in future
 - Protects Service investments in restoration
 - Prioritizes adaptive management
 - Describes water management infrastructure, system functions and limitations, and management strategies



MANAGEMENT ACTIVITIES AT POCOSIN LAKES ARE GUIDED BY THE REFUGE'S COMPREHENSIVE CONSERVATION PLAN, WHICH IS A PLAN THAT DESCRIBES THE DESIRED FUTURE CONDITIONS OF A REFUGE AND PROVIDES LONG-RANGE GUIDANCE AND MANAGEMENT DIRECTION TO ACHIEVE THE PURPOSES OF THE REFUGE. THE COMPREHENSIVE CONSERVATION PLAN FOR POCOSIN LAKES NWR ESTABLISHED GOALS AND OBJECTIVES FOR WILDLIFE POPULATIONS, HABITAT MANAGEMENT, AND RESOURCE PROTECTION.

THIS DRAFT WATER MANAGEMENT PLAN IS A STEP-DOWN MANAGEMENT PLAN THAT BUILDS UPON THE INFORMATION, GOALS AND OBJECTIVES PRESENTED IN THE CCP WITH MORE SPECIFIC DETAILS ON MANAGEMENT ACTIONS TO ACHIEVE SPECIFIC OUTCOMES. THE DRAFT WATER MANAGEMENT PLAN CHARTS THE COURSE FOR REFUGE MANAGEMENT IN THE COMING YEARS, PROTECTS SERVICE INVESTMENTS IN THIS RESTORATION, AND PRIORITIZES ADAPTIVE MANAGEMENT BASED ON SITE-SPECIFIC DATA COLLECTION. THE PLAN DESCRIBES WATER MANAGEMENT INFRASTRUCTURE ON THE REFUGE, SYSTEM FUNCTIONS AND LIMITATIONS, AND MANAGEMENT STRATEGIES TO MEET REFUGE GOALS & OBJECTIVES.



Draft Water Management Planning Process

- Incorporated an Environmental Assessment to provide a transparent, open, and inclusive process
- Informed by public input
 - Open Houses to gather information
 - Engagement with partners, stakeholders, interested parties
- Based on best available science
 - Water Resources Inventory and Assessment
 - Research, modeling, and monitoring efforts by U.S. Geological Survey, North Carolina Department of Emergency Management, and Kris Bass Engineering
 - Service programs specializing in restoration and management
- Opportunity for public review and comment on draft plan

AS WE BEGAN THE PROCESS OF DEVELOPING THE DRAFT WATER MANAGEMENT PLAN, IN KEEPING WITH OUR VALUES OF BEING GOOD MANAGERS OF THE RESOURCE AND BEING GOOD NEIGHBORS, WE INCORPORATED A DRAFT ENVIRONMENTAL ASSESSMENT WITH THE PLAN TO PROVIDE A TRANSPARENT, OPEN, AND INCLUSIVE PROCESS TO OUR STAKEHOLDERS, NEIGHBORS, PARTNERS, AND OTHER MEMBERS OF THE PUBLIC. WE HOSTED OPEN HOUSES TO GATHER COMMENTS AND IDEAS ABOUT THE DEVELOPMENT OF THE PLAN. WE ENGAGED PARTNERS, STAKEHOLDERS, AND OTHER INTERESTED PARTIES THROUGH A VARIETY OF INTERACTIONS AND VISITS. INPUT RECEIVED DURING THESE INTERACTIONS HELPED TO IDENTIFY TOPICS ADDRESSED IN THE PLAN.

THE DRAFT PLAN IS BASED ON THE BEST AVAILABLE SCIENCE AND IS INFORMED BY A REFUGE-SPECIFIC WATER RESOURCES INVENTORY AND ASSESSMENT; RESEARCH, MODELING, AND MONITORING EFFORTS; AND INVOLVEMENT FROM SERVICE COLLEAGUES WHO SPECIALIZE IN PEATLAND RESTORATION AND MANAGEMENT, INCLUDING STAFF FROM ECOLOGICAL SERVICES, THE PARTNERS FOR FISH AND WILDLIFE PROGRAM, AND MIGRATORY BIRDS.

THROUGH THIS PUBLIC REVIEW PERIOD AND COMMENT OPPORTUNITY, WE WANT

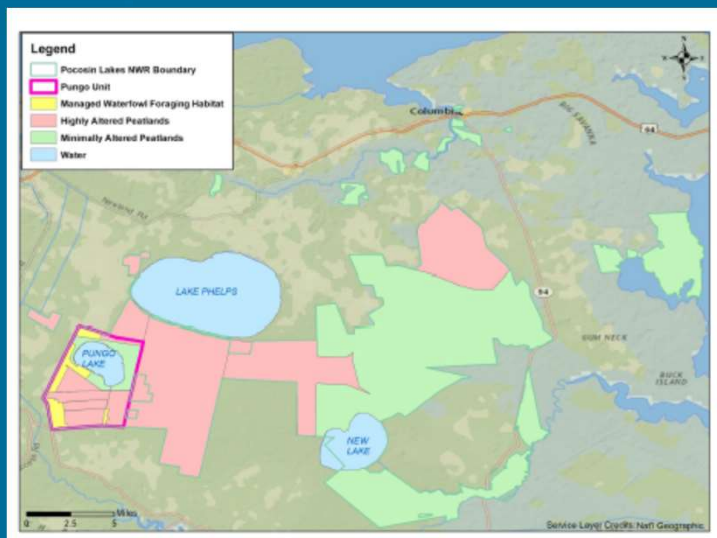
TO HEAR FROM OUR NEIGHBORS, STAKEHOLDERS, PARTNERS, AND OTHERS ABOUT THEIR THOUGHTS, CONCERNS, SUPPORT FOR EFFORTS, INTEREST IN EFFORTS, AND OTHER MEANINGFUL FEEDBACK THAT WILL INFORM THE FINAL PLAN.



Draft Water Management Plan / EA

Management Zones

- Managed Waterfowl Habitat
 - 8,300 acres
 - Pungo Lake, part of New Lake, croplands, moist soil and forested wetland impoundments
- Highly Altered Peatlands
 - 43,000 acres
 - Areas heavily ditched and drained prior to refuge establishment
 - Divided into five restoration areas
- Minimally Altered Peatlands
 - 58,500 acres
 - Northwest and Southwest fork of Alligator River, Frying Pan areas, along Scuppernong River



OVERALL, HABITAT MANAGEMENT AT POCOSIN LAKES NWR IS GREATLY INFLUENCED BY TWO THINGS: FIRE AND WATER. BECAUSE THE REFUGE IS LOCATED WITHIN A RAINFALL DRIVEN SYSTEM, MEANING RAINFALL IS THE PRIMARY SOURCE OF WATER IN THE SYSTEM, DURING EXTREME WEATHER CONDITIONS THE REFUGE CAN EITHER EXPERIENCE TOO MUCH OR TOO LITTLE WATER. TOO MUCH RAIN LEADS TO SURFACE RUNOFF, CALLED SHEET FLOW, AND POTENTIALLY FLOODING ISSUES. TOO LITTLE WATER CAN LEAD TO DROUGHT CONDITIONS MAKING THE LANDSCAPE MORE SUSCEPTIBLE TO LARGE, HABITAT-DESTROYING WILDFIRE. A WATER SUPPLY IS CRITICAL TO CONTAINING AND CONTROLLING FIRE; THEREFORE, WATER MANAGEMENT IS THE MOST CRITICAL MANAGEMENT NEED AT THE REFUGE. FOR THE PURPOSES OF THIS PLAN, THE REFUGE IS DESCRIBED IN THREE MANAGEMENT ZONES: MANAGED WATERFOWL HABITAT, HIGHLY ALTERED PEATLANDS, AND MINIMALLY ALTERED PEATLANDS.

MANAGED WATERFOWL HABITAT, SHOWN HERE IN YELLOW, INCLUDES PUNGO LAKE AND PART OF NEW LAKE, CROPLANDS, AND MOIST SOIL AND FORESTED WETLAND IMPOUNDMENTS WHICH TOTAL APPROXIMATELY 8,300 ACRES OF THE REFUGE. ALL MANAGED WATERFOWL HABITAT EXCEPT FOR NEW LAKE IS LOCATED ON THE PUNGO UNIT OF THE REFUGE.

HIGHLY ALTERED PEATLANDS, SHOWN HERE IN PINK, INCLUDE THOSE WETLAND AREAS WHERE THE LAND WAS HEAVILY DITCHED AND DRAINED PRIOR TO THE ESTABLISHMENT OF THE REFUGE. TO DATE, THE REFUGE HAS RESTORED THE HYDROLOGY ON OVER 37,000 ACRES OF HIGHLY ALTERED PEATLANDS.

MINIMALLY ALTERED PEATLANDS, SHOWN HERE IN GREEN, COMPRISE MOST OF THE REMAINDER OF THE REFUGE. ABOUT HALF OF THE REFUGE IS MINIMALLY ALTERED. GENERALLY, THERE IS LIMITED OR NO WATER MANAGEMENT CAPABILITY IN THE MINIMALLY ALTERED PEATLANDS.



Draft Water Management Plan / EA



GOAL 1 – MANAGE WATER RESOURCES TO PROVIDE OPTIMAL WINTERING WATERFOWL HABITAT



GOAL 2 - RESTORE, MANAGE, MAINTAIN AND PROTECT HYDROLOGICALLY ALTERED PEATLANDS



GOAL 3 – MAINTAIN AND PROTECT MINIMALLY ALTERED PEATLANDS



GOAL 4 – ENHANCE FIRE MANAGEMENT CAPABILITIES

THE SERVICE'S MANAGEMENT APPROACH WILL VARY WITHIN THE THREE DISTINCT ZONES I JUST DESCRIBED: MANAGED WATERFOWL HABITAT, HIGHLY ALTERED PEATLANDS, AND MINIMALLY ALTERED PEATLANDS. THE DRAFT WATER MANAGEMENT PLAN ESTABLISHES FOUR PRIMARY WATER MANAGEMENT GOALS FOR THE THREE MANAGEMENT ZONES. THE FOURTH GOAL RELATED TO FIRE MANAGEMENT CROSS CUTS ALL THREE ZONES.

GOAL 1. MANAGE WATER RESOURCES TO PROVIDE OPTIMAL WINTERING WATERFOWL HABITAT.

GOAL 2. RESTORE, MANAGE, MAINTAIN AND PROTECT HYDROLOGICALLY ALTERED PEATLANDS.

GOAL 3. MAINTAIN AND PROTECT MINIMALLY ALTERED PEATLANDS.

GOAL 4. ENHANCE FIRE MANAGEMENT CAPABILITIES.



Draft Water Management Plan / EA

ALTERNATIVES

- ALTERNATIVE A (No Action) - Current management
- ALTERNATIVE B (Proposed Action) - Expanding adaptive management framework
- ALTERNATIVE CONSIDERED BUT INFEASIBLE TO CARRY FORWARD - active drainage management to maximize stormwater retention capacity



STRATEGIES

Management, Research & monitoring, Stakeholder engagement

THE DRAFT ENVIRONMENTAL ASSESSMENT DESCRIBES AND EVALUATES TWO ALTERNATIVES TO MEETING THE FOUR OVERARCHING GOALS OF THE PLAN. UNDER THE NO ACTION ALTERNATIVE, ALTERNATIVE A, CURRENT MANAGEMENT OF THE REFUGE WOULD CONTINUE. THE SERVICE WOULD PROTECT, MAINTAIN, RESTORE, AND ENHANCE 110,106 ACRES OF REFUGE LANDS USING WATER MANAGEMENT CAPABILITY FOR RESIDENT WILDLIFE, WATERFOWL, MIGRATORY NONGAME BIRDS, AND THREATENED AND ENDANGERED SPECIES. REFUGE STAFF WOULD DIRECT ALL WATER MANAGEMENT ACTIONS TOWARD ACHIEVING THE REFUGE'S PRIMARY PURPOSES.

ALTERNATIVE B IS THE BASIS FOR THE DRAFT WATER MANAGEMENT PLAN AND IS THE SERVICE'S PROPOSED ACTION. ALTERNATIVE B SHIFTS TO AN EXPANDED ADAPTIVE MANAGEMENT FRAMEWORK TO EVALUATE THE EFFICACY OF WATER MANAGEMENT ACTIONS RELATIVE TO REFERENCE, THAT IS UNALTERED, OR HYDROLOGICALLY FUNCTIONING, POCOSIN WETLANDS. THIS ALTERNATIVE ALSO EXPANDS WATER MANAGEMENT CAPABILITY IN THE PUNGO UNIT HABITATS, EVALUATES THE POTENTIAL FOR ADDITIONAL RESTORATION AREAS, EXPLORES MECHANISMS TO IMPROVE DRAINAGE CONDITIONS IN LOW LYING PORTIONS OF THE REFUGE, AND ASSESSES FLOODPLAIN CONNECTIVITY TO ENHANCE INTACT PEATLANDS.

A COMMON REQUEST OF THE SERVICE IS TO MANAGE DRAINAGE LEVELS ACTIVELY TO RETAIN STORMWATER IN RESPONSE TO CHANGING WEATHER CONDITIONS AND RAINFALL EVENTS. WHILE SOME STORMWATER RETENTION OCCURS IN THE RESTORATION AND WATERFOWL MANAGEMENT AREAS FROM SIMPLY INSTALLING AND USING THE RESTORATION INFRASTRUCTURE, SETTING LOWER DRAINAGE LEVELS IS GENERALLY CONTRARY TO THE REFUGE PURPOSES AND GOALS, WOULD ALLOW PEAT SOILS TO ARTIFICIALLY DRY OUT, AND WOULD INCREASE WILDFIRE RISKS. CONSEQUENTLY, THE SERVICE CONSIDERED AN ACTIVE DRAINAGE LEVEL MANAGEMENT ALTERNATIVE AND DETERMINED IT TO BE INFEASIBLE TO CARRY FORWARD BECAUSE IT IS NOT CONSISTENT WITH SATISFYING THE PURPOSE AND NEED FOR WHICH THE EA IS BEING PREPARED. ALTHOUGH THE SERVICE HAS DETERMINED THAT ACTIVE DRAINAGE MANAGEMENT TO INCREASE STORMWATER RETENTION CAPACITY IS INFEASIBLE TO IMPLEMENT AS AN ALTERNATIVE IN THIS ENVIRONMENTAL ASSESSMENT, WE ARE AMENABLE TO UTILIZING REFUGE INFRASTRUCTURE TO FACILITATE BENEFICIAL OFF-REFUGE OUTCOMES WHILE ALSO MEETING THE REFUGE PURPOSE AND GOALS.

UNDER EACH ALTERNATIVE, THE STRATEGIES FOR ACHIEVING THE PLAN'S GOALS AND OBJECTIVES FALL INTO MANAGEMENT, RESEARCH AND MONITORING, AND STAKEHOLDER ENGAGEMENT ACTIVITIES. I WILL NOW SHARE MORE DETAILS ABOUT HOW THE OBJECTIVES AND STRATEGIES DIFFER BETWEEN EACH ACTION ALTERNATIVE FOR THE EACH OF THE FOUR GOALS I PREVIOUSLY DESCRIBED.



GOAL 1 MANAGED WATERFOWL HABITAT

GOAL 1: Provide wintering waterfowl habitat to support not only historic numbers of tundra swans, geese, and ducks but also additional numbers of birds due to the loss of habitat on the AP Peninsula from past and future sea level rise and other climate change factors.

Alternative A	Alternative B (Proposed Alternative)
<ul style="list-style-type: none"> • Continue to manage existing cropland • Continue to manage water on existing moist soil impoundments • Continue to manage water on existing seasonally flooded forested wetlands • Use board management to maintain “full pool” to extent possible during waterfowl season in Pungo Lake and New Lake 	<ul style="list-style-type: none"> • Increase the amount of grain available to wintering waterfowl • Expand the acreage of moist soil impoundments • Expand forested wetland habitats • Evaluate and if feasible, install a well and pump system on Pungo Lake • Work with stakeholders with an interest in New Lake • Develop innovative, web-based tools for engagement with stakeholders • Establish new water monitoring sites

UNDER GOAL 1 IN ALTERNATIVE A, THE REFUGE WOULD CONTINUE TO MANAGE CROPLAND THROUGH COOPERATIVE FARMING AGREEMENTS WITH LOCAL FARMERS, WATER ON MOIST SOIL IMPOUNDMENTS, AND TO MANAGE WATER TO PROVIDE SEASONALLY FLOODED FORESTED WETLAND HABITAT. THE REFUGE WOULD CONTINUE TO MANAGE DRAINAGE TO PROMOTE CROP PRODUCTION IN AGRICULTURAL FIELDS AND NATIVE PLANTS IN MOIST SOIL IMPOUNDMENTS AND IMPOUNDED FORESTED WETLANDS DURING THE GROWING SEASON. FOLLOWING THE GROWING SEASON, THE REFUGE WOULD ALSO CONTINUE TO SHALLOWLY FLOOD IMPOUNDMENTS TO MAKE THE CROPS AND PLANTS AVAILABLE TO WINTERING WATERFOWL. THE REFUGE WOULD MAINTAIN DRAINAGE LEVELS FOR PUNGO LAKE AND NEW LAKE THAT ATTEMPT TO MAXIMIZE ROOSTING AND RESTING HABITAT AND SANCTUARY FOR TUNDRA SWANS, CANADA GEESE, SNOW GEESE, AND MANY SPECIES OF DUCK.

UNDER THE PROPOSED ALTERNATIVE, THE REFUGE WOULD INCREASE THE AMOUNT OF GRAIN (CORN), THE ACREAGE OF MOIST SOIL IMPOUNDMENTS, AND THE ACREAGE OF FORESTED WETLAND IMPOUNDMENTS AVAILABLE TO WINTERING WATERFOWL. IF FEASIBLE, THE REFUGE WOULD INSTALL A WELL AND PUMP SYSTEM ON PUNGO LAKE THAT COULD REFILL THE LAKE FOLLOWING A PARTIAL LAKE WATER DRAWDOWN DURING THE GROWING SEASON. UNDER THIS ALTERNATIVE, THE REFUGE WOULD WORK WITH STAKEHOLDERS AT NEW LAKE TO BALANCE MULTIPLE

INTERESTS, INCLUDING AGRICULTURAL, HUNTING, AND WILDLIFE MANAGEMENT NEEDS. ADDITIONALLY, THE REFUGE WOULD DEVELOP INNOVATIVE, WEB-BASED TOOLS FOR ENGAGEMENT WITH STAKEHOLDERS AND FOR EDUCATION PURPOSES AND EXPAND THE MONITORING NETWORK BY ESTABLISHING NEW WATER MONITORING SITES.



GOAL 2 HIGHLY ALTERED PEATLANDS

GOAL 2: Restore, or mimic, the natural hydrology of highly altered areas of pocosin wetlands/peatlands and rewet the peat soils to promote natural pocosin vegetation and conditions, enhance wildlife habitat, and prevent the loss of peat via oxidation and wildfire.

Alternative A	Alternative B (Proposed Alternative)
<ul style="list-style-type: none"> • Continue to set drainage levels based on professional observation and judgement, informed by: <ul style="list-style-type: none"> ➢ Water level data collected at riser structure and response to rainfall and other factors ➢ Analysis of other research and monitoring data • Continue to protect restored peatlands from further ditching or draining 	<ul style="list-style-type: none"> • Install wells in reference pocosins and adjust drainage levels as needed to mimic natural hydrological conditions • Evaluate, and implement as appropriate, projects that restore all or part of altered pocosins • Evaluate and change management at specific locations experiencing higher river levels to facilitate water drainage off the land to area rivers • Establish new plantings of Atlantic white-cedar and bald cypress • Expand monitoring network

THE GOAL OF WATER OR DRAINAGE MANAGEMENT IN THE HIGHLY ALTERED PEATLAND AREAS OF THE REFUGE IS TO REVERSE, TO THE EXTENT POSSIBLE WITHOUT CAUSING NEGATIVE IMPACTS TO ADJACENT LANDS, EXCESSIVE DRYING OF THE PEAT SOIL VIA THE DITCH SYSTEM, TO PREVENT CATASTROPHIC WILDFIRE, AND TO REESTABLISH POCOSIN WETLAND HYDROLOGIC CHARACTERISTICS AND VEGETATION.

UNDER ALTERNATIVE A, DRAINAGE SETTINGS IN RISERS WOULD CONTINUE TO BE SET AND MODIFIED ADAPTIVELY BY REFUGE STAFF BASED ON PROFESSIONAL OBSERVATION AND JUDGEMENT, INFORMED BY 1) COLLECTING WATER LEVEL DATA AT THE RISER AND EVALUATING ITS RESPONSE TO RAINFALL AND OTHER FACTORS AND 2) ANALYSIS OF OTHER RESEARCH AND MONITORING DATA COLLECTED IN RECENT YEARS. THE REFUGE WOULD CONTINUE TO PROTECT RESTORED PEATLANDS FROM FURTHER DITCHING OR DRAINING.

UNDER THE PROPOSED ALTERNATIVE, THE REFUGE WOULD INSTALL WELLS AT STRATEGIC LOCATIONS TO MONITOR GROUNDWATER LEVELS IN “REFERENCE” POCOSINS THAT ARE AREAS WITH NATURALLY FUNCTIONING POCOSIN HYDROLOGY. THIS DATA WOULD THEN BE USED TO ADJUST DRAINAGE LEVELS AS NEEDED TO MIMIC NATURAL HYDROLOGIC CONDITIONS IN THE WATER MANAGEMENT UNITS AS CLOSELY AS POSSIBLE ON AS MUCH OF THE WMU AREA AS POSSIBLE. THE REFUGE WOULD SHIFT TOWARDS USING MORE COMPREHENSIVE MONITORING DATA TO GUIDE

DRAINAGE LEVEL MANAGEMENT. ACHIEVING NATURALLY FLUCTUATING WETLAND HYDROLOGY CONDITIONS WILL FOSTER THE GROWTH OF NATIVE PLANT SPECIES, SUCH AS ATLANTIC WHITE-CEDAR AND BALD CYPRESS, WHICH IN TURN WILL BENEFIT NATIVE FAUNA. THE REFUGE WOULD ALSO EVALUATE, AND IMPLEMENT AS APPROPRIATE, PROJECTS THAT RESTORE ALL OR PART OF ALTERED POCOSINS WITHOUT NEGATIVELY IMPACTING ADJACENT DRAINED PRIVATE LANDS. HIGHER AVERAGE RIVER LEVELS CONTROLLING CONDITIONS AT SPECIFIC LOCATIONS ON THE REFUGE NECESSITATE A CHANGE IN WATER MANAGEMENT APPROACH FROM ONE OF REWETTING PREVIOUSLY DRAINED SOILS TO ONE OF FACILITATING A WATER DRAINAGE OFF THE LAND TO AREA RIVERS. THE REFUGE WOULD DEVELOP AND IMPLEMENT PLANS FOR ENCOURAGING THE DRAINAGE OF WATER AND REMOVING IMPEDIMENTS TO FLOW IN THESE LOCATIONS. UNDER THIS ALTERNATIVE, THE REFUGE WOULD EVALUATE OPPORTUNITIES TO ESTABLISH NEW PLANTINGS OF ATLANTIC WHITE-CEDAR AND BALD CYPRESS IN APPROPRIATE LOCATIONS AND EXPAND THE MONITORING NETWORK BY ESTABLISHING NEW GROUND AND SURFACE WATER MONITORING SITES.



GOAL 3 MINIMALLY ALTERED PEATLANDS

GOAL 3: Protect peatlands with relatively intact natural, minimally altered hydrology from any further alteration; enhance natural hydrologic conditions where practicable without eliminating all existing access for management and other purposes.

Alternative A	Alternative B (Proposed Alternative)
<ul style="list-style-type: none"> • Continue to protect from further ditching or draining • Maintain current roads for access • Treat invasive species in natural waterways 	<p>In addition to Alternative A,</p> <ul style="list-style-type: none"> • Expand water level monitoring in intact and minimally altered pocosins • Evaluate and implement resiliency measures and infrastructure to prevent loss of intact pocosins • Expand monitoring network • Explore, evaluate, and execute projects that increase floodplain connectivity where practicable

MANAGEMENT IN MINIMALLY ALTERED PEATLAND HABITAT FOCUSES ON PREVENTING FURTHER ALTERATIONS, DETECTING AND RESPONDING TO INVASIVE SPECIES PRESENCE EARLY, AND RESEARCHING VARIOUS ASPECTS OF THIS HABITAT TYPE. UNDER ALTERNATIVE A, THE REFUGE WOULD CONTINUE TO PROTECT THESE AREAS FROM ANY FURTHER DITCHING OR DRAINING WHILE, TO THE EXTENT PRACTICABLE, MAINTAINING MOST OF THE CURRENT ROADS FOR ACCESS. THE REFUGE WOULD ALSO TREAT INVASIVE SPECIES IN NATURAL WATERWAYS TO PROTECT MINIMALLY ALTERED PEATLANDS FROM INFESTATION.

IN ADDITION TO THE MANAGEMENT STRATEGIES UNDER ALTERNATIVE A, UNDER THE PROPOSED ALTERNATIVE, THE REFUGE WOULD EXPAND WATER LEVEL MONITORING IN INTACT AND MINIMALLY ALTERED POCOSINS AND ASSESS THE POTENTIAL TO APPLY THESE DATA TO INFORM MANAGEMENT OF RESTORED POCOSIN AREAS. THE REFUGE WOULD EVALUATE AND IMPLEMENT, AS FEASIBLE, RESILIENCY MEASURES AND INFRASTRUCTURE TO PREVENT LOSS OF INTACT POCOSINS. UNDER THIS ALTERNATIVE, THE REFUGE WOULD EXPAND THE MONITORING NETWORK BY ESTABLISHING NEW GROUND AND SURFACE WATER MONITORING AND ASSESS FLOODPLAIN CONNECTIVITY TO ENHANCE INTACT PEATLANDS.



GOAL 4 FIRE MANAGEMENT CAPABILITIES

GOAL 4: Minimize and control wildfires as quickly as possible and facilitate prescribed burning for hazardous fuels reduction and wildlife habitat management using any and all water management capabilities.

Alternative A	Alternative B (Proposed Alternative)
<ul style="list-style-type: none">• Continue to use any available water to contain or extinguish a wildfire• Continue to adapt water management strategies to prevent all or most ground fire during prescribed burning operations	<p>In addition to Alternative A,</p> <ul style="list-style-type: none">• Expand soil moisture, estimated smoldering potential, and water level monitoring• Expand research on habitat response to wildfire• Explore opportunities to increase drainage settings to temporarily retain extra moisture from passing storms to achieve conditions for resuming prescribed burning operations.

UNDER ALTERNATIVE A, THE REFUGE WOULD CONTINUE TO USE ANY AVAILABLE WATER TO CONTAIN OR EXTINGUISH A WILDFIRE AT THE SMALLEST ACREAGE POSSIBLE AND TO ADAPT WATER MANAGEMENT STRATEGIES TO PREVENT ALL OR MOST GROUND FIRE DURING BURNING OPERATIONS.

IN ADDITION TO THE MANAGEMENT ACTIVITIES DESCRIBED UNDER ALTERNATIVE A, UNDER THE PROPOSED ALTERNATIVE, THE REFUGE WOULD EXPAND SOIL MOISTURE, ESTIMATED SMOLDERING POTENTIAL, AND WATER LEVEL MONITORING AND EXPAND RESEARCH ON HABITAT RESPONSE TO WILDFIRE. THE REFUGE WOULD ALSO EXPLORE AND ASSESS OPPORTUNITIES TO INCREASE DRAINAGE SETTINGS IN ORDER TO TEMPORARILY RETAIN EXTRA MOISTURE FROM PASSING STORMS TO FACILITATE APPROPRIATE CONDITIONS FOR RESUMING PRESCRIBED BURNING OPERATIONS.



EXTREME WEATHER EVENTS

- Rising sea levels, higher average sound and river levels
- Hurricanes and other coastal storms with large amounts of rainfall
- Wind tides and storm surge
- Droughts



WE RECOGNIZE, ALONG WITH MANY OTHERS, THAT THINGS ARE CHANGING IN THE ALBEMARLE-PAMLICO (AP) LANDSCAPE. IT IS ONE OF THE MOST VULNERABLE AREAS TO IMPACTS FROM SEA LEVEL RISE IN THE COUNTRY. IN THE DRAFT PLAN, WE'VE INCLUDED A DESCRIPTION OF HOW EXTREME WEATHER EVENTS CAN HAVE SIGNIFICANT IMPACTS ON REFUGE AND ADJACENT LANDS, INFRASTRUCTURE, AND WATER. HURRICANES AND OTHER COASTAL STORMS CAN BRING LARGE AMOUNTS OF RAINFALL IN A SHORT PERIOD OF TIME WHILE WIND TIDES OR STORM SURGE CAN PUSH WATERS EVEN HIGHER IN THE RIVERS. THE COMBINATION OF HIGH RAINFALL AND HINDERED DRAINAGE INTO THE RIVERS CAN RESULT IN EXTENSIVE FLOODING ON THE LANDSCAPE. ALTERNATIVELY, DURING DROUGHTS, WHEN THERE IS A LACK OF WATER SUPPLY, EVAPOTRANSPIRATION CAN DRY OUT THE PEAT SOILS, AND THE REGION CAN BECOME MORE SUSCEPTIBLE TO LARGE, CATASTROPHIC WILDFIRES.

CONSISTENT WITH THE REFUGE MISSION AND PURPOSE, THE FOCUS OF MANAGEMENT IS ON RESTORING HYDROLOGY AND REDUCING THE RISK OF CATASTROPHIC WILDFIRE; HOWEVER, THERE ARE CIRCUMSTANCES WHERE REFUGE INFRASTRUCTURE MAY PROVIDE SOME POTENTIAL TO AMELIORATE EXTREME WEATHER IMPACTS. DECISIONS REGARDING ADJUSTMENTS TO DRAINAGE LEVELS PRIOR TO FORECASTED STORMS WILL BE CONSIDERED ON A CASE-BY-CASE BASIS AND AT A LIMITED GEOGRAPHIC SCOPE CONSIDERING THE BEST AVAILABLE INFORMATION ABOUT EACH STORM, INCLUDING WATER LEVELS PRIOR TO POSSIBLE DRAW DOWN, THE STORM'S PROJECTED PATH AND INTENSITY, PROJECTED TIMING AND INTENSITY OF STORM SURGE, CONFIDENCE IN PROJECTIONS, AND OTHER FACTORS. GIVEN THE ASSOCIATED RISKS, DECISIONS REGARDING IF AND WHEN TO MODIFY DRAINAGE SETTINGS DURING A PRE-STORM WINDOW WILL BE WEIGHED CAREFULLY.

ADDITIONALLY, WE HAVE INCLUDED A SECTION IN THE PLAN THAT DESCRIBES SUPPORTIVE AND

COMPLEMENTARY STRATEGIES IN PARTNERSHIP WITH OTHERS.



SUPPORTIVE AND COMPLEMENTARY STRATEGIES

REGIONAL WATER MANAGEMENT STUDIES

- Expanded water level monitoring at major drainage outlets to area rivers and the Sound
- Develop a water budget for the refuge and surrounding areas
- Identifying and prioritizing areas for intervention to prevent saltwater impacts
- Identifying potential flow restrictions or under-capacity drainage networks

COOPERATION WITH LAND MANAGERS ON MUTUALLY BENEFICIAL EFFORTS

- Contribute to efforts to identify and evaluate barriers to drainage
- Provide technical support to adjacent landowners interested in restoring pocosins
- Facilitate partnerships and share technical expertise for improving the resiliency of lands
- Support additional monitoring information including off refuge data collection sites

GIVEN THE INTERCONNECTEDNESS OF THE DRAINAGE NETWORK, THESE SUPPORTIVE AND COMPLEMENTARY STRATEGIES AIM TO BROADEN THE UNDERSTANDING OF WATER MOVEMENT ON THE LANDSCAPE, IDENTIFY BARRIERS TO WATER MOVEMENT OR OTHER ISSUES ACROSS THE LANDSCAPE, AND IDENTIFY OPPORTUNITIES FOR INCENTIVE PROGRAMS AND OTHER POSSIBLE SOLUTIONS FOR ADDRESSING BARRIERS AND ISSUES IDENTIFIED. WHILE THE REFUGE WILL NOT LEAD MANY OF THESE STRATEGIES, THERE IS AN OPPORTUNITY TO CONTRIBUTE SIGNIFICANTLY TO ACCOMPLISHING THEM THROUGH PARTNERSHIPS. THESE STRATEGIES GENERALLY FALL INTO TWO CATEGORIES: REGIONAL WATER MANAGEMENT STUDIES AND COOPERATION WITH LAND MANAGERS ON MUTUALLY BENEFICIAL EFFORTS.

LAND MANAGERS HAVE IDENTIFIED THE NEED FOR REGIONAL WATER MANAGEMENT STUDIES TO GUIDE POTENTIAL IMPLEMENTATION ACTIONS. THE SERVICE CAN HELP ESTABLISH PARTNERSHIPS OR OTHERWISE CONTRIBUTE TO THE DEVELOPMENT OF REGIONAL STUDIES ACROSS THE ALBEMARLE-PAMLICO PENINSULA. SPECIFIC ISSUES THAT COULD BE ADDRESSED BY REGIONAL STUDIES INCLUDE EXPANDED WATER LEVEL MONITORING AT MAJOR DRAINAGE OUTLETS TO AREA RIVERS AND THE SOUND TO EVALUATE THE POTENTIAL EFFECT OF RISING RIVER LEVELS ON WATER MANAGEMENT; DEVELOPING A WATER BUDGET FOR THE REFUGE AND SURROUNDING AREAS CONNECTED BY THE DITCH SYSTEM; IDENTIFYING AND PRIORITIZING AREAS FOR INTERVENTION TO PREVENT SALTWATER IMPACTS ON LOW ELEVATION PEATLANDS; AND IDENTIFYING POTENTIAL FLOW RESTRICTIONS OR UNDER-CAPACITY DRAINAGE NETWORKS AND ASSOCIATED REMEDIES WHERE NEEDED.

LIKewise, THE SERVICE CAN CONTRIBUTE TO EFFORTS TO IDENTIFY AND EVALUATE THESE BARRIERS TO DRAINAGE. IN SOME CASES, THE SERVICE CAN ALSO AID IN THE RESOLUTION OF IDENTIFIED ISSUES. IF ADJACENT LANDOWNERS EXPRESS INTEREST IN RESTORING POCOSINS,

THE SERVICE CAN SUPPORT OFF-REFUGE POCOSIN RESTORATION THROUGH SHARING DATA AND PROVIDING TECHNICAL EXPERTISE TO THOSE RESTORATION EFFORTS. ADDITIONALLY, THE SERVICE CAN FACILITATE PARTNERSHIPS AND SHARE TECHNICAL EXPERTISE IN SEVERAL AREAS THAT MAY ALLOW FOR IMPROVED RESILIENCY OF LANDS ADJACENT TO THE MAN-MADE DITCH NETWORK. THE SERVICE CAN SUPPORT ADDITIONAL MONITORING INFORMATION INCLUDING OFF REFUGE DATA COLLECTION SITES (E.G., TIDE GAUGES) TO INFORM MANAGEMENT DECISIONS BY LOCAL LAND MANAGERS AND PROPERTY OWNERS.



What's Next?

- Public Comment Period Closes July 31, 2020
- Review feedback and will use it to develop a final plan
- Continue to evaluate complementary and supportive strategies to address water concerns beyond the refuge
- Continued communication and engagement with neighbors, partners and interested parties



THAT CONCLUDES THE DESCRIPTION OF THE DRAFT WATER MANAGEMENT PLAN AND ENVIRONMENTAL ASSESSMENT. FOLLOWING THE CONCLUSION OF THE PUBLIC COMMENT PERIOD, WE WILL REVIEW COMMENTS AND FEEDBACK RECEIVED AND USE IT TO DEVELOP A FINAL PLAN. WE WILL ANNOUNCE THE COMPLETION OF THE PLAN AND MAKE IT AVAILABLE TO THE PUBLIC AT THAT TIME. IN THE MEANTIME, WE WILL CONTINUE TO EVALUATE COMPLEMENTARY AND SUPPORTIVE STRATEGIES TO ADDRESS WATER CONCERNS BEYOND THE REFUGE. WE WILL ALSO CONTINUE COMMUNICATING AND ENGAGING WITH OUR NEIGHBORS, PARTNERS, STAKEHOLDERS, AND OTHER INTERESTED PARTIES.



Submit Comments

- In Writing
 - Email: pocosinlakes@fws.gov
 - Mail: Pocosin Lakes NWR, P.O. Box 329, Columbia, NC 27925
- Comments Due July 31, 2020
- Access Plan at www.fws.gov/refuge/pocosin_lakes/
- Question & Answer Session



YOU MAY SUBMIT COMMENTS IN WRITING IN ONE OF TWO WAYS. YOU CAN EMAIL COMMENTS TO [POCOSINLAKES@FWS.GOV](mailto:pocosinlakes@fws.gov) OR YOU CAN MAIL COMMENTS TO POCOSIN LAKES NWR AT POST OFFICE BOX 329, COLUMBIA, NC 27925. COMMENTS MUST BE SUBMITTED BY EMAIL BY JULY 31, 2020 OR POSTMARKED BY JULY 31, 2020.

BEFORE INCLUDING INFORMATION SUCH AS YOUR ADDRESS, TELEPHONE NUMBER, EMAIL ADDRESS, OR OTHER PERSONALLY IDENTIFYING INFORMATION IN YOUR COMMENTS, YOU SHOULD BE AWARE THAT YOUR ENTIRE COMMENT, INCLUDING YOUR PERSONALLY IDENTIFYING INFORMATION, MAY BE MADE PUBLICLY AVAILABLE AT ANY TIME. WHILE YOU CAN REQUEST IN YOUR COMMENTS TO WITHHOLD YOUR PERSONAL INFORMATION FROM PUBLIC REVIEW, WE CANNOT GUARANTEE THAT WE WILL BE ABLE TO DO SO.

WE ARE NOW GOING TO MOVE INTO THE QUESTION AND ANSWER PORTION OF THE SESSION. GIVEN THE LIMITED TIME FOR QUESTIONS AND ANSWERS DURING THIS WEBINAR SESSION, PLEASE FOCUS YOUR QUESTIONS AS MUCH AS POSSIBLE TO THE CONTENT OF THE DRAFT PLAN AND ENVIRONMENTAL ASSESSMENT. PLEASE REMEMBER THAT WE ARE NOT ACCEPTING COMMENTS DURING THIS WEBINAR TO ENSURE THAT YOUR THOUGHTS AND COMMENTS ARE COMPLETELY AND

ACCURATELY CAPTURED IN YOUR WORDS. COMMENTS THAT YOU HAVE RELATED TO THE SUBSTANCE OF THE ANALYSIS AND ALTERNATIVES SHOULD BE SUBMITTED AS WRITTEN COMMENTS SO THAT WE CAN FULLY CONSIDER AND RESPOND TO THEM IN THE FINAL DECISION DOCUMENT.

THANK YOU FOR YOUR TIME AND ATTENTION TO THE PRESENTATION PORTION OF THE SESSION. NOW I WILL TURN IT OVER TO AMANDA TO BEGIN THE QUESTION AND ANSWER SESSION.