



Regional Resource Stewardship Council

July 30-31, 2018
Chattanooga, Tennessee



Amy Henry and Mark Iverson

Term 10 RRSC Members

RaeLynn Butler

Muscogee (Creek) Nation

Keith Carnahan

Meriwether Lewis Electric Cooperative

Robert Englert, Jr

Crouse Corporation

Ray Hardin

Decatur Utilities

Brock Hill

TN Dept. of Environment & Conservation

Richard Holland

Packaging Corporation of America

Donny Holland

KY Parks

Mark Iverson*

Bowling Green Municipal Utilities

Avis Kennedy

State of Tennessee

Kim Klinker

Klinker Management

Brad Kreps

Nature Conservancy

Tom Littlepage

Ala Dept. of Economics & Community Affairs

Gary Myers

State of Tennessee

Will Nelson**

Nelson Tractor Co.

Sen. Clay Scofield

Alabama Senate, District 9

Danette Scudder

TN Valley Public Power Association

Patricia Thomasson**

Thomasson Company

Catherine Via

TN Farm Bureau Federation

Randy Wiggins**

Cherokee County, NC

*RRSC Chair

** Administrative approval in process

New Members to the RRSC

4 New Members

- RaeLynn Butler – Tribal representative
 - Muscogee (Creek) Nation
- Keith Carnahan – Local Power Company
 - Meriwether Lewis Electric Coop
- Ray Hardin – Local Power Company
 - Decatur Utilities
- *Danette Scudder – TN Valley Power Providers

Safety First



Building Emergency Plan

Introductions



- Name
- Organization
- Favorite Recreational Activity



Today's Meeting

Meeting Goals

- Welcome new Members to the 10th Term of the RRSC and provide a brief orientation
- Update on TVA Natural Resource Stewardship and River Management Activities
- Share the 2015 Water Use Report and how TVA uses this data
- 2020 Natural Resource Plan Update
- Seek advice on TVA's Natural Resource Plan Approach

Agenda – July 30, 2018

8:30 TVA Welcome	Amy Henry, Enterprise Relations and Innovation and Designated Federal Officer Alternate
RRSC Welcome	Mark Iverson, Council Chair
Introductions and Agenda Review	Jo Anne Lavender, Facilitator
9:00 FACA Briefing	Kendra Mansur, Office of the General Counsel
9:10 DFO Briefing	Amy
9:20 Natural Resources Update	Bucky Edmondson
9:40 Break	
9:55 TVA Natural Resource Plan Update	Tiffany Foster
10:25 Natural Resource Plan 2020	Anthony Summitt
11:15 Review advice questions	Jo Anne
11:30 Housekeeping	Cathy
11:40 Wrap up and Adjourn	Jo Anne
11:55 Lunch to follow for Council	

Agenda – July 31, 2018

- | | | |
|--------------|--|---------------------------------|
| 8:30 | Welcome and Recap | JoAnne, Facilitator |
| 8:45 | River Management
Highlights and Water Use
Report | Amanda Turk |
| 9:20 | Prepare for Public
Comment Period | |
| 9:30 | Public Comment Session | JoAnne |
| 10:30 | Council Discussion / Form
Advice | Cathy, JoAnne, Mark and Council |
| 12:00 | Wrap Up and Adjourn
(lunch available for Council
Members) | Mark / Amy |

RRSC Meeting Facilitation

- DFO (or designee) will facilitate and ensure good order during all open discussions
- Only one person is permitted to comment at a time
- Please turn your name card on its side in order to be recognized by the Chair or facilitator when wanting to provide comment.

Council Advice Discussion

1. Natural Resources is proposing changes in the approach to the 2020 NRP from heavily tactical to strategic. Do you see advantages in this approach? Are there considerations TVA needs to remain aware of?
2. As resources and funding are allocated, do you have suggestions on balancing the focus areas and competing demands?
3. You've heard how we are enhancing our communications and public involvement program. Have you suggestions for additional public engagement opportunities that should be incorporated into the 2020 NRP proposal?



The Federal Advisory Committee Act and The Regional Resource Stewardship Council

Kendra Mansur, Office of the General Counsel
FACA Briefing—10th Term
First Meeting

RRSC Meeting Protocols

Agenda

- Joe Hoagland, Vice President, Enterprise Relations & Innovation is the Designated Federal Officer (DFO); Amy Henry, Senior Manager, Enterprise Relations & Innovation is the alternate DFO
- Agenda prepared and approved by the DFO in consultation with Council Chair, Mark Iverson
- Agenda distributed to Council and an outline is published in the Federal Register prior to each meeting
- Topics may be submitted to the DFO by any member of the Council, or non-members, including members of the public

Meeting Minutes

- DFO will ensure that minutes are prepared for each meeting, approved by the Chair, and made available to Council members and the public

Voting

- Any member of the Council may make a motion for a vote
- Quorum is 11 members
- Advice requires an affirmative vote of majority of Council members present
- Advice may include minority or dissenting views

Membership

- Balanced Membership
- Professional or personal qualifications to achieve the mission of regional resource stewardship
- Broad range of diverse views and interests, including recreational, environmental, industrial, business, consumer, educational and community leadership



Thank you
for your participation and advice.



DFO Briefing

Amy Henry, Senior Manager, Enterprise Relations and Innovation
Designated Federal Officer Alternate

November 2017 Meeting Recap

- Meeting held at Lake Guntersville
- Welcomed new members to the RRSC
- Presentations on TVA's Land and River Management including Dam Safety, Natural Resource Management, and TVA's Comprehensive Land Plan.
- Primary meeting topic was Public Land Protection.

The Council's formal advice stated that TVA should have the flexibility to pursue resolution of legacy encroachments by disposal of small pieces of affected property and it should develop guidelines that would create a consistent approach to address previously undiscovered legacy type encroachments.

TVA UPDATE

- IRP 2019
- Facebook
- Ocoee agreement



The infographic features a central blue circle with the TVA logo. To its left, a purple circle contains icons for Manufacturing, Public Facilities, Electric Vehicles, Local Power Company, Hospitals, Cities, and Homes/Homeowners. To its right, a green circle contains icons for Nuclear, Natural Gas, Hydropower, Biomass, Coal, Solar, and Wind. Dotted lines connect the central TVA logo to the surrounding categories.

Powering OUR Future

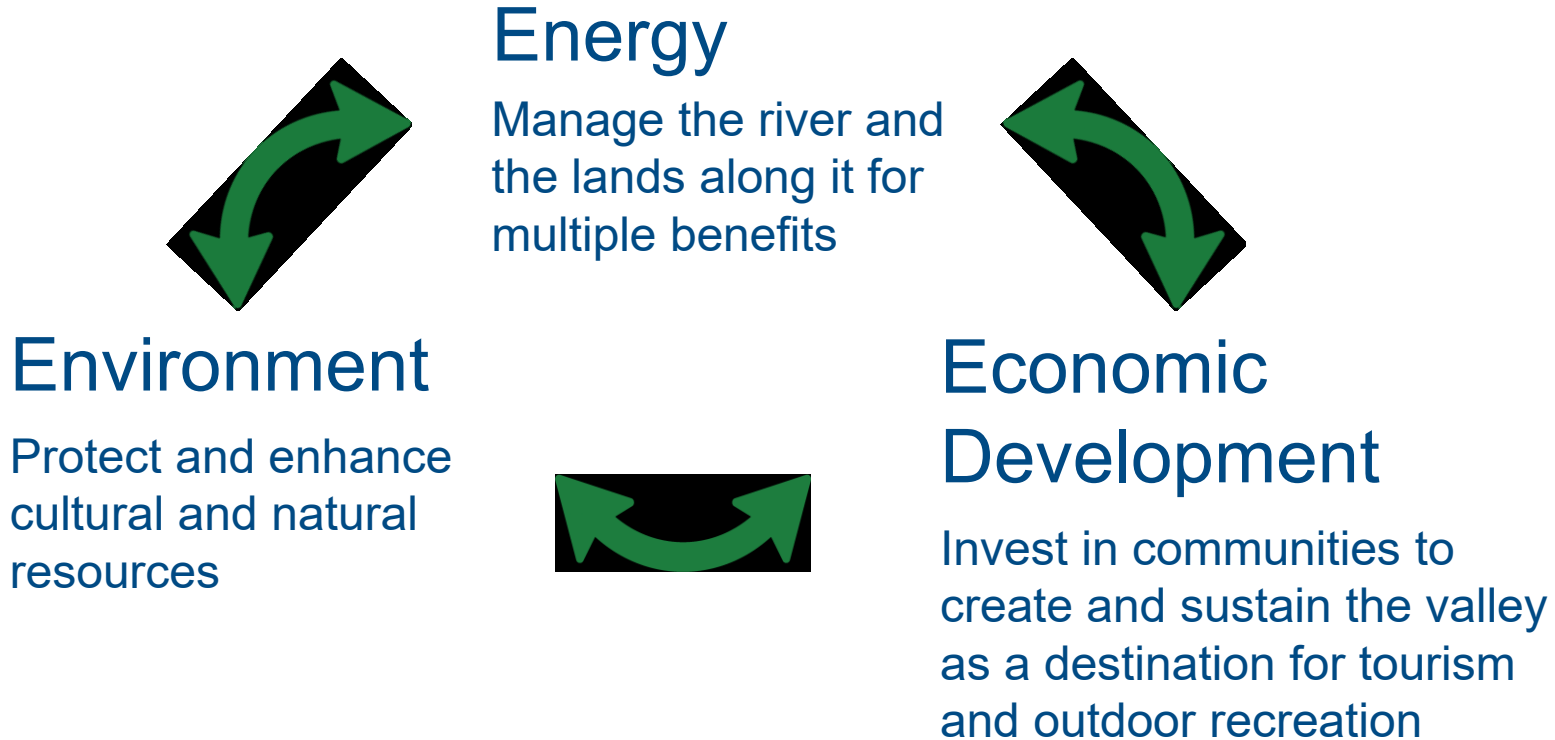
CLICK TO LEARN MORE ABOUT THE
2019 INTEGRATED RESOURCE PLAN



TVA Natural Resources Update

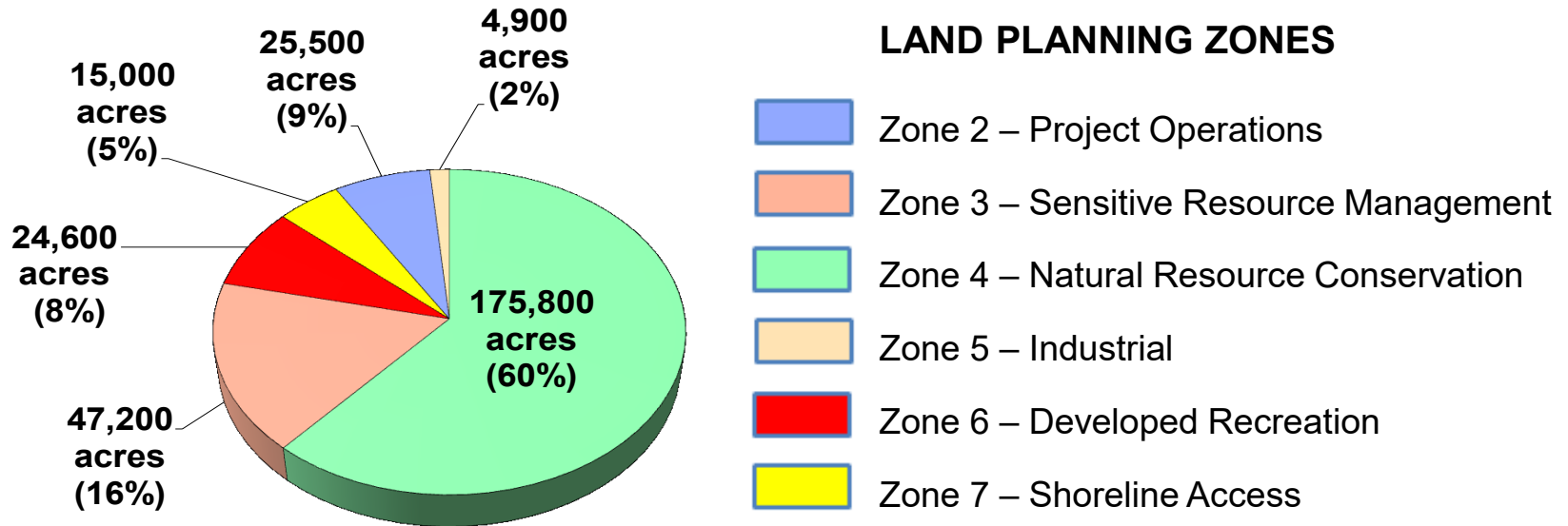
Bucky Edmondson, Director
Natural Resources

TVA exists to make our region the best place in the country to live, work and play



293,000 acres of TVA Reservoir Lands

Land is subdivided into manageable parcels and designated a land planning zone

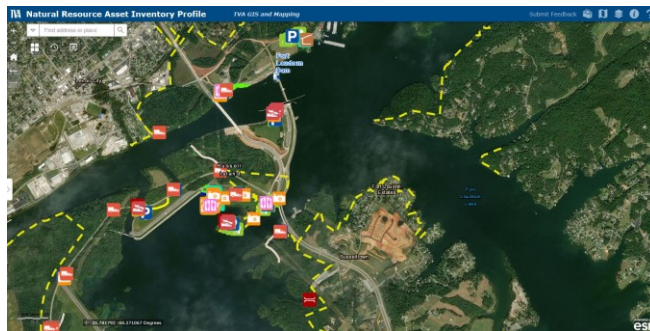


Allowable Uses – Land Planning Zones

Public Land Protection

Collaborate with the public and partners to be good stewards of the public lands and natural resources entrusted to us to manage and protect

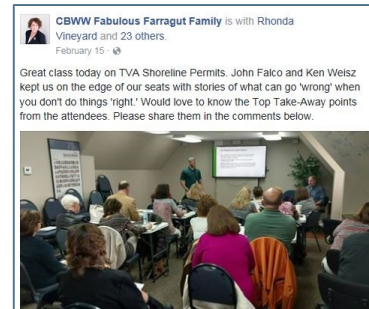
- Completed 62 miles of boundary work on TVA public lands
- Initiated Natural Resources Asset Inventory program on 1,580 parcels
- Partnered to remove ~ 200 tons of litter through volunteer cleanups in the Valley



Section 26a Permitting & Land Use Agreements

Facilitate and support reservoir community development and partnerships through Section 26a permitting and land use agreements

- Supported public and commercial recreation through issuing 1,200 permits and land use agreements annually
- Enhanced municipal recreational opportunities by granting use of TVA lands
- Increased outreach better inform the public about TVA lands through realtor workshops and media campaigns



Recreation

Collaborate to enhance recreational opportunities and accessibility on public lands

Manage 6 TVA campgrounds, over 80 public recreation areas, 80 stream access sites and 170 miles of trails across the Valley

- Enhanced TVA Dam Reservations and reservoir lands
- Collaborated to enhance and improve public recreation areas
- Managed 170 commercial and 130 public recreation agreements



Land &
Habitat
Stewardship

Water
Resource
Stewardship

Nuisance &
Invasive
Species
Management

Natural Resource Management

Collaborate to enhance wildlife habitat and resources conditions of public lands and waters

293,000 acres of reservoir lands and 650,000 acres of reservoir surface area

- Enhanced 32 native plant communities and wildlife habitat on reservoir lands
- Protected aquatic life and water resources by implementing 19 projects and increasing awareness
- Managed nuisance aquatic plants through selected treatment of reservoirs and increased public outreach



Cultural Resource Management

Collaborate to protect cultural resources and increase awareness of protection needs

Over 11,500 identified archaeological sites across the Valley

- Hosted an archaeological field school training for tribal representatives
- Preserved historic structures on TVA properties
- Protected archaeological sites through shoreline stabilization
- Continued Thousand Eye Site Stewardship program



Public Outreach and Information

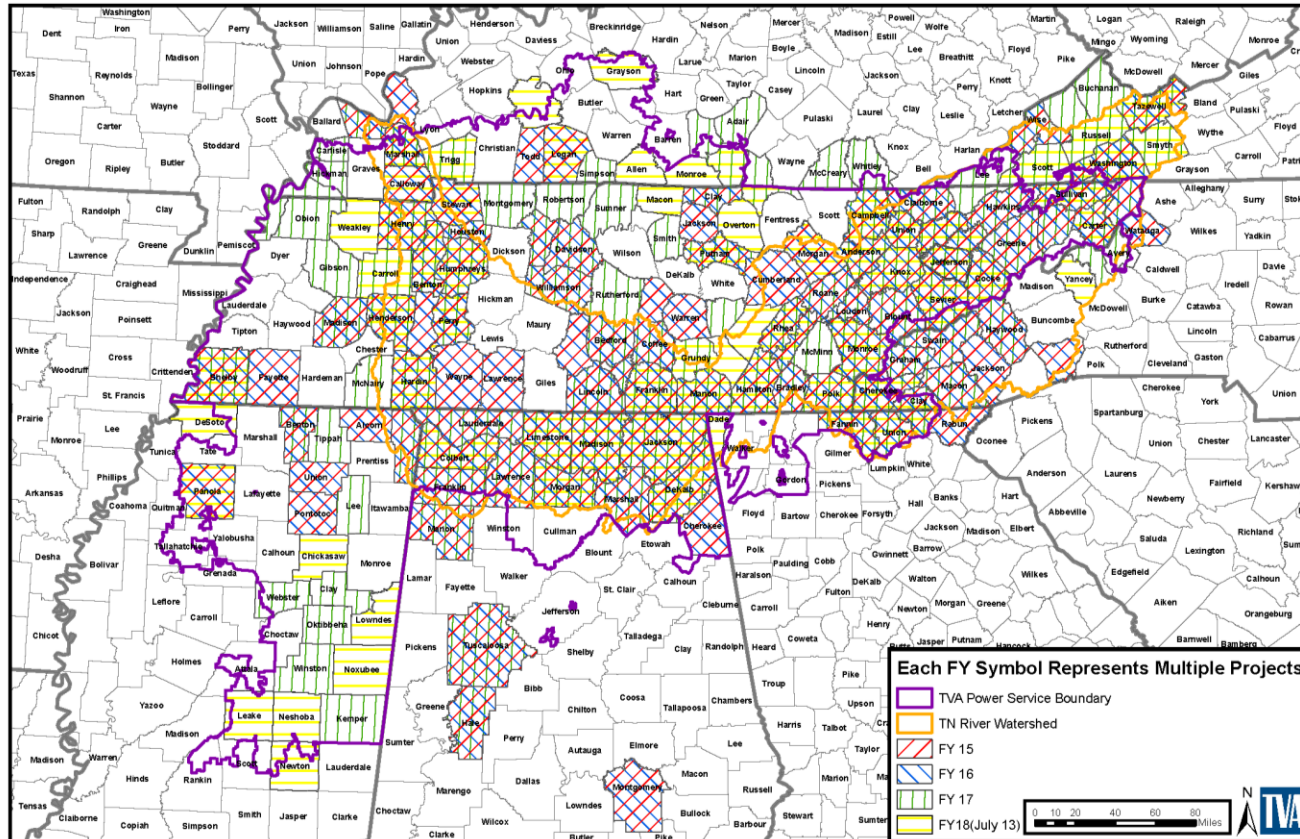
Collaborate to increase awareness and appreciation of resources, and create opportunities for community involvement in resource stewardship

Support partnerships throughout the Power Service Area and the watershed

- Provided environmental education programs to approximately 10,000 children
- Received 100 **positive** news stories on our stewardship efforts Valley wide
- Engaged communities in 450 outreach events and volunteer opportunities



Stewardship Efforts Across the Valley









Natural Resource Plan Update

Tiffany Foster

Natural Resource Plan

Published in 2011 as a 20-year guidance document

6 Resource Areas

Biological, Cultural, Water, Recreation,
Lands Planning and Public Engagement



Programs



Goals or Activities



TVA

2011 NRP RRSC Advice

RRSC provided valuable input on:

- | | |
|--|--|
| <ul style="list-style-type: none">• Overall Process• Program Options• Evaluation of Programs | <ul style="list-style-type: none">• Guiding Principles• Recommendation to the TVA Board |
|--|--|

Specifically we:

- | | |
|---|---|
| <ul style="list-style-type: none">• Increased partnerships• Expanded communication• Engaged through education | <ul style="list-style-type: none">• Focused efforts• Became leaders• Protected public lands and resources |
|---|---|

Natural Resources' Stewardship Progress

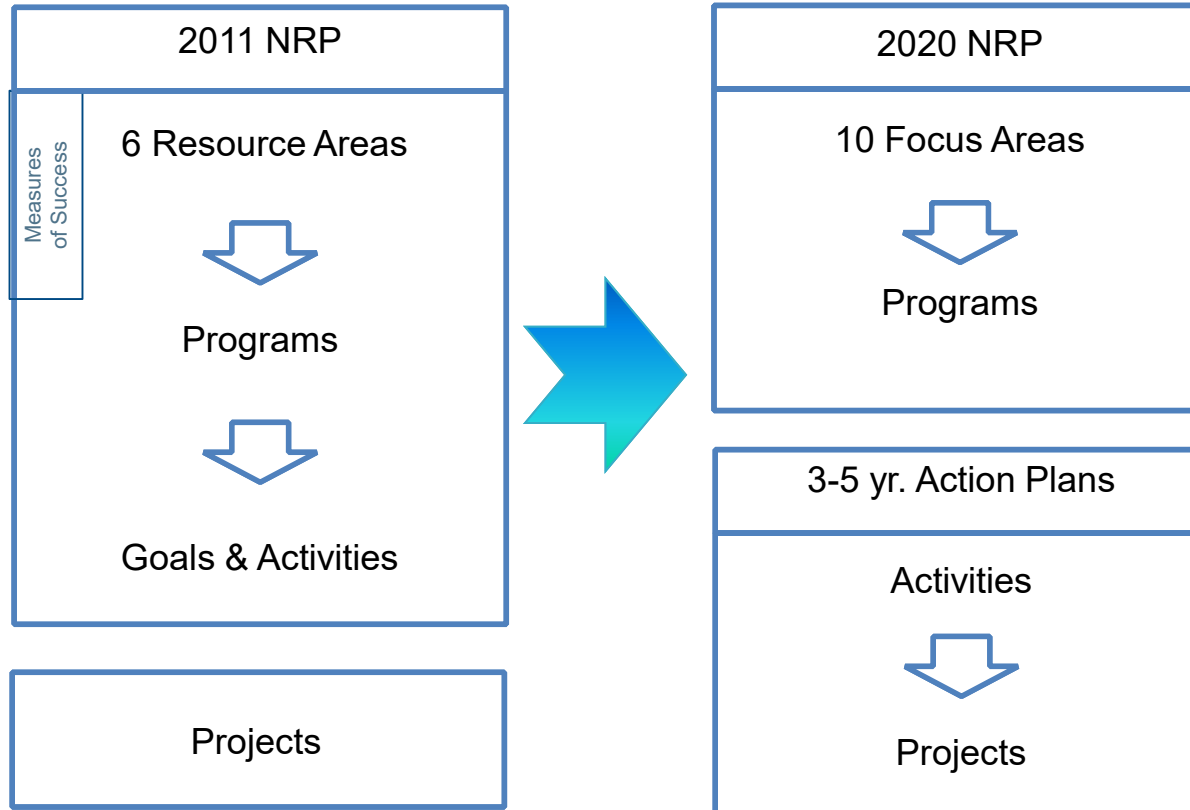
- NRP Implementation
 - Developed guidelines and processes
 - Enhanced collaboration to expand capacity
 - Expanded project area coverage
 - Increased funding of stewardship efforts
 - Increased awareness of TVA's investment in land and resources
- Strategic Planning
 - Developed and implemented Natural Resources Strategy
 - Created Focus Areas
 - Began year round business planning
 - Initiated NRP review

Stewardship Strategy

To fulfill TVA's mission, NR serves the people of the TVA region by remaining agile, balancing competing demands, and being a catalyst for collaboration in order to:

- Create and sustain destinations for recreation and opportunities for learning and research
- Protect and enhance biological, cultural, and water resources, and TVA's programmatic interests through integrated management of the Tennessee River system and public lands
- Assist water-based community development with technical support, land agreements, and permitting using planning, clear regulations, meaningful guidelines, and consistent enforcement

Natural Resource Plan – Structure



Natural Resources Focus Areas

**Reservoir
Lands
Planning**

**Section 26a
& Land Use
Agreements**

**Public Land
Protection**

**Land &
Habitat
Stewardship**

**Nuisance &
Invasive
Species
Management**

**Cultural
Resource
Management**

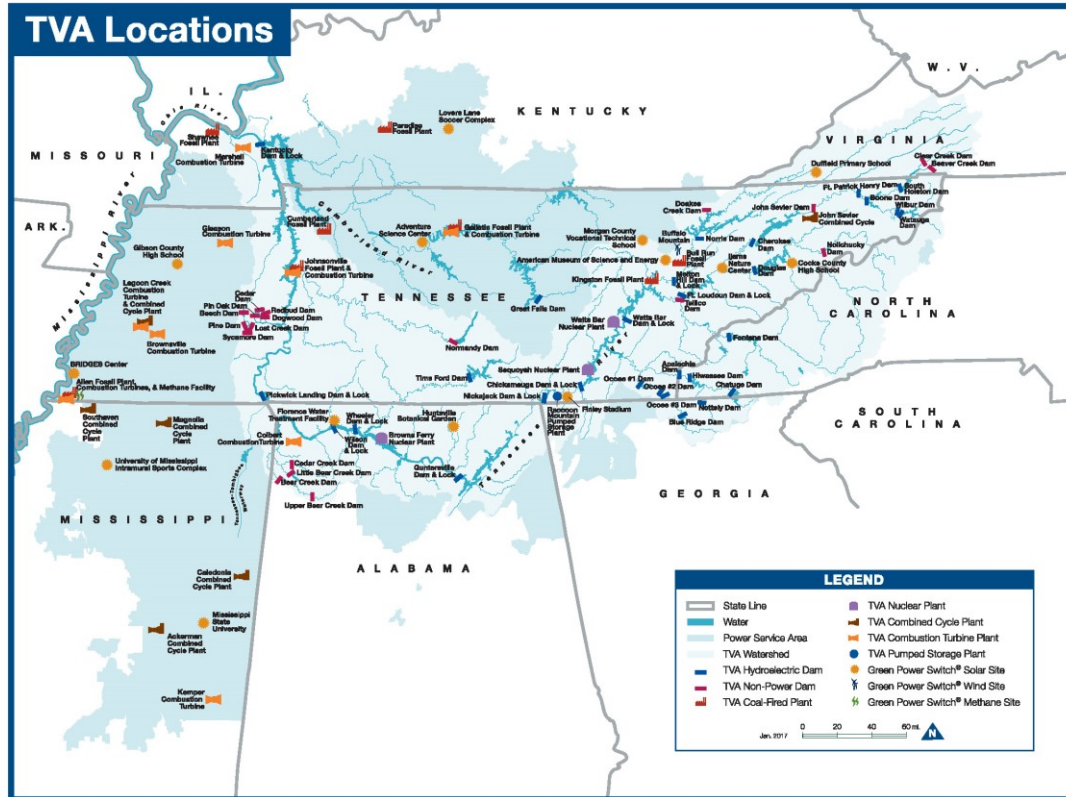
**Water
Resource
Stewardship**

Recreation

Ecotourism

**Public
Outreach &
Information**

TN River Watershed and Power Service Area



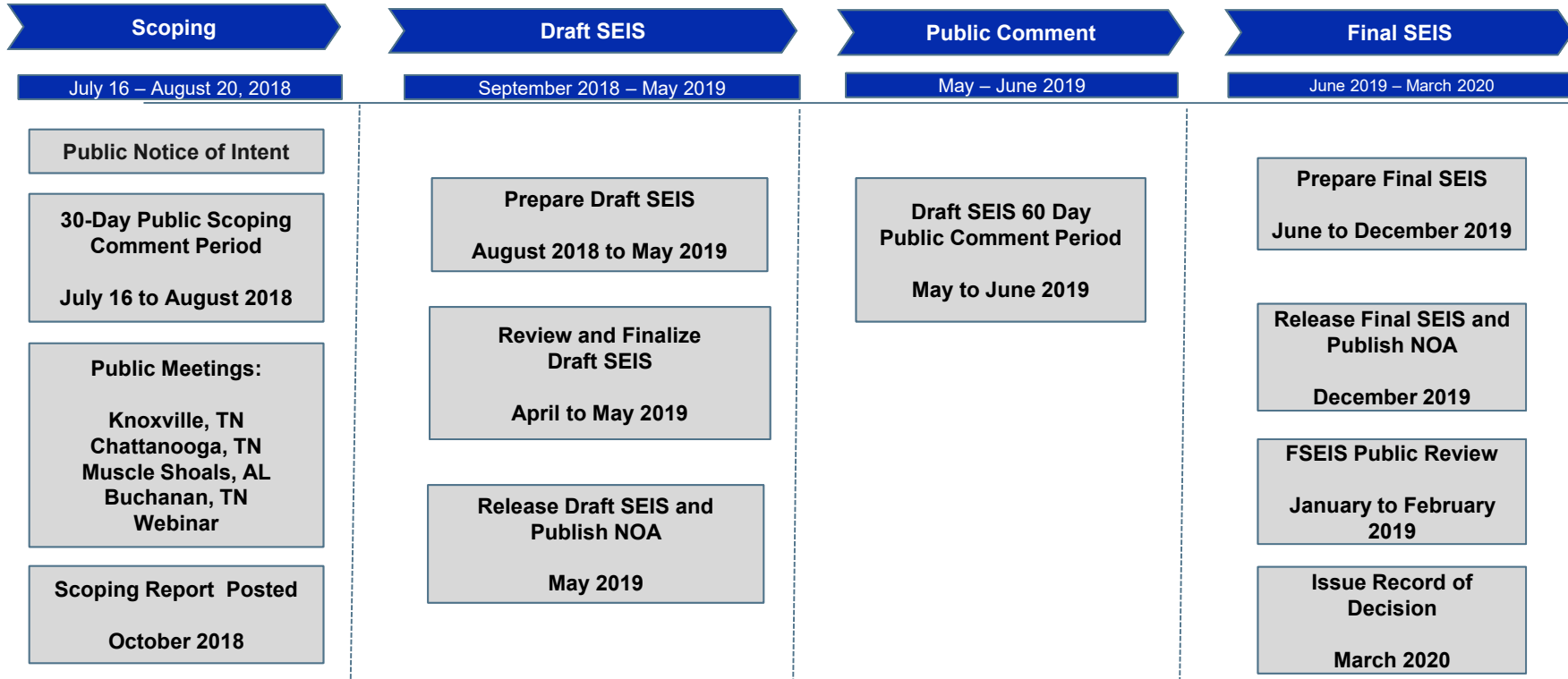
Desired Outcomes of 2020 NRP

- Enhance strategic guidance and alignment of Natural Resources work
- Create a flexible and responsive plan
- Broaden programmatic scope for a comprehensive plan
- Support mechanisms to measure success and steer business planning
- Increase public input opportunities

NRP Public Input and Communication

- NRP update
 - Public Scoping Period
 - Review of EIS and Plan
- Annual report on stewardship activities
 - Stewardship book
 - Web based tools
- Annual stakeholder input opportunities

2020 NRP Update Schedule



Please note the schedule is subject to change.







Natural Resource Plan 2020

Anthony Summitt

Natural Resource Plan – 2011 to 2020

Goals:

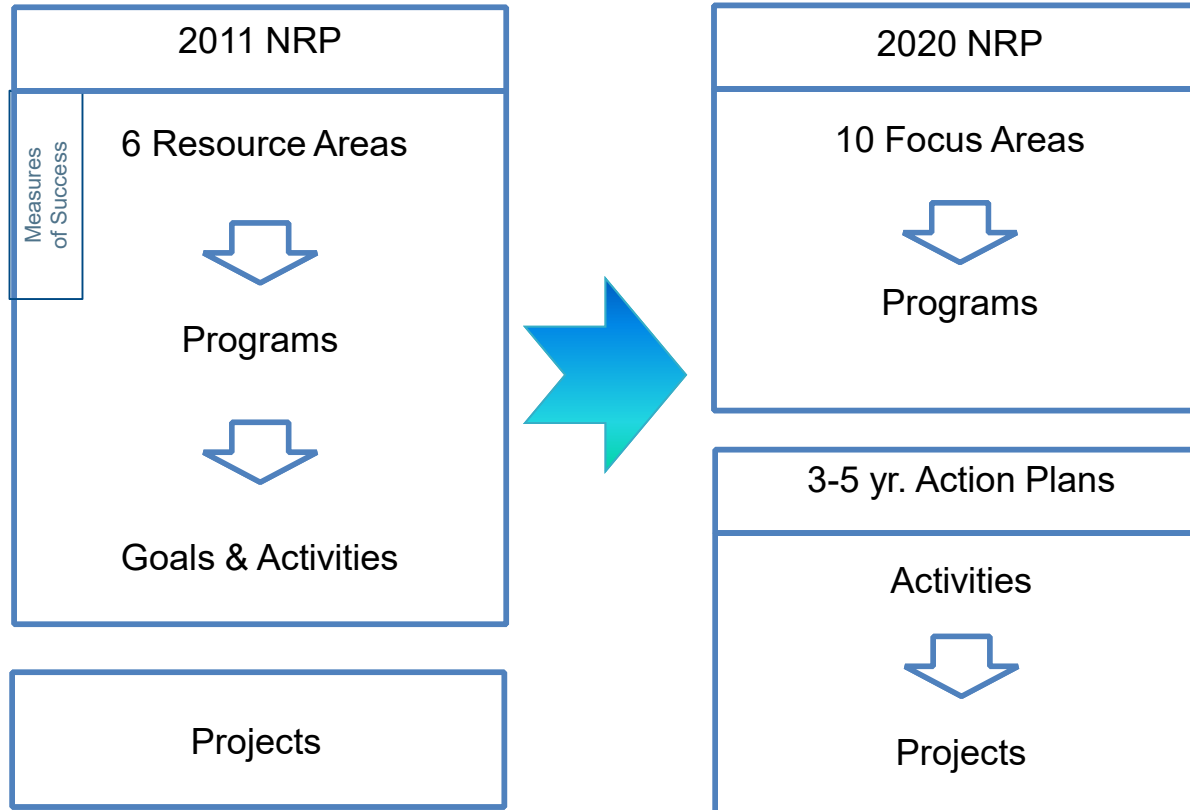
- Use lessons-learned to create updates programs and activities
- Update text to align with TVA Mission and Natural Resources' Strategy
- Enhance strategic guidance and alignment of work

Natural Resources' Stewardship Strategy

To fulfill TVA's mission, NR serves the people of the TVA region by remaining agile, balancing competing demands, and being a catalyst for collaboration in order to:

- Create and sustain destinations for recreation and opportunities for learning and research
- Protect and enhance biological, cultural, and water resources, and TVA's programmatic interests through integrated management of the Tennessee River system and public lands
- Assist water-based community development with technical support, land agreements, and permitting using planning, clear regulations, meaningful guidelines, and consistent enforcement

Natural Resource Plan – Structure

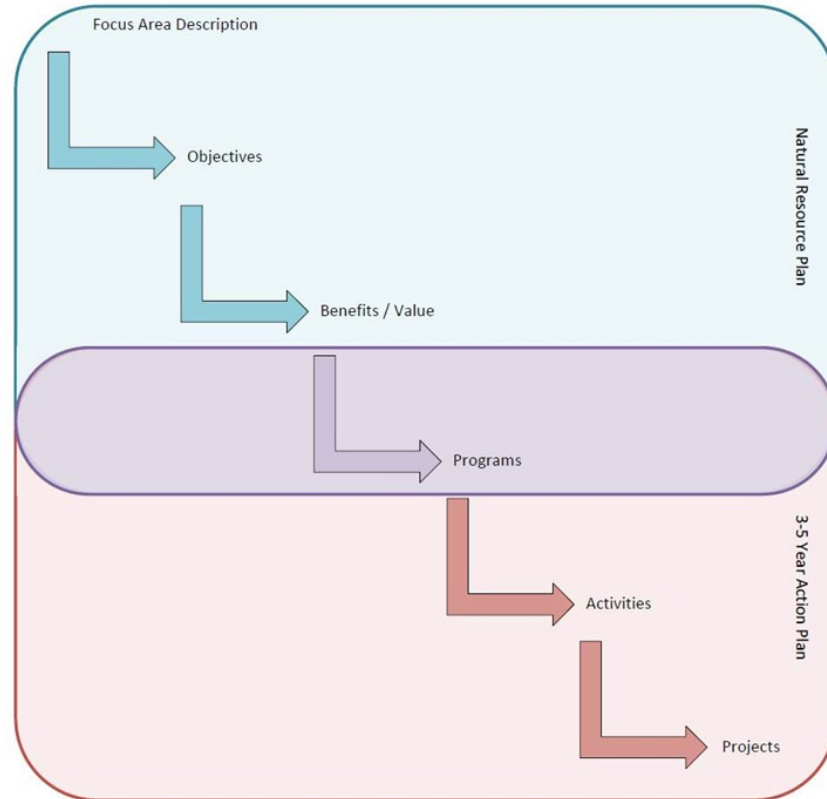


From Tactical to Strategic

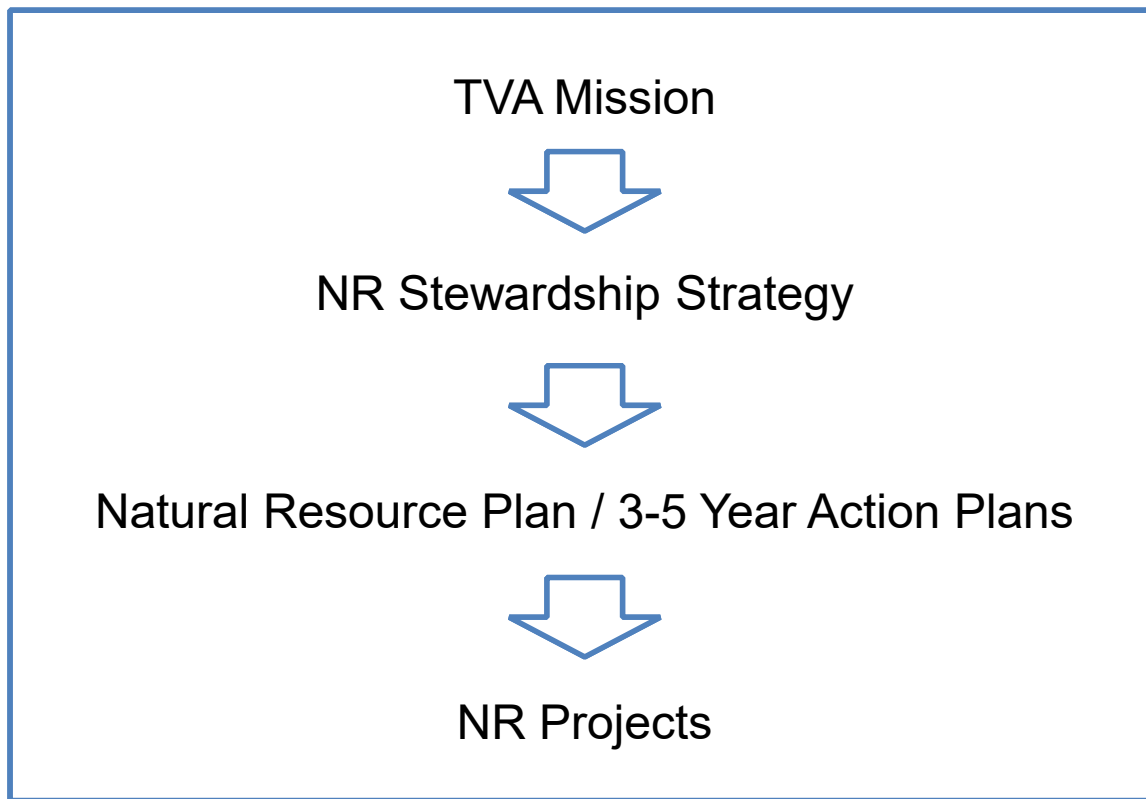
NRP Activities

- Collect data on dispersed recreation sites identified during lands condition assessment
- Repair 5 – 15 heavily impacted dispersed recreation sites annually
- Implement 5 – 10 key projects annually (e.g., new projects such as shoreline fishing sites and improved recreation access)

From Tactical to Strategic



TVA Natural Resources Alignment & Planning



NRP Focus Areas



Purpose

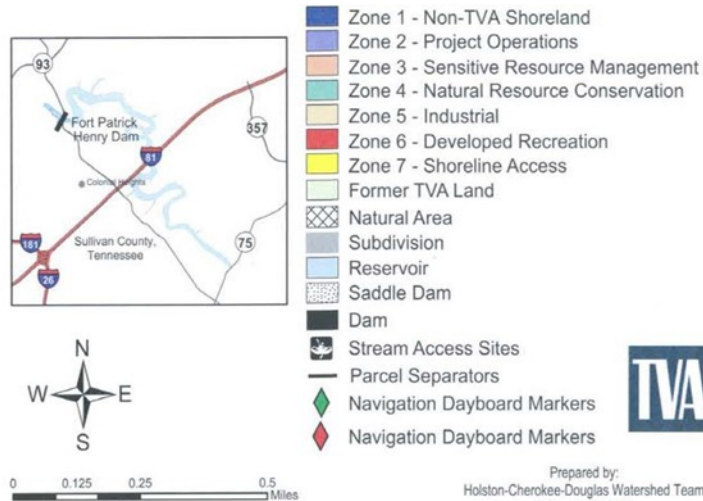
One of TVA's goals in updating the NRP is to develop a comprehensive story on Natural Resources' stewardship activities. With this shift there are several changes at the program level, including the addition of several new programs.

Council Advice Discussion

1. Natural Resources is proposing changes in the approach to the 2020 NRP from heavily tactical to strategic. Do you see advantages in this approach? Are there considerations TVA needs to remain aware of?
2. As resources and funding are allocated, do you have suggestions on balancing the focus areas and competing demands?
3. You've heard how we are enhancing our communications and public involvement program. Have you suggestions for additional public engagement opportunities that should be incorporated into the 2020 NRP proposal?

Reservoir Lands Planning

Fort Patrick Henry Reservoir Land Management Plan Final Environmental Impact Statement



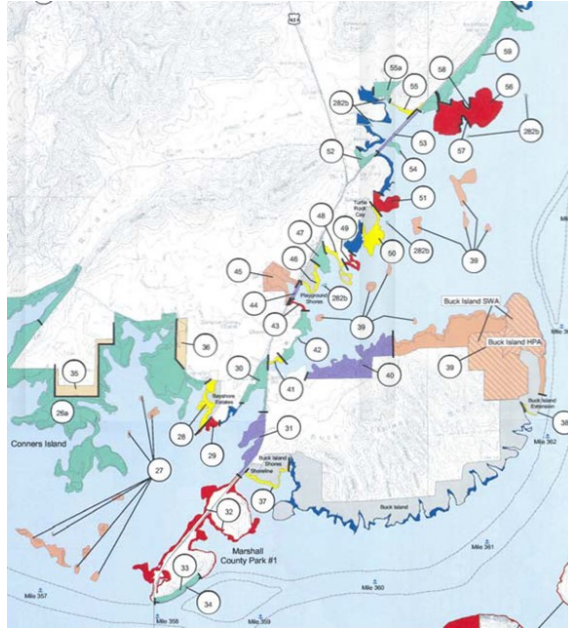
Prepared by:
Holston-Cherokee-Douglas Watershed Team
February 01, 2010

This area includes:

- TVA's process to allocate properties for appropriate use
- Allocates each parcel of land a land use category or zone
- Provides a framework for how TVA intends to manage its public land
- Guide TVA's land management and property administration decisions
- Allows TVA to balance competing and sometimes conflicting demands for resources

Reservoir Lands Planning

Reservoir Lands Planning



Focus Area Program

- Comprehensive Valley-wide Lands Planning

Section 26a & Land Use Agreements



Implementation of Section 26a of the TVA Act

This includes processing applications for shoreline construction may include requests for boat docks, piers, boathouses, boat-launching ramps, shoreline stabilization, dredging, and floating cabins

Implementation of TVA's Land Policy

This includes requests for easements for public infrastructure, short term licenses for use of public lands for agricultural and recreational purposes, as well as special events like fishing tournaments.

Section 26a & Land Use Agreements

Focus Area Programs

- Section 26a and Land Use Implementation
- Section 26a and Land Use Stakeholder Education and Communication



CBWW Fabulous Farragut Family is with Rhonda Vineyard and 23 others.

February 15 · 🌐

Great class today on TVA Shoreline Permits. John Falco and Ken Weisz kept us on the edge of our seats with stories of what can go 'wrong' when you don't do things 'right.' Would love to know the Top Take-Away points from the attendees. Please share them in the comments below.



Like



Comment

Public Land Protection

This Focus Area includes the oversight and management of:

- 293,000 acres of public land
- 470,000 acres of inundated property
- 293,000 acres of various land rights

Includes proactive and reactive management efforts to maintain and protect the public land and land rights for future generations



Public Land Protection

Focus Area Programs

- Education and Engagement
- Public Land Rules, Regulations and Enforcement
- Land Condition Assessment
- Natural Resources Asset Inventory
- Property Management



Land & Habitat Stewardship



This Focus Area includes management of natural resources such as land, plants, and animals to ensure the region's natural beauty is protected. These activities:

- Provide valued open space for wildlife and diversity, including native plant communities
- Includes partnerships that develop and support conservation planning strategies that often complement interagency goals and objectives

Land & Habitat Stewardship

Focus Area Programs

- Threatened and Endangered Species
- Wetland Management
- Sensitive Resources Data
- Natural Areas Management
- Grasslands and Agricultural Lands Management
- Dewatering Projects
- Forest Resource Management
- Conservation Planning



Nuisance & Invasive Species Management

This includes work that:

- Addresses the negative effects of terrestrial and aquatic plants
- Employs a prioritized, planned, and adaptive approach to management.
- Utilizes mechanical and chemical controls and prescribed burning to clear navigation channels and maintain access to public use areas.



Nuisance & Invasive Species Management

Focus Area Programs

- Aquatic Plant Management
- Nonnative Invasive Plant Management on TVA lands
- Nuisance Animal Control



Cultural Resource Management

This includes TVA's responsibilities as a federal agency to identify, manage, and protect cultural resources, e.g. historic buildings, structures, sites or objects, archaeological resources, Native American burials, that are found on its property or affected by its actions.

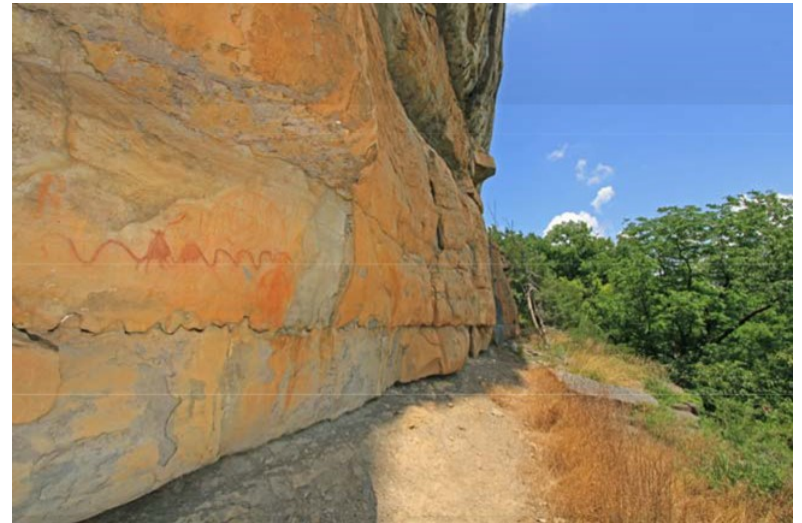
Laws, executive orders, and associated regulations are in place that obligate TVA to protect these important sites and resources.



Cultural Resource Management

Focus Area Programs

- Preservation Program
- Archaeological Resources Protection Act (ARPA) Enforcement
- National Historic Preservation Act Section 106 Compliance
- Native American Graves Protection and Repatriation Act (NAGPRA) Compliance
- Thousand Eyes Archaeological Outreach
- Archaeological Monitoring & Protection
- Native American Consultation
- Corporate History



Water Resource Stewardship



This area includes:

- TVA's efforts to protect and improve water quality and aquatic biodiversity
- Collecting and reporting water quality data
- Working with partners to implement watershed protection efforts
- Building partnerships to expand and promote public outreach efforts
- Providing technical support to implement key water resource initiatives throughout the Tennessee River watershed.

Water Resource Stewardship



Focus Area Programs

- Aquatic Ecology Management
- Stream Monitoring
- Sentinel Monitoring
- Water Resource Outreach Campaign
- Nutrient Source Management
- Tennessee Valley Clean Marina

Recreation



This includes:

- Management of recreation areas
- Management of recreation agreements for campgrounds and marinas
- Developing and managing TVA's trail system (Over 170 miles)
- Focus on partnership development to diversify recreation opportunities and improve public water access

This includes an economic impact from recreation expenditures of \$1M/mile of shoreline

Recreation

Focus Area Programs

- Management of Recreation Assets on Dam Reservations
- Public Water Access – Off Dam Reservations
- Tennessee Valley Camp-Right Campground
- Dispersed Recreation Management
- Trail Management
- Recreation Partnerships
- Recreation Contract Management
- Floating Cabins



Ecotourism

Ecotourism is nature-based, outdoor adventure, and sustainable tourism. This includes:

- Work that combines outdoor recreation activities with conservation-based
- Work that results in sustainable recreation areas that are based in nature or highlight natural features
- Partnerships that complement existing community, state, and regional travel and tourism efforts





Ecotourism



Focus Area Programs

- Ecotourism Partnerships
- Ecotourism & Recreational Assessments & Studies
- Dam Explorer

Public Outreach & Information

This area includes:

- TVA's efforts to increase public awareness and appreciation of the natural and cultural resources in the Valley
- Providing opportunities for volunteer involvement, environmental education, and developing collaborative partnerships.
- A focus on communicating, involving, and engaging with communities of and visitors to the Tennessee River watershed and the TVA power service area.



Public Outreach & Information

Focus Area Programs

- Community Support
- Environmental Education
- Stakeholder Engagement
- TVA Science Kids – World Water Monitoring
- Volunteer Program



Summary

Proposed 2020 NRP update includes

- Shift to strategic plan with objectives, benefits and values for each focus area
- Expand scope to include 10 focus areas
- Introduce new programs to support objectives

Field Trip to Chickamauga Dam

Demonstration of the Natural Resources Asset Inventory Program





Introduce Advice Topic and Questions

DRAFT

Council Advice Discussion

1. Natural Resources is proposing changes in the approach to the 2020 NRP from heavily tactical to strategic. Do you see advantages in this approach? Are there considerations TVA needs to remain aware of?
2. As resources and funding are allocated, do you have suggestions on balancing the focus areas and competing demands?
3. You've heard how we are enhancing our communications and public involvement program. Have you suggestions for additional public engagement opportunities that should be incorporated into the 2020 NRP proposal?



RRSC Packet Review

- Biography that is or will be posted on line. Please review and update.
- Travel reimbursement policy.
- Your acceptance statement needs signature to serve on Council.
- Return documents to Cathy. Instructions are included.



Lunch Break

Meeting Adjourned for Today

Meeting will reconvene tomorrow, 7/31, at 8:30 AM



Regional Resource Stewardship Council

July 31, 2018
Chattanooga, Tennessee

A black and white photograph of the word "welcome" written in a cursive script on a wooden plank background. The photograph is framed by a white border and a black outer border.

welcome

Agenda – July 31, 2018

- | | | |
|--------------|--|--------------------------------------|
| 8:30 | Welcome and Recap | Jo Anne Lavender, Facilitator |
| 8:40 | River Management and
Water Use Report | Amanda Turk |
| 9:20 | Prepare for Public
Comment Period | |
| 9:30 | Public Comment Period | JoAnne |
| 10:30 | Council Discussion / Form
Advice | Cathy, JoAnne and Council |
| 12:00 | Wrap Up and Adjourn
(lunch available for Council
Members) | Iverson/Henry |

Day 1 Recap

- Natural Resource Updates
- NRP 2020 and EIS



River Management Update

Amanda Turk

River Management Focus Areas

River Management is responsible for scheduling the day-to-day, integrated operation of the Tennessee River system and balancing the competing demands on the system and the overall value to the public.

Our integrated operations provide multiple benefits to the people of the Valley



Flood Damage Reduction



Power Generation



Water Supply



Navigation



Water Quality



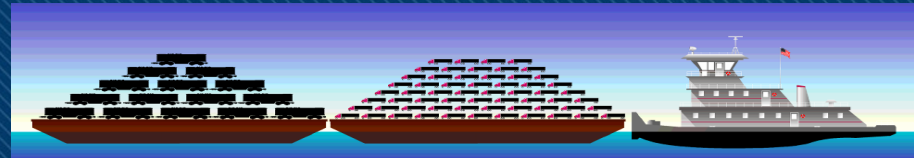
Recreation



Flood Control & Navigation

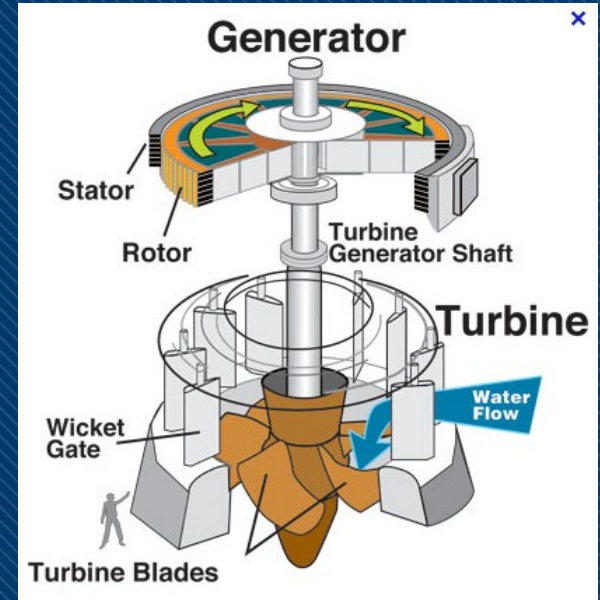


- Store water during flood to reduce crest
- Issue flood forecasts for regulated system
- Release water at non-flood rate after crest
- Annual average flood damages averted are \$260 million (\$6.8 billion to date)
- Cost-effective transportation
- Raw Materials, Coal, Grains, Aggregates, Iron, Steel, Petroleum
- ~ \$1B/year in shipper savings
- 652 Miles of Navigable Waterways
- Partnerships w/ the USACE



Hydropower

- 3,538 MW Conv. generating capacity (109 Units)
- 1,653 MW Pump-storage capacity (4 units)
- Rapid Dispatch and Flexibility
- ~ 10% of TVA's energy portfolio
- Low O&M Costs
- Used to displace more expensive fuels
- Water temperature support at thermal generating plants



Water Supply and Quality



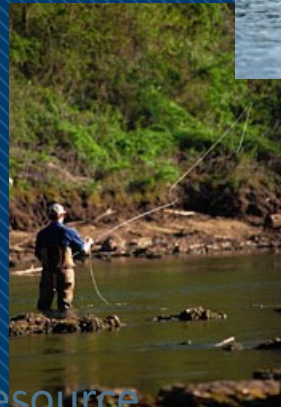
- Temperature and Dissolved Oxygen monitoring
- Adaptive Management for T&E species
- Minimum flow for downstream habitat
- Thermal compliance at TVA fossil and nuclear sites

- Over 700 Surface Water Intakes
- Process water for industry, thermal-electric cooling, municipal, irrigation
- Drinking water for nearly 5 million people
- Provide minimum depths for intakes
- Manage inter-basin transfers



Recreation

- 230 Commercial Marinas
- 260 Campgrounds
- Drawdown restricted June 1 – Labor to provide higher summer lake levels
- Numerous tailwater releases to support trout fishing, whitewater rafting and drift-boating
- Stakeholder Involvement
- Special flows and elevations to support community events





Questions?



Water Use in the Tennessee Valley for 2015: with Projections to 2040

Amanda Turk, PE

July 31, 2018

The Importance of Water in the TN Valley

“The principal water problem in the early 21st century will be one of inadequate and uncertain supplies...”

- National Research Council

TN River System is the fifth largest in the US

Provides drinking water for 5.1 million people

Over 700 surface water intakes rely on TVA’s reservoirs



Thermoelectric Cooling



Municipal Supply

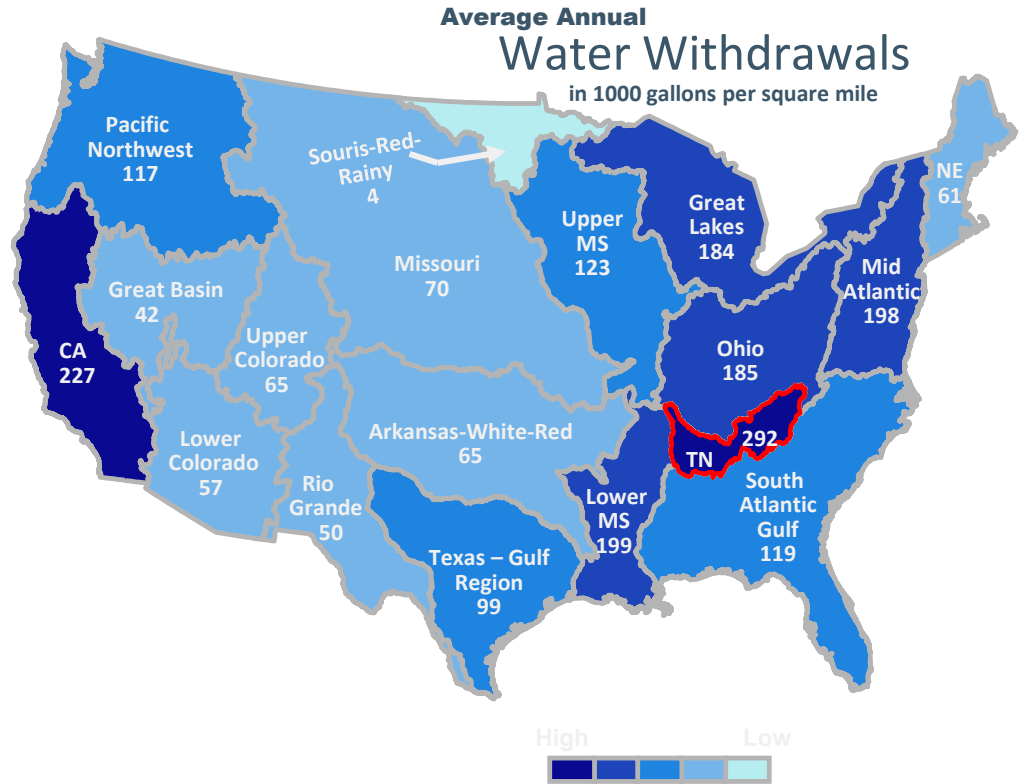


Industrial Supply



Irrigation

Water Withdrawals



TENNESSEE RIVER SYSTEM
IS THE **MOST** USED*

Water
SOURCE
IN THE UNITED STATES

*per square mile

Southeastern US Population Growth

	1990 Population ¹	2015 Population ¹	Growth Rate (%)
Georgia	6,478,149	10,199,398	57
North Carolina	6,632,448	10,035,186	51
Virginia	6,189,197	8,367,587	35
Tennessee	4,877,203	6,595,056	35
US Average	248,790,925	320,896,618	29
Alabama	4,040,389	4,853,875	20
Kentucky	3,686,892	4,424,611	20
Mississippi	2,575,475	2,989,390	16

¹US Census

Why the Concern?



The **quality of life** in our region **depends upon ample water** for homes, businesses, farms, meeting places, and recreational activities

Dependable water is as fundamental to the economic growth of the region as is **dependable, low-cost electricity**

It is anticipated that **water supply and water-quality issues, coupled with emerging water-use conflict over a fixed supply, will continue to increase** across the southeast

Reservoir Operating Policy

Navigation



Recreation



Water Quality



Water Supply



Flood-Damage
Reduction



Power
Generation

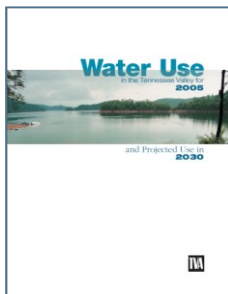


Operations dictated by

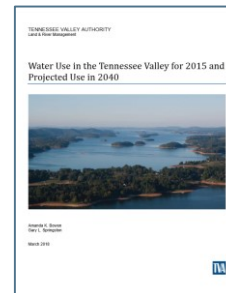
- **minimum-flows**
- **reservoir elevations**

Water Use Report History

Water Use Study initiated with 2000 Water Use Estimates and 2030 Projections



Validates estimates from the 2000 Report and increases projections to 2035

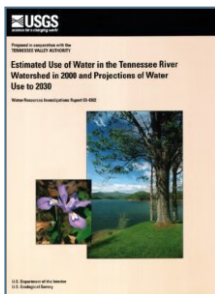


2000

2005

2010

2015

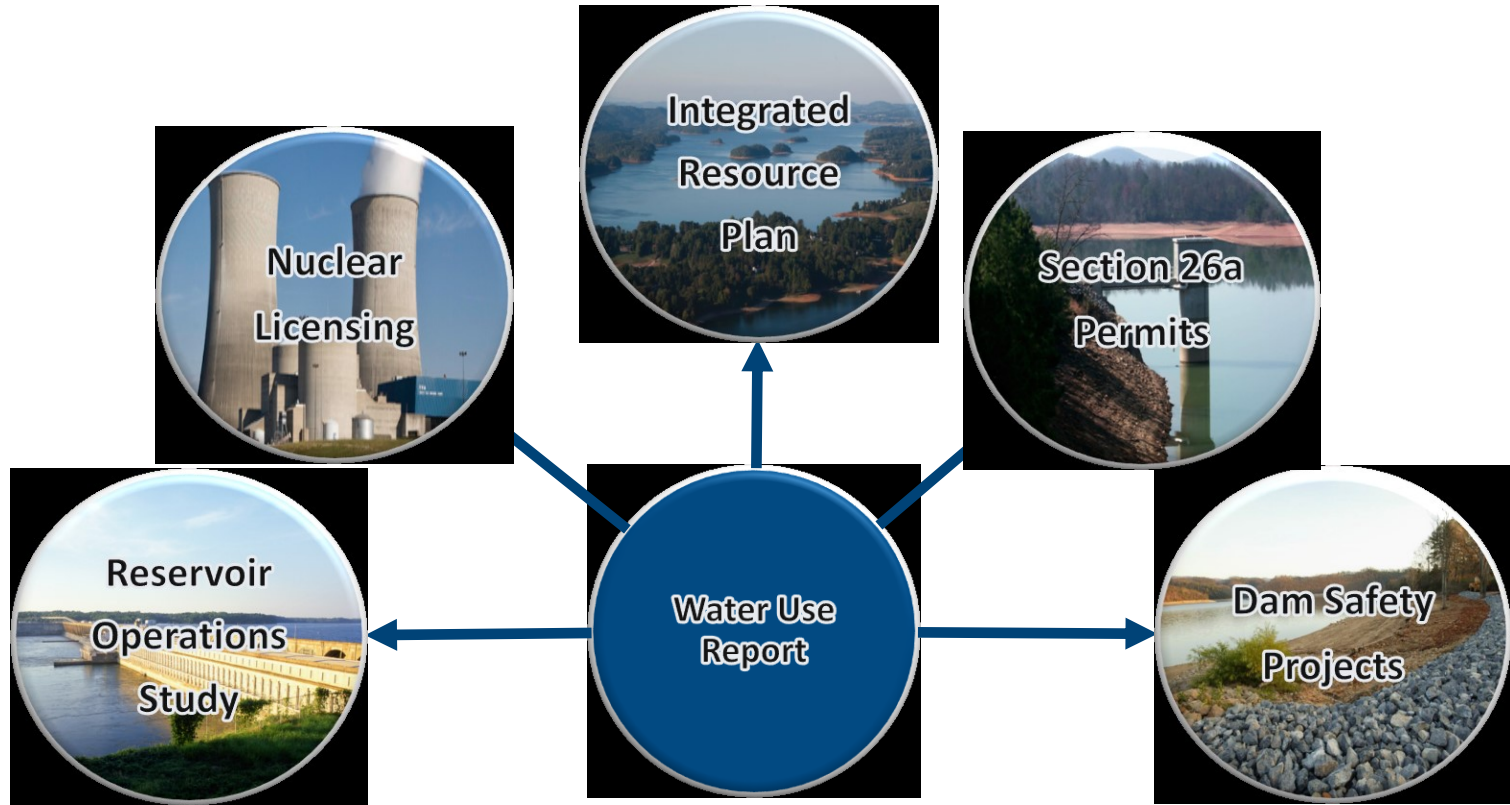


Validates estimates from the 2000 Report and verifies projections to 2030



Validates estimates from 2000 Report and plans to increase projections to 2040

TVA's Uses of the Water Use Report



Water Use in 2015

Withdrawal Total – 10.0 billion gallons per day



8,224 mgd
~82% of total



695 mgd
~7% of total



1,033 mgd
~10% of total



63 mgd
~1% of total

Water Use in 2015

Withdrawal Total – 10.0 billion gallons per day

Return Total – 9.59 billion gallons per day



Thermoelectric Cooling

8,224 mgd
~82% of total

8,155 mgd
~1% loss



Municipal Supply

695 mgd
~7% of total

462 mgd
~33% loss



Industrial Supply

1,033 mgd
~10% of total

974 mgd
~6% loss

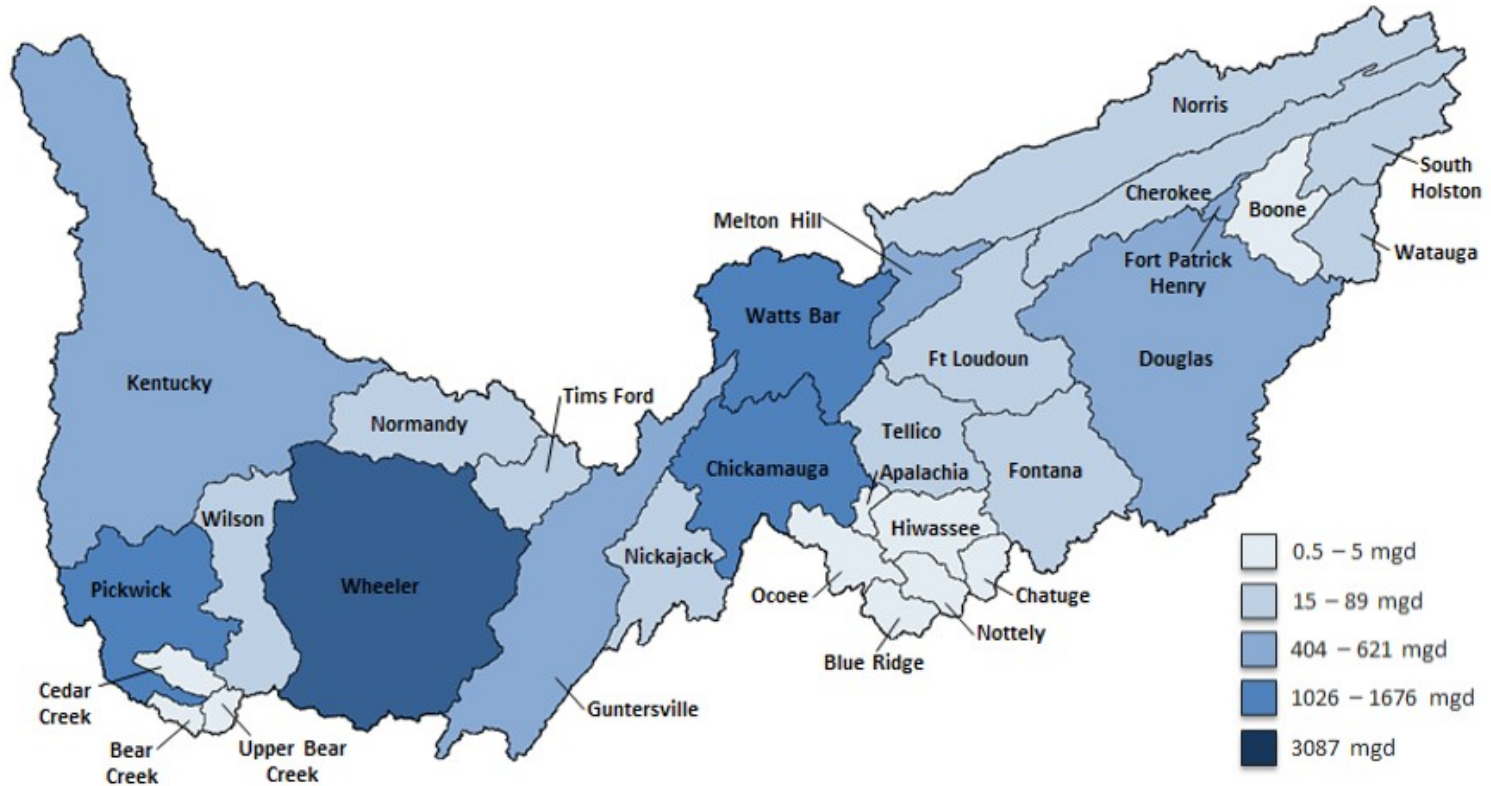


Irrigation

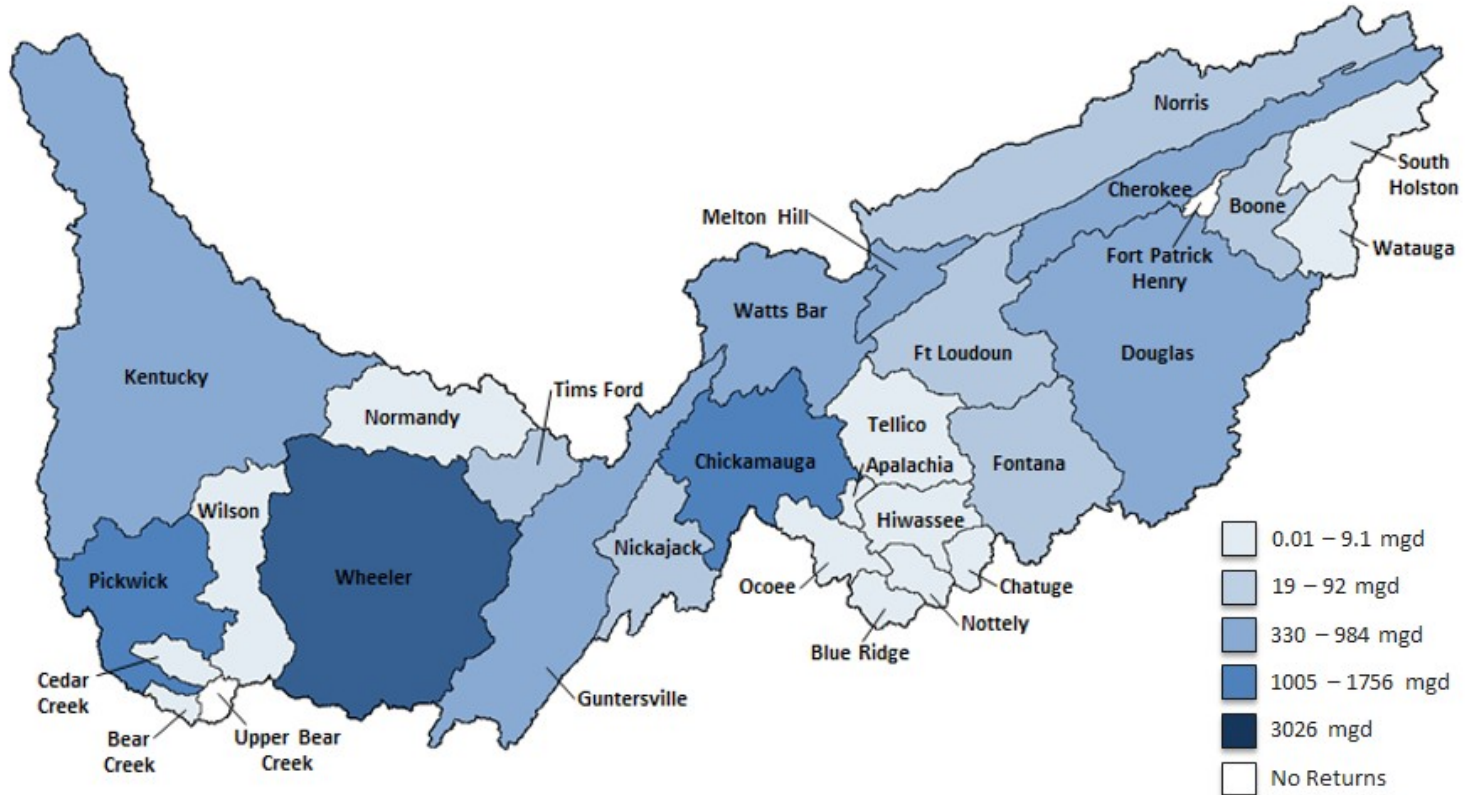
63 mgd
~1% of total

0 mgd
100% loss

Withdrawals by Reservoir



Returns by Reservoir

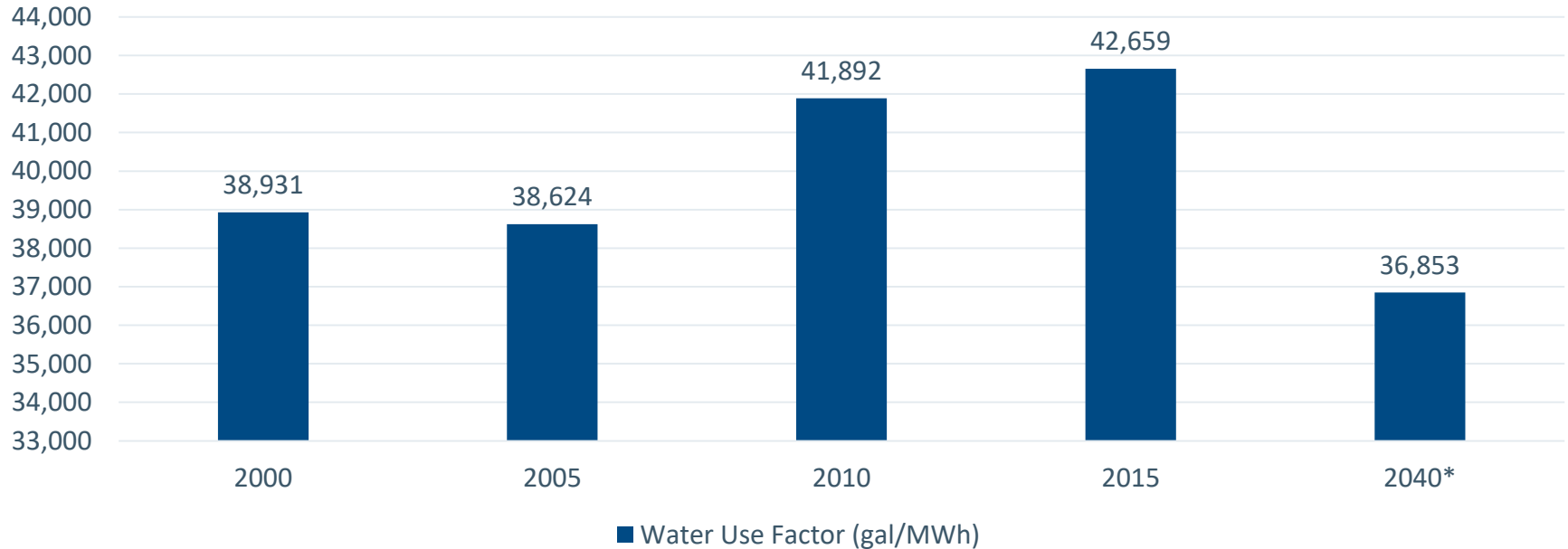


Comparison of Water Use Over 20 Years

	1995 (mgd)	2000 (mgd)	2005 (mgd)	2010 (mgd)	2015 (mgd)	% Change 1995 to 2015
Total Withdrawal	10,008	12,211	12,437	11,951	10,015	+0.1%
Thermoelectric	8,010	10,276	10,531	10,046	8,224	+2.7%
Industrial	1,030	1,205	1,179	1,148	1,033	+0.3%
Public Supply	574	662	684	723	695	+21%
Irrigation	48	69	43	34	63	+31%
Consumptive Use	Unknown	649	432	471	424	
Consumptive Use as % of WD		5.3%	3.5%	3.9%	4.2%	

Why every 5 years?

Water Use Factor (gal/MWh) Thermoelectric Water Withdrawal in the Tennessee River watershed from 2000 to 2015



*estimated based on assumptions in 2018

Estimated Water Use in 2040

	2015 (mgd)	2040 (mgd)	% Change 2015 to 2040
Total Withdrawal	10,015	8,108	-19%
Consumptive Use	424	543	+24%
Consumptive Use as % of WD	4.2%	6.7%	

Estimated Change in Withdrawal:

Thermoelectric – 27% Decrease

Industrial – 16% Increase

Public Supply – 21% Increase

Irrigation – 40% Increase



Questions?



Break

Prepare for Public Comment Period

Public Comment Period

- **Public participation is appreciated**
- **This is a listening session; responses are typically not provided**





RRSC Discussion and Advice

Council Advice Discussion

1. Natural Resources is proposing changes in the approach to the 2020 NRP from heavily tactical to strategic. Do you see advantages in this approach? Are there considerations TVA needs to remain aware of?
2. As resources and funding are allocated, do you have suggestions on balancing the focus areas and competing demands?
3. You've heard how we are enhancing our communications and public involvement program. Have you suggestions for additional public engagement opportunities that should be incorporated into the 2020 NRP proposal?



Wrap Up and Adjourn



Lunch



Thank you and please travel safely!