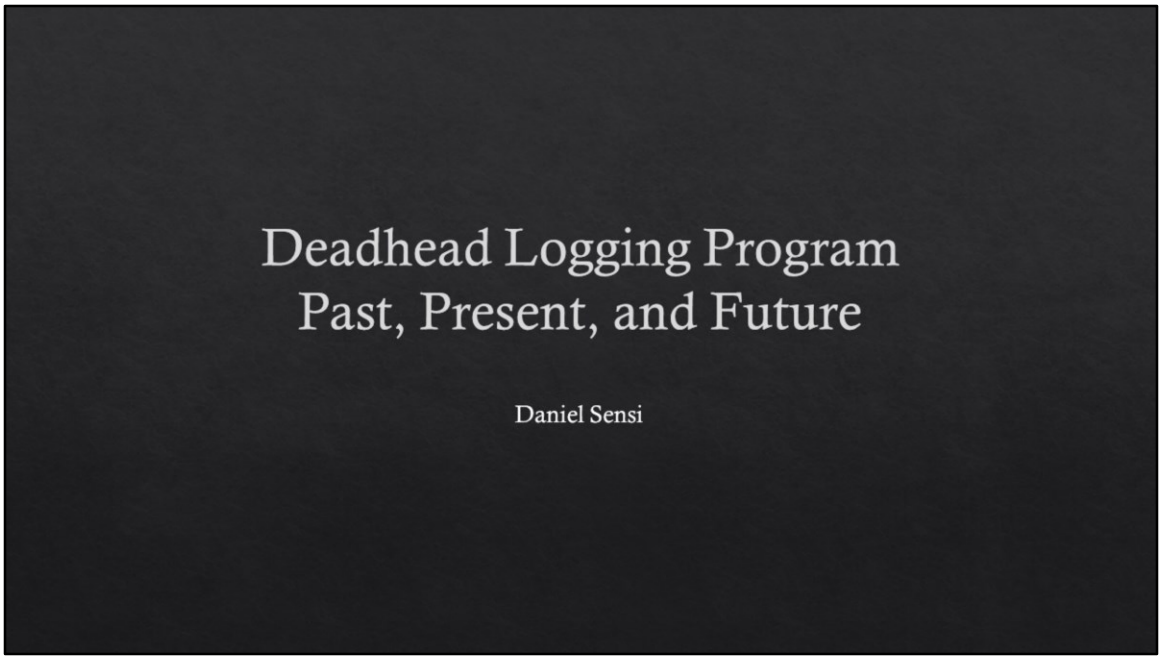


Hello Everyone,
My name is Daniel Sensi, I am the Mangrove and Deadhead Logging Coordinator and today we will be talking about the Deadhead Logging Program
…Past, Present, and Future.

Outline

- History
  - What is deadhead logging?
- Timeline
  - Moratorium and Program Implementation
- Statistics
  - Deadhead log prices
  - Reported # of pulled logs
  - Permit/UA/Logger #'s
- Future Direction
- Summary

So just for a brief outline of what we will discuss today
We will go through some history and talk about what Deadhead logging is, and how it came about
I will go through a timeline of events for the program
Then we will get into some statistics, log prices, how many logs have been pulled and how many permits we issue
Then we will get into the future direction of the program and wrap up

Deadhead Logging History

- Florida silviculture (late 1800's- early 1900's): *Virgin* Pine and Cypress
  - 28 million forested acres (19 million Pine)
  - 1870-1937: Harvested 12 million acres of Pine
- Hand-cut: rafted and floated downriver to sawmills
- Deadhead logs (DHL)
  - Logs that sunk on the way to the mill
  - (15-50 trees/acre) for old growth forests
  - ~5-10% (9-60 million logs)
- Low oxygen environment preserves logs
  - Prized for strength, durability, grain pattern/color
  - No more old growth forests being harvested

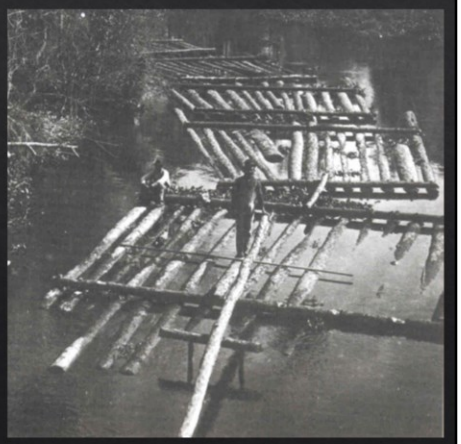


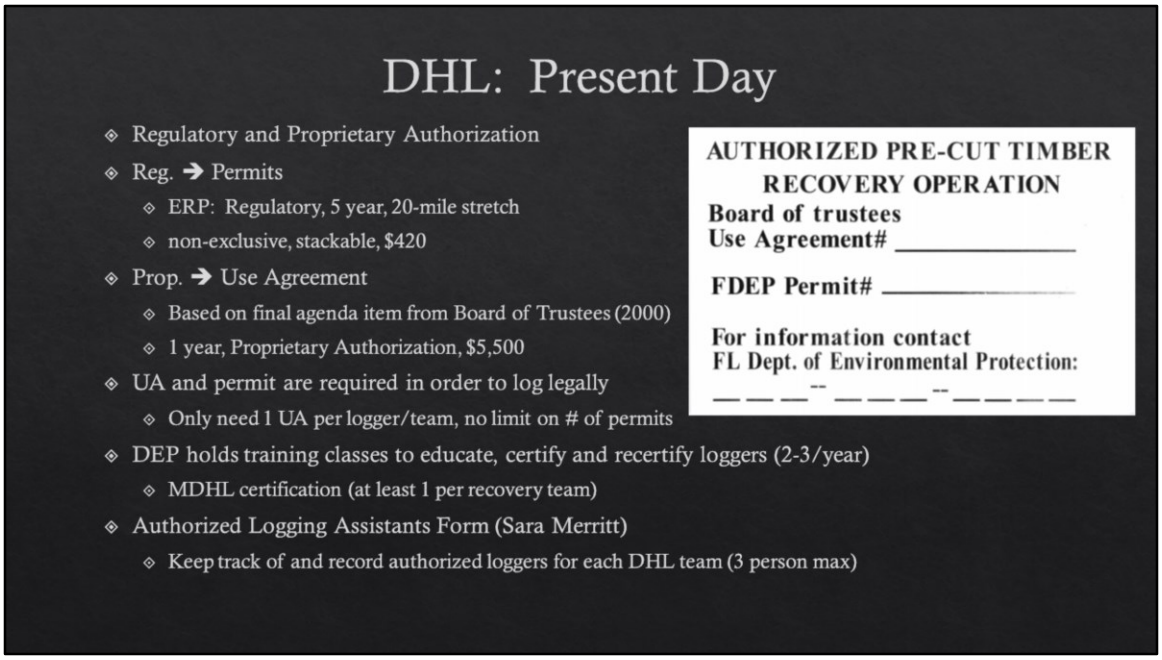
Photo credit: Florida State Archives

Deadhead logging comes from Florida's Silviculture boom in the late 1800's and early 1900's
This is a time when the Virgin, first growth Pine and Cypress forests were being harvested
At this time, all of these trees were hand cut by either ax or two-man saw
Florida had around 28 million forested acres, 19 million of which was Pine
From 1870-1937 (70 year period), around 12 million acres of Virgin Pine was harvested from the state
As a means of transport, the timber was rafted together and floated down river to nearby sawmills
Sometimes these rafts broke apart and the timber sank to the bottom
It is estimated that around 5-10% of all the harvested lumber was lost in this fashion
With some quick math and estimating around 15-50 trees per acre for old growth pine forests, we see that there are millions of Deadhead logs still lying at the bottom of Florida's rivers.
The low-oxygen environment preserves the timber, and there is a large demand for the logs. Mainly due to size, strength and durability, and that there are little to no old growth (100+yr old) forests being harvested today, which makes these logs unique.

Timeline: Moratorium and Implementation

- 1933-1974
  - Trustees leased and sold timber rights to individuals (based on amount harvested)
- 1974: Moratorium
  - Board discontinued: concerns from Florida Game and Fresh Water Fish Commission
- December 1998
  - Board approved 1 year preliminary program to allow recovery from SSL
  - High price of deadheads made illegal recovery worth the risk
- 1999
  - Suspended in order to modify program criteria
- April 2000
  - Agenda item with current UA and Permit combination

Alright, so for a timeline.
After the silviculture boom busted, due to a lack of readily available timber.
From the 1930's through the 1970's, the Board of Trustees leased and sold rights to individuals to harvest deadhead logs from the river bottoms. The leases were based on amount harvested, and paid to the board.
In 1974 a moratorium on the program was set in place. This was mainly due to environmental concerns raised by the Florida Game and Fresh Water Fish Commission.
In 1998, the board suspended the moratorium and approved a 1 year preliminary program to allow DHL recovery. This was due to the large amount of illegal recovery throughout the state, as the high price and demand for the deadheads made it worth the risk. It was also thought that a program would help to minimize environmental impacts.
In 1999, the recovery program was suspend in order to modify criteria and come up with more suitable conditions
And in 2000, the board issued and agenda item with the current UA and Permit combination that we have today.



This is the program that we have today. There are Regulatory and Proprietary authorizations required.

The regulatory side consist of permits. We issue an ERP dredge and fill permit, they are good for 5 years and provide non-exclusive rights to a 20-mile stretch of river. The permits cost $420, are stackable and can overlap each other.

For the proprietary authorization, we issue a Use Agreement. The UA conditions are based off of the Board's final agenda item from 2000. The UA is good for 1 year, costs $5,500 and gives the logger, or logging team recovery rights for as many permits as they have/want.

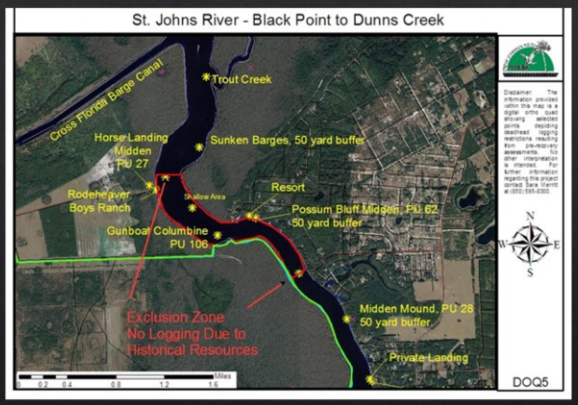
So, loggers only need one UA and can have has many permits as they want, depending on how much river they want to recover from.

DEP also holds training classes as a part of a certification process laid out in the agenda item. The classes are held 2-3 times a year (usually in the NE and NW Districts) and provide the loggers with educational and informational material to certify and recertify loggers. At least one person on each recovery team has to complete the yearly certification and be considered a Master Deadhead Logger (MDHL)

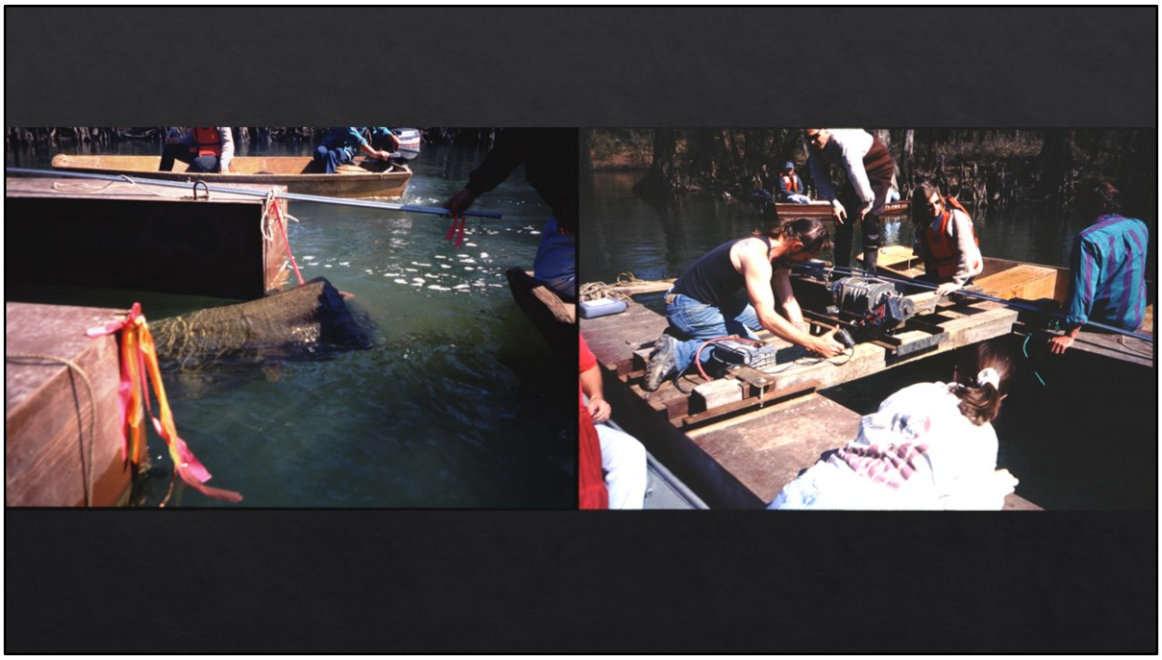
The Department also keeps track of Authorized Logger Assistant Forms. These were developed by Sara Merritt, our former DHL Coordinator, in order to maintain a record of who is on the water and what team they are associated with. This also helps us make sure each recovery team only has a maximum of 3 people.

Permits and Use Agreements

- Permits
  - Pre-recovery Assessment
    - Bank stability, Historic resources, Endangered species, Location of state parks, Removal locations
- Use Agreement
  - Attachment A: Notification procedures
  - Attachment B: Prohibited water bodies
  - Attachment C:
    - Implementation of recovery of pre-cut timber



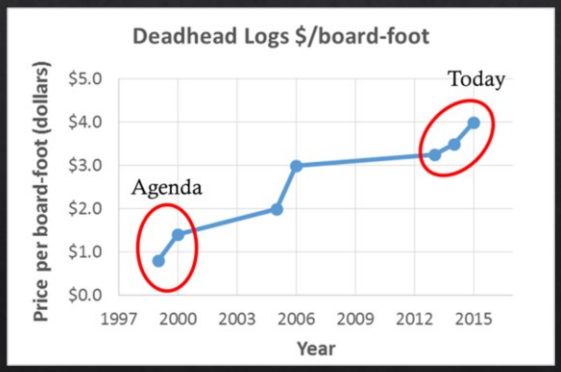
The Permits and Use Agreements are subject to their own conditions.
First, there is a pre-recovery assessment for the permits. Here, the logger and the DEP staff go through the stretch of river being permitted. They look for and identify a suite of environmental conditions in order to minimize impacts. Including: bank stability, historic resources, endangered species, no logging buffers, and authorized removal locations.
For the Use Agreement, there are three attachments. A requires weekly logging notifications. This tells us who is logging where and when. B requires the logger to recognize where prohibited water bodies are located statewide. And C requires the logger to agree to an environmental assessment, the certification and education requirements, random inspections and all permit and UA conditions.
The Map on the right is an example of a permitted river stratch on the St. Johns River.



In this slide I have pictures of a team winching up a deadhead log from the river bottom. Notice that there is no bark or branches on the log.

Logging Statistics ($$$)

- Deadhead prices
  - Sold by the board-foot, 1 board-foot is 12in x 12in x 1in
    - A log that is 20 feet long and 20 inches in diameter is 320 board-feet (worth around $1,000)
- BOT Agenda (2000): $0.80-$1.40/bdft
- 2006: $2-$3 per board-foot
- December 2014
  - Pine: $3.25-$3.50 per board-foot
  - Cypress: $3.50-$4 per board-foot
  - Condition/size ↑ $/bdft (>$5/bdft)
- Milled deadhead lumber
  - Sells for 2-3 times as much as raw logs



Okay, now for some numbers. So we have been talking about the history of DHL, lets get into how much it's worth.
First, the logs are sold by board foot. A board foot is a 12in wide by 12in long and 1in thick board. For reference, a log that is 20 feet long and is 20 inches in diameter is about 320 board feet. At today's prices, that log is worth around $1,000 or more.
The graph on the right shows average price per board foot for deadhead logs, starting around 2000 and going to today.
When the Agenda item came out, logs would fetch anywhere from 80 cents to $1.40 per board foot. Over the years, this has steadily increased, and today logs go for around $3.50-$5 per board foot, and even higher depending on condition, size, and other factors. And that's just for the raw logs, the milled lumber is worth 2-3 times as much.

Logging Statistics (Logs Harvested)

- 1930's-1974 Trustees of the Internal Improvement Trust Fund leased deadhead recovery rights
  - Payments to the board ranged from $4-$10 per thousand board-foot harvested. (~1¢/bdft)
  - No information on price per board-foot, possibly around 10¢/bdft
- Illegal harvest 1974-1998: #logs harvested?
  - No estimates, prices and demand for deadheads made illegal harvest worth the risk
- 1999: 3,117 logs harvested, first year to harvest DHLs legally after moratorium
- 2000-2013: 22,345 logs harvested

At the beginning of the talk I showed estimates for how many deadhead logs we assume still remain. Now let's get into how many have been harvested……. that we know of. As I mentioned, from the 1930's to the 70's the board leased recovery rights. The payments they received ranged anywhere from $4-$10 per THOUSAND board feet, that's about a half cent to a cent per board foot. I have not been able to locate information about the $/bdft at the time, but I estimate around 10 cents, plus or minus. We also do not have records on how many board feet was harvested, or how much the board received in payments during that period. If we could uncover this information, it would be easy to make estimates of how many logs were harvested, but that is for another day.

During the moratorium years, from 1974-98 we also do not have estimates on the number of logs harvested. As the harvesting was illegal and obviously not reported. However, we can certainly assume logs were continually being harvested, as the high prices and demand for the logs made it worth the risk.

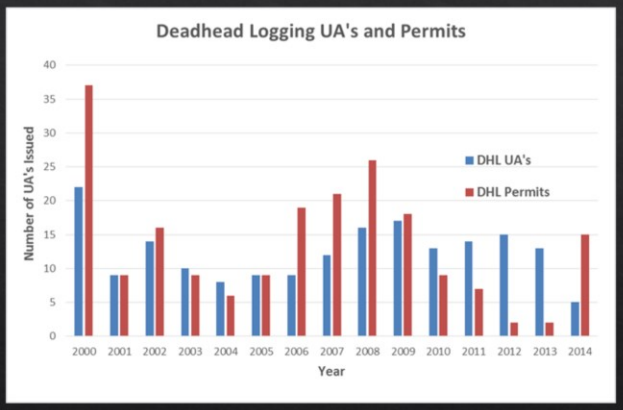
Starting in 1999 when the program was first opened back up, we have reported over 3,000 logs harvested logs in one year alone. Take in mind that these are the numbers that the loggers reported to us.

Then from 2000 through the end of 2013 we have an additional 22,000 reported harvested logs. This gives us just over 25,000 logs harvested over a 15 year period,

and the 2014 numbers will be out soon as well.

Logging Statistics (UA's & Permits)

- 74 different logging teams
  - 10 that have been in for 10+ years
- 195 UA's: $1,072,500
- 214 Permits: $113,680
- 25,462 reported logs have been harvested.
- $43 for every recovered log, and around 10¢-50¢ for every board-foot (depending on log size)
- UA and Permit number have remained fairly constant issuing around 10 of each for most years



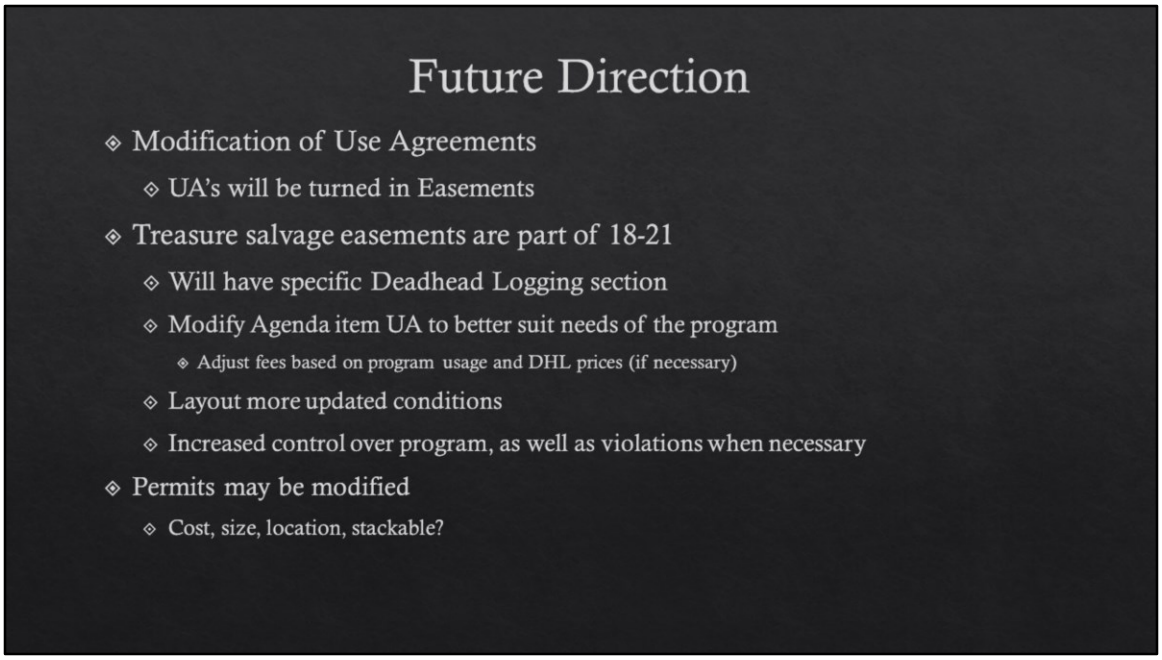
Now that we have talked about log prices and how many logs have been reported harvested, lets see how many permits we have for this program.
Since inception, there have been 74 different logging teams, of these we have around 10 that have been participating in the program for 10 years or more.
A total of 195 UA's have been issued. Remember that a logger/team only needs 1 UA, and they last for 1 year. The board has collected just over 1 million dollars from the Use Agreements.
There have been a total of 214 permits issued, totaling just over $100,000.
Taking into account the 25,000 reported logs harvested, we calculate that the Board receives around $43 for every recovered log, and anywhere from 10-50 cents per board foot depending on the size of the log.
Over the years, the program has issued a fairly steady amount of permits and UA's, around 10-15 per year for most years.
Interestingly, when the program initially began, it was thought that it would only last for a few years due to the resource running out. That is clearly not the case.

Driving the Interest

- DHL Awareness
  - Being fueled by television
  - History Channel Series "Ax Men" Swamp map Logging
  - Department receives calls to provide information for additional TV series, magazines, and articles
- Demand
  - No more old growth wood
  - Size, strength, durability, grain size, texture, and color
- Products
  - Decorative and specialty pieces
  - Floors, doors, cabinets, frames, mantles, etc.

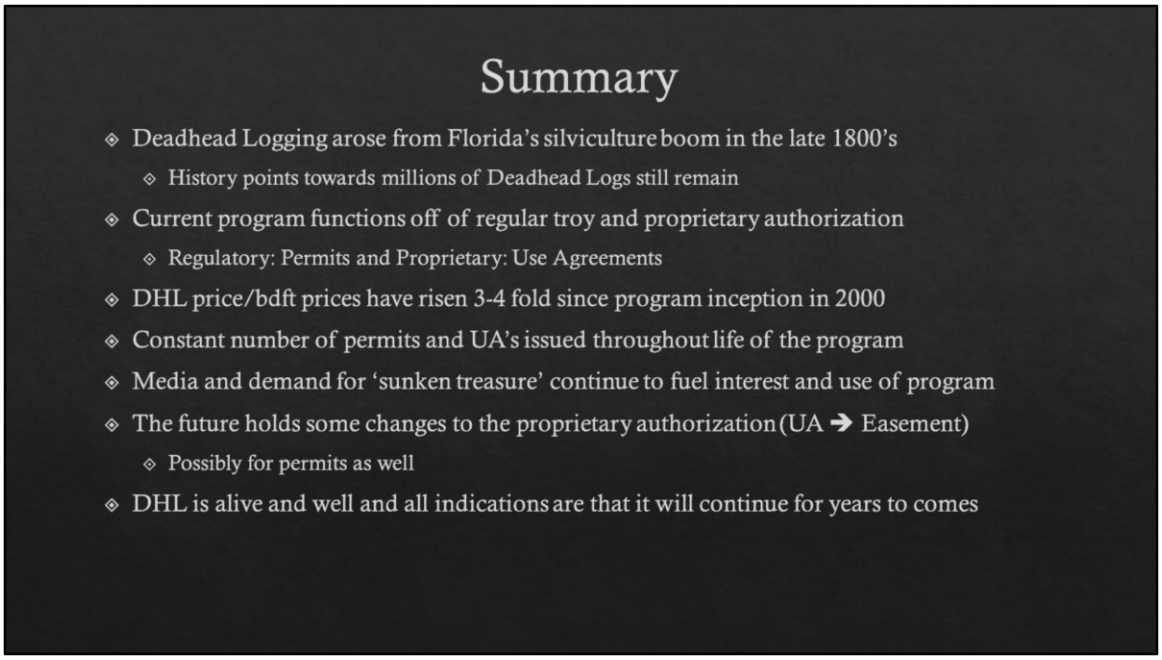
So what is driving the interest in the program?
Deadhead Logging in Florida, and around the US continues to have interest, not only because so much of the resource is still there, but other factors as well.
There is continued awareness and advertisement for deadhead logging. Many of you may have heard, or seen the TV series AX Men on the History channel, well they have episodes devoted to just deadhead logging. The Department, myself included, stills receives calls from producers and journalists for more information about the program. Perhaps to do a spin off, or write another article.
The demand for the wood is also still there. There is no other way to get old growth wood. The majority of the lumber industry is harvesting trees that are around 40 years old, deadhead logs are hundreds of years old or more. The logs are also unique, the virgin wood is characterized by its size, strength, durability, resistance to rot, and its tight grain patterns.
The products of deadheads are numerous, but they are most often used for specialty pieces in high-end markets. They are used for floors, doors, cabinets, frames and mantels among many others.

Here are some pictures of just that. This is a variety of different deadhead furniture. Tables, floors, mantels, and decorative pieces.



For the future, we are currently modifying the Use Agreements and rewriting them as Easements. We are putting a specific Deadhead Logging section under FAC 18-21 for treasure salvage easements. During this process we will also have the opportunity to modify any conditions that may benefit the program. These may including cost, specific conditions related to environmental factors, and others that help better suit the needs of the program.

In the process it may also be possible for us to modify permit conditions if necessary. These may also include the cost, size, and location of the permits and whether or not they would remain stackable with one easement.



Alright everyone, so in summary.
We have learned that deadhead logging arose from Florida's silviculture boom in the late 1800's. And the knowledge of how many trees were actually harvested and subsequently lost, there could still be millions of logs still left in the bottom of Florida's rivers.
We know that the current program requires regulatory and proprietary authorization, in the form of permits and Use Agreements.
We saw that DH prices per bdft have increased around 3 to 4 times since the inception of the program in 2000.
All while a fairly constant number of permits and UA's have been issued throughout the life of the program.
Media attention and the natural gravitation towards this unique resource continues to drive interest in and use of the program.
And lastly, the future holds some changes to the program, most notably the Use Agreements being converted to treasure salvage easements, with changes to the permits as well, if necessary.
And that's it, thanks so much everyone. I hope you enjoyed the talked, and now I'll take any questions at this time.

Photo Credits

- Slide 2: Deadhead Logging TAC Recommendations 2000
- Slide 4: http://www.ecohome.net/news/latest/reclaiming-sunken-timber-log-drive
- Slide 6: Deadhead certification presentation, Sara Merritt 2009
- Slide 7: Deadhead Logging TAC Recommendations 2000
- Slide 9: Courtesy of Paul Ferry through Garcia recovery team 2014
- Slide 11: http://www.sianey.com/AXMEN
- Slide 12: http://www.dep.state.fl.us/water/wetlands/erp/deadhead.htm http://www.ecohome.net/sites/www.ecohabitation.com/files/imagecache/G12-Image-640/nouvelle/logsend6.jpg https://www.pinterest.com