

Jupiter Inlet Lighthouse

Outstanding Natural Area

Hands on the Land Lesson Plan

Science Based Public Policy

Grade 8

Bureau of Land Management
Jupiter Inlet Lighthouse Outstanding Natural Area
600 State Road 707, Jupiter, FL 33469
561-295-5953
www.BLM.gov/jupiterONA

Lesson Plan

Course: Grade 8 Science

Course Number: Big Idea 4 – Science and Society

Lesson Plan Date: March 2017

Lesson Title: Science Based Decision Making

Time: 60 minutes (in class) and **2**+ hours (in the field)

Instructor Preparation: (Prior to site visit)
Review Safety Precautions for the ONA
Review Pre-Trip preparations
Pre-view field trip activities
Prepare students with general knowledge of the ONA and the cooperative learning processes.

Site Prep and Equipment:

- a. For all field trips please check the Lighthouse and ONA websites at:

 http://www.jupiterlighthouse.org/plan/school-field-trips/www.BLM.gov/jupiterONA
- b. **Activity overview:** Students will tour the site and learn about how the site became an ONA and make observation of the various uses of the site, then roleplay members of a "Working Group" to make hypothetical recommendations of how they think the site should be utilized.
- c. Students should view PowerPoints ("ONA accomplishments-Bruce Dawson" pdf & Science & Society: A "Working Group" Role Playing Activity PowerPoint and discuss the basics of Public Law 110-229, Section 202 and that science is the basis for decisions made regarding the ONA.
- d. Make copies of the Role-Playing Notes and Instructions for each student.
- e. **Preview** Role-Playing activity with students and explain what they will be responsible for a "final group report" on the ONA.

Main Objective:

The main objective of this field experience is to have students learn some background of the Jupiter Lighthouse Outstanding Natural Area, how it became an "Outstanding Natural Area" and how the "Working Group" collaborative efforts support Public law 110-229, section 202. Students will role-play members of the working group to develop a plan for the ONA.

Est. Time	Visuals and Notes	Content
20 min.	Introduction: (Pre-trip) Reference ONA- accomplishments-Bruce Dawson (pdf) Reference Teacher Background Information ONA (pdf) See attached Role Playing Notes for Students	Overview of the background of Jupiter Inlet Lighthouse Natural Area View PowerPoint by BLM Southeastern States Field Manager, "Jupiter Inlet Lighthouse Outstanding Natural Area: Accomplishments of a BLM and Nonprofit Partnership", 2012. (16 slides)
10 Min.	Hook 1: Reference A COOPERATIVE CONSERVATION CASE STUDY (1-page pdf)	Share with students this one-page overview of the cooperative partnership work that led to the Congressional Designation of "Outstanding Natural Area" one of only three in the Nation. Link: http://www.cooperativeconservation.org/viewproject.aspx?id=272
15 Min.	Hook 2: Reference 8th Grade ONA Power Point "Role Playing Activity"	Field trip activity description and safety discussion Show PowerPoint: Science & Society: A "Working Group" Role Playing Activity.

15		Discuss ONA safety requirements
Min.	www.BLM.gov/jupiterONA	Please visit web sites for additional information.
	See attached ONA Guidelines and Rules	 a. Stay with your Chaperone. b. Closed-toe shoes are required for all activities. (old tennis shoes work best for water shoes) c. Bring water, each student should have a water bottle! d. A floppy hat for shade may be helpful. e. Stay with partners/team/group (use the buddy system) f. Be careful of your surroundings: some plants are poisonous or have sharp thorns and some animals may be venomous.
	See attached How To Be	g. Don't touch anything you haven't been told to touch.
	A Great Chaperone	Follow your group's protocol for emergencies. Report any injury or concern to site staff.
2 + Hours	Field Trip Activity	The main objective is for students is to be able to discuss their observations of a Natural Area and by using the background knowledge they have, role play different roles of A "Working Group" to determine the current and future uses of a ONA.
	See attached Working Group Final Report sheet	Students take tour of ONA to make observations and ask questions. Clip Board recommended.
		Each student will assume a role of a "Working Group" member to discuss and plan and file a "Final Report".
		Roles include: (Attached on following pages) *
	See attached Peer Evaluation sheet	BLM Site Manager (Federal level), Environmental Resource Management Representative (County level), Town Representative (Local level), Historical Society Representative (non-profit) and Citizen (visitor/user of the ONA)
		Students will also have to self-evaluate themselves, their Group members and the Group.
	See attached Follow-up Questions	Follow-up questions after field trip. *
		*Teacher Resources are on the following pages:

Grade 8 - Big Idea 4: Science and Society

As tomorrows citizens, students should be able to identify issues about which society could provide input, formulate scientifically investigable questions about those issues, construct investigations of their questions, collect and evaluate data from their investigations, and develop scientific recommendations based upon their findings.

SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels. Cognitive Complexity: Level 2: Basic Application of Skills & Concepts			
SC.8.N.4.2	Explain Cognitiv	how political, social, and economic conce re Complexity: Level 3: Strategic Thinking int for Students with Significant Cogniti	rns can affect science, and vice versa. & Complex Reasoning	
Independent	/CC33 U	Supported	Participatory	
SC.8.N.4.In.1 entify ways that science procean be used to make informed decisions in the community, and nation. Date Adopted or Revised: 02/08	ed			

Helpful Websites, Links & Teacher Resources:

ONA Management Plan - downloadable 2010 Management Plan (200-page pdf.) *

cpalms video - Four-minute video on data collection and use

cpalms.org-Lesson 20705 - Defining Problems and Designing Investigations

Cooperative Conservation.org - A COOPERATIVE CONSERVATION CASE STUDY (1 page) *

News Release - Secretary of the Interior - Cooperative (Working Group) Award *

Private citizen's comments 3/8/2012 - Blog against ONA shoreline stabilization plan

Shoreline stabilization article - Martin County Currents article Sept. 2011

PBC Natural Areas Ordinance - Ordinances covering the ONA

Florida Fish and Wildlife Conservation Commission - Overview of agency mission & responsibilities

Roll Playing Notes for Students (page 1 of 2)

The Jupiter Inlet Lighthouse Outstanding Natural Area was Federally designated an "Outstanding Natural Area (ONA)" by an act of Congress (the Consolidated Natural Resource Act) in May of 2008. Current policy and management activities on the ONA <u>are mandated by this law</u>.

The ONA has a rich historical and cultural past. Archeological evidence indicates that humans have been on the ONA site for at least 5000 years. European contact occurred in the area in the 1500's and artifacts found on the ONA suggest an English settlement existed on the site during the 1700's.

The following are some of the key dates in the history of these **public domain lands**, which were originally ceded to the United States from Spain on February 22, 1819 under the Onís-Adams Treaty of 1819, ratified by the United States in 1821 (also referred to as the Transcontinental Treaty).

October 22, 1854 – Sixty-one acres of the Jupiter Inlet tract were withdrawn from the Fort Jupiter reservation for lighthouse purposes by Executive Order dated October 22, 1854. Although delays in construction occurred due to the Seminole wars, construction of the lighthouse was completed in 1859.

1905 – 1928 The U. S. Navy was on the site and held jurisdiction.

1939 - Jurisdiction over the entire lighthouse reservation was transferred to the U.S. Coast Guard. During World War II, both the U.S. Navy and U.S. Coast Guard constructed additional buildings at various locations on the tract. The U.S. Navy had terminated its lease by the mid-1960s (Kennedy et al. 1995:45).

1951-1987 - The U. S. Air Force leased approximately 30 acres in the northern part of the Jupiter Inlet tract. All buildings or remains of buildings in this area post-date **1956**. This part of the tract has been extensively disturbed. In addition, most of the original structures, dating from the **1950s**, have been removed (Weed et al. **1982**:58).

September 11, 1989 - U.S. Coast Guard notified the BLM that portions of the Jupiter Inlet Lighthouse Station were no longer needed and that a board of survey was being initiated to excess 80.68 acres of the property.

July 12, 1996 - 80.68 acres were relinquished to BLM. The U.S. Coast Guard retained 45.60 acres including communication site on the north side.

November 23, 1998 – The BLM issued a Recreation and Public Purposes Act Lease to the Town of Jupiter for Jupiter Lighthouse Park (26.35 acres).

October 20, 2004 - A **Recreation and Public Use Patent,** for 17.8 acres, was presented to the Town of Jupiter by the Secretary of the Interior.

May 8, 2008 - Jupiter Inlet Lighthouse Outstanding Natural Area was designated as a unit of BLM's National Landscape Conservation Area in Section 202 of the Consolidated Natural Resources Act (PL-110-229). The pertinent portion of the Act is provided in Appendix A. PL-110-229 states that any public domain no longer needed within the ONA

Roll Playing Notes for Students (page 2 of 2)

by the U.S. Coast Guard will be returned to the Secretary of the Interior subject only to any environmental remediation that may be required by law.

It is important to know that the ONA is Federal Public Land inside the State of Florida managed by the Federal Bureau of Land Management. The ONA is in Palm Beach County with the North portion in the Village of Tequesta, the Southern portion in the Town of Jupiter and the Eastern shoreline is in the municipal limits of the Jupiter Inlet Colony. In addition, the Lighthouse and museum is managed and operated by the Loxahatchee River Historical a non-profit organization. All the State, County, local and non-profit partners are mandated to implement the requirements of the Consolidated Natural Resources Act of 2008.

- **Requirements of the Consolidated Natural Resources Act:
- 1. The protection and conservation of the resource values of the ONA.
- 2. Restoration of native plant communities and estuaries in the ONA, with an emphasis on the conservation and enhancement of healthy, functioning ecological systems in perpetuity.
- 3. Maintain or recreate historic structures.
- 4. Implementation plan for a **program of interpretation and public education** about the **natural and cultural resources** of the Lighthouse, the public land surrounding the Lighthouse, and associated structures.
- 5. Proposal for administrative and public facilities to be developed or improved that are **compatible with achieving the resource objectives** for the Outstanding Natural Area and would **accommodate visitors to the ONA**.
- 6. Natural and cultural resource strategies for the ONA, to be in consultation with appropriate departments of the State, the Local Partners, and the Commandant, with an **emphasis on resource conservation** in the ONA and the **interpretive**, **educational**, **and long-term scientific uses of the resources**.
- 7. Recreational use **strategies** for the ONA, in consultation with the Local Partners, appropriate departments of the State, and the Coast Guard, with an **emphasis on passive recreation**.

The following Law Enforcement agencies work together and may be involved with issues that occur on the ONA:

- It is Federal property so any Federal Law Enforcement agency.
- Any State Law Enforcement agency (most likely the Fish and Wildlife Commission).
- Palm Beach County Sheriff Department (all the ONA in in PB County)
- Village of Tequesta Police (mostly on the North side of Beach Road).
- Town of Jupiter Police (mostly the south side of Beach Road).

Many partners have worked in the past and continue to work together to fulfill the mandates of the 2008 Consolidated Natural Resources Act (PL-110-229).

You and a small number of your peers are playing roles of members of a "Working Group" who's task it is to make decisions as to the future of the ONA.

Each member of the "Working Group" is representing a different agency or organization providing input as to the management and future use of the ONA.

Remember that each member of the "Working Group" has their organization in mind and wants to support their needs, but the **2008 Consolidated Natural Resources Act** (PL-110-229) mandates by law that certain requirements be met. (see the *Role-Playing Background Notes*)

You will be playing the role of: Federal BLM Site Manager

Your role is to represent the Bureau of Land Management to manage the ONA and to fulfill the requirements of law mandating that the Secretary of the Interior.

- **Requirements of the Consolidated Natural Resources Act:
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- 5. Proposal for administrative and public facilities to be developed or improved that are **compatible with achieving the resource objectives** for the Outstanding Natural Area and would **accommodate visitors to the ONA.**
- 6. Natural and cultural resource strategies for the ONA, to be in consultation with appropriate departments of the State, the Local Partners, and the Commandant, with an **emphasis on resource conservation** in the ONA and the **interpretive**, **educational**, **and long-term scientific uses of the resources**.
- 7. Recreational use **strategies** for the ONA, in consultation with the Local Partners, appropriate departments of the State, and the Coast Guard, with an **emphasis on passive recreation**.

You must develop long term management plan allowing public use while at the same time both protecting and enhancing the ONA's environment.

You and a small number of your peers are playing roles of members of a "Working Group" who's task it is to make decisions as to the future use of the ONA

Each member of the "Working Group" is representing a different agency or organization providing input as to the management and future use of the ONA.

Remember that each member of the "Working Group" has their organization in mind and wants to support their needs, but the **2008 Consolidated Natural Resources Act** (PL-110-229) mandates by law that certain requirements be met. (see the *Role-Playing Background Notes*)

You will be playing the role of: Public Citizen

Your role is a public citizen. This is "Public Domain" land so you are an owner, it is your land.

While you are not officially on a member of the "Working Group" law allows you to be present and give input to the management and direction of the use of public lands. The law mandates that the land be accessible and usable by the public. You will work with your group in this role-playing activity to represent the general public and help make decisions that support both your ideas while staying within the mandate of the 2008 Consolidated Natural Resource Act.

You are a citizen who wants input to the use, operation and preservation of your public lands.

You and a small number of your peers are playing roles of members of a "Working Group" who's task it is to make decisions as to the future use of the ONA

Each member of the "Working Group" is representing a different agency or organization providing input as to the management and future use of the ONA.

Remember that each member of the "Working Group" has their organization in mind and wants to support their needs, but the **2008 Consolidated Natural Resources Act** (PL-110-229) mandates by law that certain requirements be met. (see the *Role-Playing Background Notes*)

You will be playing the role of: Historical Society Representative

Your role is to represent the Loxahatchee River Historical Society.

In 1994 the Historical Society received a 30-year lease of the Museum building and Lighthouse from the U. S. Coast Guard. In 2006 the lease was modified to include additional buildings on the Lighthouse site. The Historical Society manages and operates the Lighthouse and museum providing tours and historical program for the public. The Historical Society charges entrance fees to provide funds for the operation of the Lighthouse and grounds around the lighthouse.

You function as part of the ONA but manage and operate the Lighthouse and Museum as a non-profit organization separate from the Bureau of Land Management but still under the mandates of the 2008 Consolidated Natural Resource Act. You work as a close partner to the Bureau of Land Management Site Manager.

You and a small number of your peers are playing roles of members of a "Working Group" who's task it is to make decisions as to the future use of the ONA

Each member of the "Working Group" is representing a different agency or organization providing input as to the management and future use of the ONA.

Remember that each member of the "Working Group" has their organization in mind and wants to support their needs, but the **2008 Consolidated Natural Resources Act** (PL-110-229) mandates by law that certain requirements be met. (see the *Role-Playing Background Notes*)

You will be playing the role of: Town of Jupiter Representative

Your role is to represent the Town of Jupiter. The Town of Jupiter received a lease in 1998covering 26.35 acres of Lighthouse Park and 8.55 acres of adjacent land. In 2004 a "Public Use" patent for 17.8 acres was presented to the Town of Jupiter by the Secretary of the Interior. The 8.5 acres came back the BLM management to be incorporated into the natural area.

The Town of Jupiter manages the soccer fields, restroom facilities, tennis courts and parking area around the fields and museum. The portion of the Ona south of Beach Road in in the Town of Jupiter limits so the Town provides police service to the south half of the ONA.

You function as part of the ONA but manage and operate the fields under the jurisdiction of Bureau of Land Management and as part of the ONA, the mandates of the 2008 Consolidated Natural Resource Act apply to these sections of the ONA. You work as a partner to the Bureau of Land Management Site Manager.

You and a small number of your peers are playing roles of members of a "Working Group" who's task it is to make decisions as to the future use of the ONA

Each member of the "Working Group" is representing a different agency or organization providing input as to the management and future use of the ONA.

Remember that each member of the "Working Group" has their organization in mind and wants to support their needs, but the **2008 Consolidated Natural Resources Act** (PL-110-229) mandates by law that certain requirements be met. (see the *Role-Playing Background Notes*)

You will be playing the role of: Palm Beach County Environmental Resource Management Representative (ERM)

Your role is to represent the County. The County's Environmental Resource Management (ERM) has worked collaboratively with the BLM on the site since 1996 with ERM acting as the "on-site" manager through a series of cooperative agreements. The site included 35 acres of a diverse ecosystem north of beach road that contains several endangered species.

ERM continues to provide technical support to the ONA through exotic plant control, prescribed burns, habitat restoration and public work days.

You function as part of the ONA and are a Working Group member but are under the direction of the BLM site manager. Because the entire ONA is entirely within Palm Beach County, the PBC Sheriff Department supplies law enforcement services to the site and can enforce PBC Natural Area ordinances.

WORKING GROUP FINAL REPORT SHEET page 1 (each working group must complete the following two pages) **List the working Group Members & Roles:** List the Activities that Group will be permitted and/or improved upon on the ONA: List the Activities that should not be permitted or stopped from occurring on the ONA.

Describe the rational or support for each of the items listed above.

Turn sheet over.

age 2	
ased on your Working Group's input, rate each of the following items from the m	ost
nportant, 5, to the least important, 0, in relation to the ONA.	
ncrease different kinds of recreational activities on the ONA	
llow more unrestrictive and open use of the ONA	
istorical preservation of the ONA	
nvironmental protection and restoration of the ONA	
harging a user/entrance fee to use the ONA	

As a group, complete the following check list:

	Good as	Improvement	Not
Item	is	needed	observed
Variety of activities available on the ONA			
Types of activities available on the ONA			
Preservation of Historical aspects of ONA			
Environmental protections			
Environmental restoration			
Access to parts ONA			
Opportunities to do activities on the			
ONA			
Use of science based decisions			
Opportunity for community input			

Any additional comments from the Group:

Peer Evaluation	
Names:	Date:

Write the names of your group members on the top row of the evaluation chart. Rate yourself and each group member in accordance with the values indicated below.

4-Outstsanding **3**-Above Average **2**-Average **1**-Below Average **0**-Little or no contribution

Tasks	Yourself	1	2	3	4	5
Activity participated in group effort						
Offered useful suggestions						
Supported other's ideas						
Helped the group stay on task						
Amount of work done						
Quality of work done						
Totals						

Group Evaluation:

Using the values below, rate your team's efforts.

5-Totally (yes) 4-mostly **3**-about half **2**-less than half **1**-little or nothing done (no)

Task or Activity	Value
Task was finished on time	
Team members made equal contributions	
Team members all shared ideas within the group	
Team members respected each other's suggestions	
Overall the group succeeded and reached some expected goals	
The Group goals were based on scientific ideas and principals	
The Groups overall success	

Additional Comments/recommendations:

Follow-up Questions: What should the ONA be providing to the Public?
What do you (in your role) think the ONA should provide?
What agency should provide each of the items (indicated above) the ONA provides to the Public?
What data needs to be collect for each of the items mentioned above?
Who should collect that data?
What methods or types of studies should be used to collect that data?
What suggestions are you making?
What is your scientific rationale or basis for your suggestions?
To what extent (%) are your suggestions based on
Science -
Political –
Social -
Economic –
Is your science knowledge or some other factor having the largest impact on your suggestions?

ONA Rules and Guidelines:

The Natural Area is Federal property and is regulated by Federal, State and local laws. Complete and detailed regulations regarding the Jupiter Inlet Lighthouse Outstanding Natural Area (ONA) are available in the <u>Jupiter Inlet Outstanding Lighthouse Natural Area Comprehensive Management Plan and Environmental Assessment (pages 137-149) available at the following website:</u>

http://www.jupiter.fl.us/DocumentCenter/View/5658

General Rules and Guideline Requirements:

- 1. All groups or individuals <u>MUST</u> contact the site manager (Peter DeWitt, Site Manager Jupiter Inlet Lighthouse ONA, Bureau of Land Management, 600 State Road 707, Unit B Jupiter, FL 33469. Phone: (601) 331-7407) <u>prior to starting</u> any field study or research activities on the site to obtain special permits for field work.
- 2. <u>Do not collect anything</u>. Collection of any item, living or non-living is **not allowed without** special permit from the site manager.
- 3. No digging. This site is a historical site with cultural significance, it is protected by law.
- 4. Stay on the concrete trail and boardwalk. Endangered and sensitive plants are on the site.
- 5. No pets are allowed in the natural area.
- 6. No swimming. Wading may be permitted for specific field study activities.
- 7. Closed-toe shoes are required for all activities on site.
- 8. Be familiar with the local plants and animals both terrestrial and marine. There are poison plants and may be venomous animals on the ONA site.

Helpful websites:

Marine organisms: http://www.floridahealth.gov/diseases-and-conditions/food-and-waterborne-disease/_documents/stings.pdf

Plants: http://www.edis.ifas.ufl.edu/pdffiles/EP/EP22000.pdf

Snakes: http://ufwildlife.ifas.ufl.edu/venomous_snake_identification.shtml

Insects: http://edis.ifas.ufl.edu/ig099

- 9. Be respectful of both other visitors and the environment while visiting the natural area.
- 10. Park only in designated areas.
- 11. Emergency follow group protocol or call 911. Report all injuries, issues or concerns to the site manager.

How to be a Great Chaperone

You don't need special knowledge to be a chaperone—just common sense and a willingness to jump in and get involved. Here are a few tips to help make your trip a good one:

What will I be doing as a chaperone?

You will supervise a small group of students, help them learn, assist the ranger when called upon, and make sure the students behave appropriately.

What will my role be during the program?

Throughout the visit, your job will be to monitor the behavior of the students, provide for their safety, and facilitate the learning process while insuring a fun visit for the students. You may be asked to work with specific students and help guide them through program activities. You may want to ask the teacher for information about the program, including background information and vocabulary words, to familiarize yourself with the topic. The more you can interact with the students, the better their experience will be.

What do I need to tell the students about touching things?

Encourage students to touch gently when instructed to do so. When touching marine animals, wet your hands in seawater first. Most marine animals have a coating of slime to protect them. Touching them with a dry hand can damage their slime layer and harm their delicate surfaces.

- Do not pick up or remove the animals.
- Follow the guidance of the education staff.

How can I help students get the most out of their visit?

- Be sure you understand the plan for the day, as instructed by the student's teacher.
- Ask the teacher for any material that will help you lead the students.
- Ask the teacher whether the students have specific projects to work on, and how you can help them during the visit.
- Interact and have fun with the students.
- Ask questions of each student in your group. There will always be a few who have all the answers.
- Encourage the shy or quiet students to share ideas, too.

What else do I need to know?

- Please leave small children at home if possible. They distract you from your duties as a chaperone.
- Avoid visiting with other adults at the expense of your chaperone duties. Remember that your primary job is to chaperone the students, not to visit with other parents.
- Students must stay with you, their chaperone, always. Their behavior is your responsibility.
- Be sure you know when and where to meet the rest of your group during and at the end of the visit.