

107 FERC ¶ 61,204  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;  
Nora Mead Brownell, Joseph T. Kelliher,  
and Suede G. Kelly.

Grand River Dam Authority

Project No. 1494-244

ORDER APPROVING NON-PROJECT USE OF PROJECT LANDS

(Issued May 28, 2004)

1. This order grants with certain modifications the application filed by Grand River Dam Authority (GRDA), licensee for the Pensacola Project No. 1494, for authorization to permit Water Front Development Company–Colony Cove (Colony Cove), to construct a commercial marina in Ketchum Cove of the project reservoir, Grand Lake O' the Cherokees (Grand Lake), on the Grand/Neshoo River in northeastern Oklahoma.

**Background**

2. The 46,500-acre Grand Lake has 1,300 miles of shoreline. The reservoir's normal maximum water surface elevation is 745 feet Pensacola Datum (PD).<sup>1</sup> The project boundary is at the 750-foot PD contour line; thus, the Commission regulates only a thin strip of land (of varying horizontal distance, depending on the steepness of the terrain) around the reservoir's perimeter.<sup>2</sup>

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<sup>1</sup> PD (Pensacola Datum) is 1.07 feet higher than NGVD (National Geodetic Vertical Datum), which is a national standard for measuring elevations above sea level.

<sup>2</sup>The lake's usable storage capacity below 745 feet PD is used for generation. The current license allows the lake to fluctuate seasonally between 741 and 744 feet PD. The lake's storage capacity between 745 and 755 feet PD is regulated by the U.S. Army Corps of Engineers for flood control, and the Corps holds flowage easements on the land between these elevations. See the environmental assessment (EA) attached to this order, at section 5.1.

3. Most of the land surrounding Grand Lake is privately owned, and many areas along the shoreline have been developed with private homes, condominiums, and docks; municipal and state parks; and commercial resorts and marinas.<sup>3</sup>

4. Grand Lake is a major recreation resource in northeastern Oklahoma.<sup>4</sup> Boating is the primary recreational activity on Grand Lake, with peak traffic on summer weekends and holidays. The number of private boat slips on the lake has been increasing, and currently stands at about 4,180 slips. The number of commercial boat slips has held relatively steady, and currently stands at 2,821 slips. GRDA also identifies 1,349 homeowner-association boat slips,<sup>5</sup> which we consider as private slips. Boating densities are higher in Ketchum Cove than on the lake as a whole.<sup>6</sup>

5. The Commission relicensed the Pensacola Project in 1992.<sup>7</sup> Under the approved Recreation Management Plan for the project, shoreline development is currently controlled by demand and site availability. The Recreation Plan requires the licensee to monitor recreation use and shoreline development levels at the project and to file every

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<sup>3</sup>As of December 1996, there were an estimated 4,400 private residences within 500 feet of the shoreline. Grand River Dam Authority, 77 FERC ¶ 61,251 at 62,014 (1996) (order amending license to modify the operating rule curve).

<sup>4</sup>Id. The City of Tulsa is about 60 miles from the lake. Ketchum Cove is on the end of the lake nearest Tulsa.

<sup>5</sup>EA at section 5.2.3.1.

<sup>6</sup>Id.

<sup>7</sup>59 FERC ¶ 62,073 (1992).

six years a report and any recommendations for changes to the plan. Based on the reports, the Commission reserved its authority to require changes to the long-term management of project lands and waters.<sup>8</sup>

### **Proposed Marina**

6. The Pensacola Project license includes a standard provision authorizing the licensee to grant permission for certain types of non-project use and occupancy of project lands and waters without prior Commission approval. See 59 FERC ¶ 62,073 at 63,231 (Article 410). The marina facilities proposed in this case are not within the scope of uses set forth under Article 410, and thus can be permitted only if the licensee files, and the Commission approves, an application to amend the license to allow the facilities and uses in question.

7. The proposed marina, which would be used by patrons of an adjacent condominium complex, would be located in the mid-section of Ketchum Cove, an area of small points and inlets with both commercial and residential development.<sup>9</sup> The docks would be located within one of these inlets, along the southern shore of Ketchum Island.

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<sup>8</sup>84 FERC ¶ 62,144 (1998) (order approving recreation plan). That order concluded that, while a comprehensive shoreline management plan for future use and development at the project would be beneficial, Grand River's recreation management plan is reasonable at this time, given the current modest rate of increase in recreational use and development. However, the order required Grand River to report on its progress in developing a shoreline management plan. *Id.* at 64,232. On July 2, 2003, the licensee filed its first report on implementation of its Recreation Management Plan and progress in the development of a Shoreline Management Plan. By letter dated September 30, 2003, Commission staff stated that the recreation monitoring reports were adequate; noted that the State legislature was replacing the GRDA board in September 2003, and that the licensee hoped to have a draft Shoreline Management Plan by August 2004; and required quarterly reports of progress on the plan. The licensee filed its next report on April 14, 2004, describing the steps taken, and Commission staff responded by letter dated May 10, 2004. While we look forward to the eventual implementation of such shoreline management plan for this project, we see no reason at this time to delay consideration of this amendment request until after Grand River has submitted, and we have reviewed, its plan.

<sup>9</sup>EA at section 5.1.

The marina would cover about 1,099 feet of shoreline<sup>10</sup> and occupy 149,872 square feet of shoreline lands and waters.

8. The marina would have six docks, varying in length from 118 to 183 feet, with a total of 71 boat slips.<sup>11</sup> The most protruding of the six docks (Dock D) would extend 169 feet into the reservoir. The proposed marina is described in more detail in the Commission staff environmental assessment (EA) attached to this order.

9. In response to the public notices of the application and the amendment thereto,<sup>12</sup> twelve entities intervened in opposition to the proposed marina, and twenty more filed comments or protests.<sup>13</sup> On August 18, 2003, the Commission staff toured the shoreline of Ketchum Cove and surveyed the proposed marina site.

10. Intervenors and commenters opposed to the proposed marina contend that it would be too large for the cove and would (1) adversely affect water quality and fish and wildlife habitat; (2) increase ambient noise and boat traffic in the cove's navigation channel and endanger boaters, swimmers and anglers; (3) obstruct views and detract from shoreline scenic values; and (4) contribute to adverse cumulative impacts on project recreational and environmental resources.<sup>14</sup>

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<sup>10</sup>The shoreline at the proposed site is steep; Colony Cove has undertaken both vegetative and structural measures to control erosion.

<sup>11</sup>EA at section 3.1, table 1 (size and number of slips) and figure 1 (layout map of proposed docks).

<sup>12</sup>Public notices of the September 30, 2002 application and the March 28, 2003 amendment thereto were issued on November 4, 2002, and July 3, 2003, respectively.

<sup>13</sup>See EA, section 4.0, for a list of the entities which responded to the Commission's public notices.

<sup>14</sup>Several parties assert that the licensee improperly waived its reservoir rules limiting the length of boat dock protrusions into project waters in order to allow Commission consideration of the marina proposal. However, such waiver had nothing to do with placing the proposal in front of the Commission. While the licensee has authority under license Article 410 to authorize, and waive its own rules regarding, marinas with 10 slips or less, any proposed marina with more than 10 slips requires Commission approval, which is informed by, but not governed by, the licensee's rules.

## **Discussion**

11. We have reviewed the application in this proceeding pursuant to the Federal Power Act's (FPA) comprehensive development/public interest standard, as informed by the Recreation Management Plan,<sup>15</sup> public and agency comments on the proposed non-project use, and the EA. We conclude that the marina as currently proposed would have an unacceptable adverse impact on scenic values by substantially altering the shoreline landscape.<sup>16</sup> The proposed marina would be out of scale with its surroundings and look crowded, especially in the area between proposed docks C and F. Increased boat traffic from the marina would also contribute to the cove's overdeveloped and overused appearance and would have an adverse impact on ambient noise levels.<sup>17</sup> In order to reduce such overbuilding, congestion, and aesthetic disturbance, we are, based on the recommendation of the EA, requiring the elimination of the proposed marina's 16-slip Dock D, the relocation and realignment of Dock C about 50 feet westward perpendicular to the navigation channel, and the relocation of dock E about 50 feet eastward.

12. Removal of Dock D's 16 slips would eliminate 23 percent of the total number of boat slips available to residents of the adjacent condominium development. Removing dock D also would eliminate 42 percent of the marina's slips for smaller boats (slips less than 50 feet long) and all of the marina's 43-foot-long slips. We are therefore permitting Colony Cove, with Grand River's approval, to modify proposed docks C and E to include a number of 43-foot-long slips, provided the sizes of docks C and E as currently proposed in Grand River's application do not change.

13. The proposed marina as downsized and modified by this order would have a minor adverse impact on boating use, navigational safety, fishing and swimming opportunities. The EA finds that the proposed marina docks would occupy an area of the cove's shoreline that is currently open to boating use, but would not physically obstruct or visually interfere with boaters using the cove's navigational channel.<sup>18</sup> GRDA's rules

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<sup>15</sup>See n. 3, supra.

<sup>16</sup>Id., section 5.2.3.2. and section 6.1, Table 2.

<sup>17</sup>Id.

<sup>18</sup>Id.

and regulations governing lake use require all boats in the cove's navigational channel to operate at low idle speeds, which serves to prevent unsafe boating practices or hazards to swimmers and anglers.

14. The modified marina plan would also have minor direct and indirect impacts on water quality and lake-bed sedimentation, shoreline stability and soil erosion, fisheries and littoral habitat, and wildlife and riparian habitat,<sup>19</sup> and would not affect any threatened or endangered species, wetland functions or values, or historic or archaeological properties.

15. To mitigate the impacts to and enhance terrestrial and aquatic resources, we are requiring GRDA to ensure that Colony Cove (1) installs natural fish habitat materials under the marina's docks, and (2) plants native riparian- and littoral-habitat vegetation at a shoreline location determined in consultation with the Oklahoma Department of Wildlife Conservation, subject to GRDA's approval. We are also requiring GRDA to ensure that Colony Cove complies with recommended procedures for the protection of any archeological resources discovered during marina construction.

16. We conclude that construction and operation of the proposed marina facilities, as modified and conditioned herein, will not constitute a major federal action significantly affecting the quality of the human environment, will not interfere with licensed project purposes, and will be consistent with the project's recreation plan and the statutory standards by which we regulate hydroelectric projects. Accordingly, we are approving GRDA's application to permit the proposed use of project lands and waters, as modified and conditioned below.

The Commission orders:

(A) Grand River Dam Authority's application for non-project use of project lands and waters of the Pensacola Project No. 1494, filed on September 30, 2002, as amended on March 28, March 31, and May 15, 2003, is approved as conditioned by ordering paragraph (B) below.

(B) The permit issued to Terry Frost, d/b/a Water Front Development Company—Colony Cove (Colony Cove or grantee) for a new commercial marina on the Ketchum Cove arm of Grand Lake O' the Cherokees, as authorized in ordering paragraph (A) above, shall include the following conditions:

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<sup>19</sup> EA, sections 5.2.1.2, 5.2.2.2, and section 6.1, Table 2.

(1) Colony Cove shall plant native riparian- and littoral-habitat vegetation at a shoreline location selected in consultation with the Oklahoma Department of Wildlife Conservation and with the Grand River Dam Authority's (GRDA) approval. The required plantings shall be sized and designed, with the approval of GRDA, to fully offset the effects of the marina and associated boating activities on terrestrial and aquatic resources.

(2) Colony Cove shall suspend one discarded Christmas tree, with a minimum height of 5 feet, under each of the permitted docks to provide additional habitat for fish. Alternatively, the grantee may submerge and anchor to the lake bottom a minimum of five discarded trees bunched together at a near-shore location in the vicinity the permitted docks that would not be affected by boating activities. The grantee shall replace these trees at least once each year in December, January, or February for the term of the permit.

(3) To alleviate the adverse effects of the permitted marina on the aesthetic and recreational values of Ketchum Cove, Colony Cove shall reduce the size of the marina and the density of its docks. Specifically, dock D shall be removed, dock C shall be moved about 50 feet to the west and realigned perpendicular to the adjacent navigational channel, and dock E shall be moved about 50 feet to the east. At the grantee's discretion, and with GRDA's approval, docks C and E may be modified to provide a number of 43-foot-long slips instead of the docks' 50- and 37-foot-long slips, as currently designed, provided there is no change to the sizes of docks D and E.

Colony Cove shall revise the dock layout drawing included in the licensee's amended application (Exhibit F), filed with the Commission on March 28, 2003, titled "Exhibit #2, Colony Cove, Proposed Dock Alignment," to show the above changes. The grantee shall submit the revised dock-layout drawing to GRDA for approval. Construction of the permitted docks shall not begin until GRDA notifies the grantee that the revised layout drawing is approved.

(4) To ensure that any previously unidentified archaeological resources are properly taken into account during the marina's expansion, the grantee shall immediately stop construction activities on the permitted docks upon the discovery of such a resource and contact GRDA. GRDA shall notify the Oklahoma Archaeological

Survey (OAS) and those Native American tribes that may have an interest in the discovery. These notified parties shall be given an opportunity to: (1) examine the discovered materials to evaluate their significance; and (2) provide the results of their assessments to GRDA. GRDA shall take any OAS or tribal comments into consideration in deciding how to proceed.

In the event significant archaeological resources are discovered, the licensee shall file for Commission approval, pursuant to License Article 409, a cultural resource management plan that describes how these resources would be protected. Upon approval, the licensee shall require the grantee to implement any measures prescribed in the plan to mitigate adverse effects on any important resource discoveries.

(5) The grantee's permitted use and occupancy of project lands and waters shall not endanger health, create a nuisance, or otherwise be incompatible with the project's overall purposes, including public recreation and resource protection.

(6) The grantee shall take all reasonable precautions to ensure that the permitted use of project lands and waters shall occur in a manner that will protect the scenic, recreational, and other environmental values of the project.

(C) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713 (2004).

By the Commission.

( S E A L )

Linda Mitry,  
Acting Secretary.



**ATTACHMENT - ENVIRONMENT ASSESSMENT**

**ENVIRONMENTAL ASSESSMENT**

**APPLICATION FOR NON-PROJECT USE  
OF PROJECT LANDS AND WATERS**

**Pensacola Project**  
**FERC No. 1494-244**  
**Oklahoma**



**Federal Energy Regulatory Commission  
Office of Energy Projects  
Division of Hydropower Administration and Compliance  
888 First Street, NE  
Washington, D.C. 20426**

**May 2004**

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## **ACRONYMS AND ABBREVIATIONS**

|                       |  |
|-----------------------|--|
| BIA                   | Bureau of Indian Affairs   |
| Board                 | Grand River Dam Authority Board of Directors                             |
| Colony Cove           | Water Front Development Company—Colony Cove                              |
| Commission            | Federal Energy Regulatory Commission                                     |
| Corps                 | U.S. Army Corps of Engineers, Tulsa District                             |
| DO                    | dissolved oxygen   |
| EA                    | environmental assessment   |
| FERC                  | Federal Energy Regulatory Commission                                     |
| FWS                   | U.S. Fish and Wildlife Service   |
| Grand Lake            | Grand Lake O' the Cherokees  |
| GRDA                  | Grand River Dam Authority  |
| Interior              | U.S. Department of the Interior  |
| msl                   | mean sea level   |
| MTBE                  | methyl tertiary butyl  |
| NGVD                  | National Geodetic Vertical Datum   |
| OAS                   | Oklahoma Archaeological Survey   |
| ODEQ                  | Oklahoma Department of Environmental Quality                             |
| ODPS                  | Oklahoma Department of Public Safety                                     |
| ODWC                  | Oklahoma Department of Wildlife Conservation                             |
| OHS                   | Oklahoma Historical Society  |
| OWRB                  | Oklahoma Water Resources Board   |
| PD                    | Pensacola Datum  |
| Rules and Regulations | Rules and Regulations Governing the Use of Shorelands and Waters of GRDA |
| SA                    | State Archaeologist  |
| SHPO                  | State Historic Preservation Officer                                      |
| TSI                   | Trophic State Index  |
| TVA                   | Tennessee Valley Authority   |

## **ENVIRONMENTAL ASSESSMENT**

**Federal Energy Regulatory Commission  
Office of Energy Projects  
Division of Hydropower Administration and Compliance  
Washington, D.C.**

**Pensacola Project  
FERC Project No. 1494-244**

### **1.0 APPLICATION**

Application Type: Non-Project Use of Project Lands and Waters  
Date Filed: September 30, 2002; amended March 28, 2003; supplemented  
March 31 and May 15, 2003  
Applicant: Grand River Dam Authority  
Water Body: Grand Lake O' the Cherokees  
Nearest Town: Ketchum  
County and State: Delaware County, Oklahoma

### **2.0 PURPOSE AND NEED FOR ACTION**

On September 30, 2002, the Grand River Dam Authority (GRDA or licensee), licensee for the Pensacola Project, FERC No. 1494, filed an application for non-project use of project lands and waters. Specifically, GRDA has requested the Commission's approval to permit Terry Frost, doing business as Water Front Development Company—Colony Cove (Colony Cove or grantee), to construct a new commercial marina located on the Ketchum Cove arm of Grand Lake O' the Cherokees (Grand Lake), the project reservoir.

On March 28, 2003, GRDA filed an amendment to its original application. The amended application includes a drawing (Exhibit F) reflecting Colony Cove's reconfiguration of the marina's docks, as initially proposed, to address concerns about conflicts with the adjacent navigation channel. On March 31, 2003, GRDA supplemented the amended application by filing copies of its permit to cut trees at the proposed marina site, issued to Colony Cove on July 26, 2002 (Exhibit G). On May 15, 2003, GRDA further supplemented the amended application by filing: (1) copies of comment letters received on the amended application; and (2) corrections to discrepancies concerning the number of slips proposed for two of the proposed docks.

The licensee states that all major commercial marina proposals are reviewed and approved by the GRDA Board of Directors (Board) prior to submittal to the Commission for permit authorization. The Commission has conducted an environmental review of

Colony Cove’s marina-development proposal to determine whether, and under what conditions, GRDA’s application should be approved. This environmental assessment (EA), which addresses all relevant resource issues raised by the proposed marina, will be used to support the Commission’s decision on the application.

### **3.0 PROPOSED ACTION AND ALTERNATIVES**

#### **3.1 Proposed marina improvements**

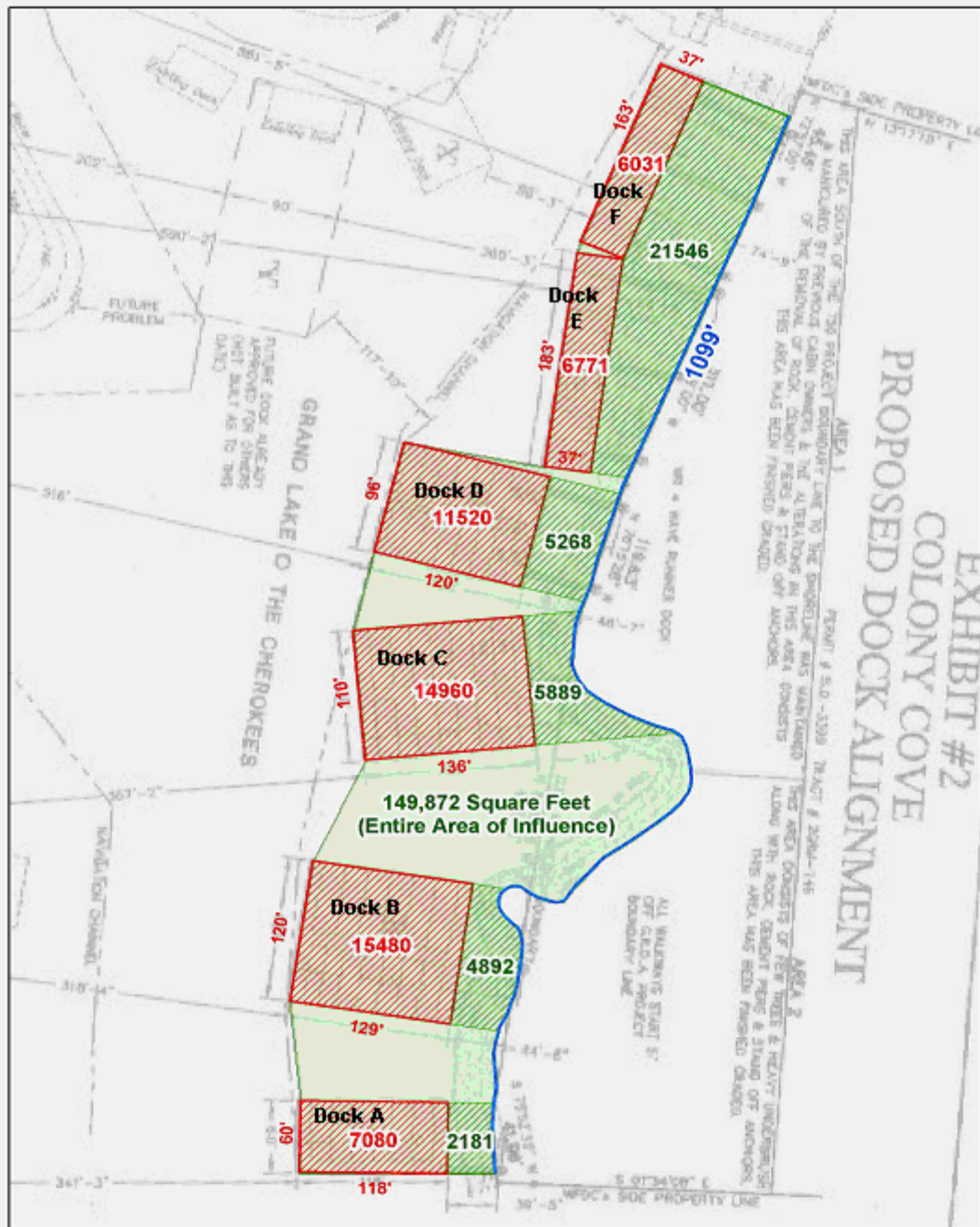
Colony Cove has requested GRDA to grant a permit to construct six new docks with 71 slips on the shore of Ketchum Cove for use by patrons of a new condominium complex (GRDA, 2003a) (table 1).

**Table 1. Size and number of slips at each proposed dock. (Source: GRDA, 2003a)**

| <b>Dock</b> | <b>Size<br/>(feet)</b> | <b>Slips</b> |
|-------------|------------------------|--------------|
| A           | 60 x 118               | 6            |
| B           | 120 x 129              | 13           |
| C           | 110 x 136              | 14           |
| D           | 96 x 120               | 16           |
| E           | 183 x 40               | 12           |
| F           | 163 x 40               | 10           |
| Total       |                        | 71           |

No dredging is proposed in connection with the new marina, and no conveyance of project lands would be needed to complete the project. The licensee has issued a tree-cutting permit to Colony Cove to remove a few large trees and undergrowth associated with the new docks. Colony Cove has completed grading and has removed rocks and abandoned cement piers and anchors in preparation for the installation of the proposed docks (GRDA, 2003b).

The amended application includes GRDA’s waiver of the dock–placement provisions of the *Rules and Regulations Governing the Use of Shorelands and Waters of GRDA* (Rules and Regulations) (GRDA, 2001). GRDA’s Asset Committee and the GRDA Board both granted Colony Cove’s request for the waiver (GRDA, 2002a). The licensee states that for most commercial-dock proposals, GRDA’s Board waives the dock-placement provisions of its Rules and Regulations (Article IV, Section 7) and approves such proposals “as submitted” or “as submitted, subject to certain modifications” (FERC, 2003b). Exhibit F of the amended application (figure 1) contains no licensee-imposed changes to Colony Cove’s proposed marina layout with respect to dock location, dock length, slip orientation, or slip size.



**Figure 1. Layout of proposed docks at Colony Cove. Pensacola Project. FERC No. 1494-244, Oklahoma (source: Grand River Dam Authority, Application for Non-Project Use of Project Lands and Waters, filed March 28, 2003, as modified by staff.)**

### **3.2 Action Alternatives**

This EA also considers the following measures that are not part of the marina proposal. These action alternatives have been included in the scope of our assessment because they would protect, mitigate adverse effects on, or enhance certain project-related resources.

1. Planting native vegetation at a selected shoreline location to compensate for the adverse effects of the marina on terrestrial and aquatic resources.
2. Placing natural-habitat material under the proposed docks to provide more shelter and better foraging opportunities for fish.
3. Reducing the overall size of the marina and the density of the marina's docks to relieve overcrowding and boat-traffic congestion.
4. Establishing contingency procedures for taking into account any archaeological resources potentially discovered during the marina's construction.

### **3.3 No-Action Alternative**

Under the no-action alternative, the Commission would not approve GRDA's non-project-use application. The licensee, in turn, could not grant Colony Cove permission to construct the marina's dock facilities as proposed to the Commission.

### **3.4 Alternative Considered but Eliminated from Further Analysis**

In pertinent part, the dock-placement provisions of GRDA's Rules and Regulations: (1) limit docks to a maximum total length, perpendicular to the shoreline, of 125 feet or one-third the distance from the adjacent shoreline to the nearest opposite shoreline, whichever is less; and (2) require the boat slips of installed docks to be oriented perpendicular to the shoreline, with only one opening to the waterfront side of the dock. For these provisions, the term "shoreline" is defined as contour elevation 750 feet mean sea level (msl) on Grand Lake (GRDA, 2001).

If the above provisions were applied to Colony Cove's proposal, the proposed docks would require an extensive amount of additional shoreline. Also, considering the number and size of the docks and slips proposed, some amount of near-shore dredging would likely be required to accommodate the larger boats that would use these facilities. Further, a considerable amount of additional on-shore development would be required to secure and provide access to the docks.



Developing the marina in conformance with GRDA's dock-placement standards would minimize further open-water obstruction and navigational constriction. However, considering the scope and magnitude of Colony Cove's proposal, a conforming dock configuration would result in: (1) greater construction, operation, and maintenance costs; (2) unacceptable effects on the natural- and scenic-resource values and conditions of the project; and (3) excessive conflict and encroachment with respect to other shoreline uses and occupancies. Therefore, this alternative has been eliminated from further environmental analysis.

#### **4.0 AGENCY CONSULTATION AND PUBLIC INVOLVEMENT**

The licensee's application documents GRDA's efforts to consult with appropriate resource agencies. By letter dated August 7, 2002, GRDA provided information about the proposed marina improvements to the following agencies and requested comments related to their respective interests and expertise: (1) the U.S. Army Corps of Engineers, Tulsa District (COE); (2) the U.S. Fish and Wildlife Service (FWS); (3) the Bureau of Indian Affairs (BIA); (4) the Oklahoma Department of Wildlife Conservation (ODWC); (5) the Oklahoma Historical Society/State Historic Preservation Officer (OHS/SHPO); (6) the Oklahoma Archaeological Survey/State Archaeologist (OAS/SA); (8) the Office of the State Fire Marshall (OSFM); (9) the Oklahoma Department of Environmental Quality (ODEQ); (10) the Mayes County Floodplain Manager (MCFM); and (11) the Oklahoma Water Resources Board (OWRB). GRDA received comment letters from: COE, OHS, OAS, ODEQ, ODWC, OWRB, and MCFM.

By letter dated August 19, 2002, ODEQ states it has no comment on, nor objection to, the proposed marina improvements.

By letter dated August 20, 2002, OAS states that no archaeological sites are listed as occurring within the affected environment of the proposed marina, but if construction activities should expose buried archaeological materials, it should be contacted. By letter dated September 5, 2002, OHS states that the proposed marina does not affect any known historic properties.

By letter dated August 20, 2002, ODWC states that cumulative impacts associated with development and dredging affect fish and wildlife of Grand Lake. Although ODWC has no specific objections to the permit in question, it hopes that GRDA will soon initiate a protocol to limit development or offer remediation for the habitat lost to dredging.

By letter dated September 4, 2002, MCFM states that the agency has no comments or objections to the proposed marina.

By letter dated September 11, 2002, COE states that the proposed docks would not require the placement of dredged or fill material into the “waters of the United States” and are, therefore, not subject to a Corps permit pursuant to Section 404 of the Clean Water Act. By letter dated August 27, 2002, OWRB states that the proposed marina does not need a permit from the state of Oklahoma.

GRDA placed public notices of Colony Cove’s marina proposal in *The Vinita Daily Journal*, *The Grove Sun*, *Grove Daily News*, and *The Grand River Chronicle*. Also, GRDA sent copies of its amended application to all individuals who had filed motions to intervene on the original application. The licensee received the following comment letters in response to these notices and mailings, copies of which were included in its application filings.

| <b>Entity</b>   | <b>Letter Dated</b> |
|---|---------------------|
| Thirl and Judi Calico   | July 8, 2002        |
| Mark Radcliff   | July 10, 2002       |
| Stan Jones  | July 10, 2002       |
| Mike and Denise Wools   | July 10, 2002       |
| Doug Phillips   | July 10, 2002       |
| Eric Roberts  | July 12, 2002       |
| Dan and Nancy Kuhl  | July 12, 2002       |
| Neighboring Homeowners <sup>a</sup>   | July 13, 2002       |
| Cheryl Palsman et al.   | July 14, 2002       |
| Ron Roderick  | July 15, 2002       |
| Darrel and Sheryl Hicks   | July 15, 2002       |
| Kendal Adams  | July 16, 2002       |
| Bud Ronsse  | July 16, 2002       |
| Art Couch   | July 16, 2002       |
| Geoff and Marilyn Monical   | July 16, 2002       |
| Jeff Spielmann  | July 16, 2002       |
| A.C. Sizemore   | August 1, 2002      |
| Kaye Canfield   | April 28, 2003      |
| Bonnie Bellesfield  | April 29,. 2003     |
| Mark Radcliffe  | April 28, 2003      |
| Neighboring Homeowners <sup>b</sup>   | June 10, 2003       |
| <sup>a</sup> This letter is signed by 49 individuals.<br><sup>b</sup> This letter, signed by 34 individuals, was faxed to Commission staff by one of the signatories and subsequently filed . |                     |

On November 4, 2002, the Commission issued a notice of GRDA's original application. The Notice of Application, which solicited comments, motions to intervene, and protests, was published in the *Federal Register* and local newspapers. The deadline for filing responses to the notice was December 6, 2002. The Commission received the following filings related to the notice:

| <b>Entity</b>  | <b>Date Filed</b> | <b>Type of Filing</b>         |
|--|-------------------|-------------------------------|
| Grand Lake Towne Property Owners Association   | November 14, 2002 | Comments                      |
| Jack R. Lenhart  | November 19, 2002 | Protest/Comments              |
| Gayle Fisher   | November 21, 2002 | Intervention/Comments         |
| Jack E. and Buddie Lea Massey  | November 21, 2002 | Intervention/Comments         |
| Verna Banfield   | November 25, 2002 | Intervention/Comments         |
| Diane M. Dunn  | November 26, 2002 | Intervention/Comments         |
| Mark Radcliffe   | November 29, 2002 | Intervention/Protest/Comments |
| Lloyd J. and Bernita Ranes   | December 2, 2002  | Intervention/Comments         |
| Bridget A. Bellesfield   | December 3, 2002  | Protest/Comments              |
| Bonnie Bellesfield   | December 3, 2002  | Intervention/Comments         |
| Kaye Canfield  | December 4, 2002  | Intervention/Comments         |
| Frank R. Ronsse  | December 5, 2002  | Intervention/Protest/Comments |
| Mike Brady   | December 5, 2002  | Intervention/Comments         |
| Judith A. Read   | December 6, 2002  | Comments                      |
| U.S. Department of the Interior, Office of the Secretary, Office of Environmental Policy and Compliance (Interior) | December 6, 2002  | Comments                      |
| Jeff Tomlins   | December 13, 2002 | Comments                      |
| Ann G. Lagere  | December 24, 2002 | Comments                      |
| Gary C. Lagere   | December 24, 2002 | Comments                      |
| Dr. S. Lee Hays  | December 24, 2002 | Comments                      |
| Heidi Snyder   | December 24, 2002 | Comments                      |
| Cindy Miles  | December 26, 2002 | Comments                      |
| South Grand Lake Chamber of Commerce   | December 30, 2002 | Comments                      |

On July 3, 2003, the Commission issued a notice of GRDA's amended application, which was also published in the *Federal Register* and local newspapers. The deadline for filing responses to this notice was August 15, 2003. The Commission received the following filings related to the notice:

| <b>Entity</b>               | <b>Date Filed</b>         | <b>Type of Filing</b> |
|-----------------------------|---------------------------|-----------------------|
| Mike Brady                  | May 28, 2003 <sup>a</sup> | Comments              |
| Jack R. Lenhart             | July 30, 2003             | Protest/Comments      |
| Jack R. Lenhart             | July 31, 2003             | Intervention/Comments |
| Cheryl Lenhart              | August 8, 2003            | Intervention/Comments |
| Oklahoma Historical Society | August 13, 2003           | Comments              |
| Mike Brady                  | August 15, 2003           | Protest/Comments      |
| Grand River Dam Authority   | August 25, 2003           | Comments              |
| Colony Cove of Grand Lake   | August 28, 2003           | Comments              |
| Mike Brady                  | August 29, 2003           | Comments              |
| Kaye Canfield               | November 21, 2003         | Comments              |

<sup>a</sup> This filing, which comments on the amended application, was submitted prior to issuance of the Commission's July 3 notice.

As noted above, only two agencies provided comments in response to the Commission's notices. By letter filed December 6, 2002, Interior expresses its general concern about the cumulative impacts of project shoreline development on fish and wildlife, wetlands, threatened and endangered species, and public access. By letter filed August 13, 2003, OHS states that no known historic properties would be affected by the proposed marina.

The non-agency filings listed above raise a number of other environmental issues that are relevant to the proposed action. The *Environmental Analysis* section of this EA considers the information and comments contained in all of the above filings that pertain to the following resource-related concerns:

- Shoreline stability and soil erosion
- Wildlife and riparian habitat
- Threatened and endangered species
- Water quality and lake-bed sedimentation
- Fisheries and littoral habitat
- Wetland functions and values
- Boating use and navigational safety
- Angling and swimming opportunities
- Scenic views and ambient noise levels
- Archaeological and historic properties

Other issues raised in the above-listed filings are outside the scope of this EA. These issues include: (1) the licensee's policies and procedures for processing permit applications; (2) the licensee's development of a shoreline management plan; (3) the licensee's recreation and shoreline monitoring and reporting requirements; and (4) lakeshore property values. The Commission's order on this case will address these issues, as appropriate.

## **5.0 ENVIRONMENTAL ANALYSIS**

### **5.1 General Setting**

The Pensacola Project is located about 78 miles northeast of Tulsa on the Grand (Neosho) River in Craig, Delaware, Mayes, and Ottawa counties, Oklahoma. In addition to hydropower generation, project lands and waters are used for flood control, water supply, recreation, and environmental resource protection (FERC, 1992).

The project dam impounds Grand Lake, which extends approximately 66 miles upstream from the dam and has about 1,300 miles of shoreline. Grand Lake has a surface area of 46,500 acres and a storage capacity of 1,680,000 acre-feet at a normal maximum water surface elevation of 745 feet Pensacola Datum (PD).<sup>1</sup>

Most land surrounding Grand Lake is privately owned, and many areas along its shoreline have become developed with commercial resorts, private homes and condominiums, municipal and state parks, marinas, and private docks. The licensee manages the lake's shoreline via a permitting system and operates a lake patrol to monitor and inspect permitted shoreline uses and to enforce its boating regulations (FERC, 1992).

In operating the project reservoir for hydropower generation, GRDA controls water levels up to elevation 745 feet PD. Between reservoir elevations 745 feet PD and 755 feet PD, COE dictates flow releases from the project dam to manage for flood control (FERC, 1992). COE also manages flowage-easement lands around Grand Lake for flood control (COE, 2002). Consequently, the shoreline lands around Grand Lake are used for power-pool flowage below the 745-foot contour elevation and for flood-pool flowage over the next 10 vertical feet.

Reservoir water levels fluctuate according to a rule curve established by Article 401 of the project's license. License Article 401, as amended, requires water levels to be maintained between elevations 741 and 744 feet PD in accordance with seasonal target levels (FERC, 1996).

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<sup>1</sup> PD is 1.07 feet higher than National Geodetic Vertical Datum , or NGVD, a national standard for measuring elevations above sea level.

The upper end of Ketchum Cove is located about 0.5 mile south of the town of Ketchum. This arm of Grand Lake runs approximately north-south and enters the main body of the reservoir about 2 miles north of the project dam. The cove varies in width from about 1,600 feet at its mouth to about 700 feet in its upper reaches. The topography of the area is characteristic of the rolling terrain of the Ozark Plateau.

The proposed site for the Colony Cove Marina is located in the mid-section of Ketchum Cove. The marina site is situated in an area of the cove with small points and inlets. Colony Cove's proposed docks are positioned within one of these inlets along the southern shore of Ketchum Island. As measured from shoreline to shoreline at elevation 750 feet, this inlet ranges from greater than 500 feet wide at the center and eastern end of the proposed marina site to about 350 feet wide at the western end of the site.

Immediately adjacent to the proposed marina site is Colony Cove's condominium development. Directly across from the marina site is the Grand Lake Town residential subdivision. Anchor's End Marina occupies the same inlet of Ketchum Cove as the proposed marina. Hammerhead Marina is also located in the middle section of the cove along the eastern shore of Ketchum Island.

## **5.2 Marina Proposal**

This section of the EA analyzes the effects of the proposed marina on the project's environmental resources. The direct and indirect effects of the marina development are analyzed first under each of the resource sections. These effects are then analyzed within each section from a cumulative impact standpoint.<sup>2</sup> The geographic and temporal scope of these analyses varies with each resource and issue under consideration.

On August 18, 2003, Commission staff visited the project. Staff conducted a survey of the proposed marina site at Colony Cove and toured the shoreline of Ketchum Cove. Staff observations during the visit have been considered in our environmental analysis of the Colony Cove proposal.

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<sup>2</sup> The Council on Environmental Quality's *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* define "cumulative impact" as the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions over time.

## **5.2.1 Terrestrial Resources**

### **5.2.1.1 Affected Environment**

#### **Shoreline Stability and Soil Erosion**

The shoreline of Grand Lake primarily comprises stony, silty loam soils on 5- to 20-percent slopes. This soil composition also occupies the timbered upland ridges in cherty limestone areas. The soil surface layer is dark grayish brown in the upper 2 inches and pale brown in the lower horizon. The subsoil, which is a brown, stony, silty, and clay loam, is about 60 percent chert by volume (GRDA, 2002b).

A recent Commission EA addressing expansion of Arrowhead Marina, located on the Duck Creek arm of Grand Lake (P-1494-232), indicated that substantial erosion has occurred in certain areas along the lake's shorelines, which may be the result of natural lake and weather conditions and natural channel flow (FERC, 2003b). The EA determined that powerboats and personal watercraft may also contribute to shoreline erosion.

During the staff's site visit in August 2003, we noted that the shoreline in the vicinity of the proposed marina is steep and recent construction has caused substantial ground disturbance. Colony Cove is in the process of planting the slopes with low-growing shrubs, which should help to stabilize the shoreline. Colony Cove has also constructed concrete drainageways from adjacent parking lots to the water's edge to protect slopes from sheet run-off and gullyng.

#### **Wildlife and Riparian Habitat**

Low areas and stream corridors in the project area are typically dominated by eastern cottonwood, willow, green ash, elm, and maple. Generally, all woody vegetation at or below about elevation 746 feet PD has developed since 1940 because prior to the construction of the reservoir, all woody vegetation around Grand Lake's perimeter and below elevation 746 feet PD was removed.

Wildlife in upland deciduous forests around Grand Lake includes white-tailed deer, striped skunk, raccoon, fox squirrel, opossum, eastern cottontail, and red fox. Raptors, such as bald eagle, barred owl, red-tailed hawk, and red-shouldered hawk, may also use the area.

Migrating and wintering waterfowl frequent Grand Lake and its adjacent wetlands. From September through January, gadwall, green-winged teal, and snow geese are frequent winter residents. During spring migration, blue winged teal, northern shoveler, lesser scaup, and ruddy duck are common on Grand Lake. Canada geese, wood ducks,

and mallards are year-round residents, while pelicans frequent the lake from February to November.

In a study included in the 1989 Proceedings of the Oklahoma Academy of Science, Stancill et al. (1989) found that the mallard duck was the only upland nesting waterfowl species that appeared to reproduce on Grand Lake and associated wetlands. Mallard broods were observed exclusively in developed areas of the lake. The study estimated that the overall mallard production on the reservoir was about 491. Also, the study suggested that fluctuating water levels would likely destroy nests and limit nesting waterfowl success on adjacent upland sites.

The wood duck was the only cavity-nesting waterfowl species observed, and most of the wood duck production occurred on associated wetlands, especially along tributary creeks, and rivers. The study suggested that brooding cover is the limiting factor for wood duck production on Grand Lake and that enhancement of brooding cover would be more beneficial to wood duck production than installation of artificial nesting structures. Other waterfowl species observed included northern shovelers and blue-winged teal from March to April, but no nest or broods were noted.

### **Threatened and Endangered Species**

The only threatened and endangered terrestrial species known to occur in Craig and Mayes counties is the western prairie fringed orchid. This species is typically found in tallgrass silt loam calcareous or sub-irrigated sand prairie soils (54 (187) FR 39857–39863). The proposed marina would not include any disturbance of prairie soils or vegetation.

The gray bat and the bald eagle are known to occur in adjacent areas, including Delaware County. During the summer, gray bats roost in caves in northeastern Oklahoma, including several around Grand Lake (FWS, 1982). The proposed marina is not adjacent to or associated with any caves or known populations of gray bats.

No bald eagle nests are known to occur along the shoreline of Grand Lake, although a nest may have been located on the west side of Monkey Island, about 6 miles northeast of the Colony Cove site, in 2001 (letter from J. Mallet-Eakin, Fur'n Feathers Sanctuary, regarding the proposed expansion of the Shangri-La Resort, FERC Project 1494-228, dated April 12, 2001). Eagles may nest along the river downstream of the Pensacola dam, where food resources would be abundant and large trees are available for nesting, perching, and roosting (GRDA, 2003c). Potential nesting sites identified during GRDA's habitat evaluation are located more than 5 miles from the dam. Bald eagles winter on Grand Lake, and their numbers peak in January or February.



### **5.2.1.2 Environmental Effects**

#### **Shoreline Stability and Soil Erosion**

We do not anticipate that construction of the proposed docks and the associated increased use of power boats and personal watercraft would substantially affect shoreline stability in the marina area, itself. The banks appear stable and erosion potential is low. However, we conclude that wave action from the recreational boating activity associated with the marina could add to cumulative effects along the lake's shorelines by contributing to soil erosion at sites where banks may be less stable.

#### **Wildlife and Riparian Habitat**

Wildlife and waterfowl are not likely to extensively use the marina site because of the area's developed condition and its ongoing use by local residents and recreation visitors. Nevertheless, the proposed construction of additional docks and the resultant increases in boat traffic and human disturbance would further discourage wildlife use along this section of shoreline. Because no new ground-disturbing and vegetation-clearing activities would be required to construct the marina's docks, as proposed, effects on existing wildlife communities would likely be minor and temporary. The development would, however, contribute to cumulative adverse effects on Grand Lake.

As observed during the Commission staff's recent visit to the project, there is a lack of contiguous shoreline lands with undeveloped, undisturbed habitat for riparian wildlife species in the vicinity of Colony Cove. Construction of the proposed docks would contribute to cumulative adverse effects on the terrestrial components of Ketchum Cove's ecosystem that have occurred, and are continuing to occur, as the result of intensive development and high levels of human activity.

### **5.2.2 Aquatic Resources**

#### **5.2.2.1 Affected Environment**

##### **Water Quality and Lake-Bed Sedimentation**

The water quality in Grand Lake is typical of large reservoirs. During the winter, the lake water holds more dissolved oxygen (DO) compared with the warmer late spring, summer, and early fall months. The deeper areas of the lake become thermally stratified during the summer with DO concentrations falling below 5 mg/l (the water quality standard for the Fish and Wildlife Propagation beneficial use) in the hypolimnion.<sup>3</sup> A few surface water DO samples in August indicated a level below 5 mg/l (OWRB, 2001).

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<sup>3</sup> Hypolimnion is the lower, cooler layer of a lake during summertime thermal stratification.

The OWRB monitors numerous water quality parameters on Grand Lake under the state's Beneficial Use Monitoring Program. Under OWRB's monitoring program, 12 sites are sampled to represent the riverine, transitional, and lacustrine zones of the lake, as well as the major embayment arms of the water body. The trophic status of the lake is assessed using Carlson's Trophic State Index (TSI) and chlorophyll *a* as the indicator parameter of primary interest. Calculated TSI values indicate that the lake is eutrophic (FERC, 2003b).<sup>4</sup> Nutrient enrichment is most prevalent in the upper sections of Grand Lake. Ortho-phosphate and nitrate concentrations are highest in the upper section of the lake and decrease toward the dam. Secchi depths are typically in the 3 to 100 cm range and are normally deeper near the dam than in upstream areas near Twin Bridges.<sup>5</sup> Algal blooms are more common in the upper sections of the lake than near the dam.

The high nitrogen concentrations in the lake are primarily attributable to the migration of chicken litter by-products from upgradient areas through subterranean aquifers and the lake's tributaries. The state of Oklahoma has been involved in several recent law suits and is currently contemplating additional legal action to address this problem (GRDA, 2002b). Other sources of the lake's high-nutrient and seasonally low DO concentrations are surface runoff and leachate from residential lawns and septic systems along the shoreline. Colony Cove is installing a mile-long sewer line to connect its condominium development, and its Hammerhead Marina, to the town of Ketchum's sewage treatment plant. A number of existing homes in the area may also connect to the new sewer line, thereby eliminating their septic systems (GRDA, 2002a).

Shoreline soil erosion has resulted in accelerated lake-bed sedimentation rates in Ketchum Cove and in other areas of the lake. Erosion control measures, such as concrete flumes and vegetation, recently implemented at Colony Cove have decreased the extent of additional erosion that could have been occurring along that section of shoreline. However, ground-disturbing activities during the construction of Colony Cove may have contributed to sediment deposition in the adjacent littoral zone. Also, the concrete drainage ways recently constructed at Colony Cove will discharge sediments and vehicle-related pollutants from adjacent parking lots into the lake during rainstorm events.

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<sup>4</sup> Trophic state is the degree of eutrophication of a lake. Eutrophication is the process of physical, chemical, and biological changes associated with nutrient, organic-matter, and silt enrichment and sedimentation of a lake or reservoir. A eutrophic lake has high photosynthetic activity and low transparency.

<sup>5</sup> Secchi depth is a measure (in meters or feet) of the transparency of water obtained by lowering a black and white, or all white, disk (Secchi disk, 20 cm in diameter) into the water until it is no longer visible.

Elevated water-turbidity levels occur in the lake's littoral zone during, and for several days after, moderate to large storm events (FERC, 2003b). Turbidity levels are also exacerbated during peak boating periods when wake-generated waves re-suspend accumulated sediment deposits. The boat traffic controls that GRDA has recently implemented on Ketchum Cove have alleviated this problem (see section 5.2.3, *Recreation and Other Land and Water Uses*).

Boating-related activities also have other degrading effects on the lake's water quality. Petroleum products are released into the water from boat engines and accidental drips and spills during boating. Overboard discharges of marine-toilet effluent and other pollutants are also thought to occur in violation of GRDA's Rules and Regulations.

Limited water quality data exist about the extent and composition of possible boating-related pollutants in Grand Lake, such as methyl tertiary butyl ether (MTBE) and other petroleum-based substances. The licensee conducts regular water-quality monitoring on Grand Lake to determine if boating or other activities are impairing the lake's beneficial uses and values (FERC, 2003b). GRDA also has prescribed lake-wide sanitation rules to protect public health and water quality. Among other requirements, these rules prohibit: (1) the discharge, deposit, or dumping of bottles, cans, garbage, rubbish, refuse, debris, wreckage, bilge water containing oil and grease, and any other materials of any kind into the lake and on the lake's adjacent shorelands; (2) the disposal of sewage in the waters and on the shorelands of the lake; and (3) the operation of a vessel equipped with a marine toilet that is not a total retention system in accordance with federal regulations regarding marine toilets. The licensee's lake patrol is responsible for monitoring user compliance with these requirements; any violations are subject to GRDA enforcement (GRDA, 2001).

### **Fisheries and Littoral Habitat**

In 1999, the ODWC ranked Grand Lake as 4th of 21 lakes in Oklahoma for its quality bass fishing (GRDA, 2003d). Grand Lake's most important game fish species include largemouth bass, spotted bass, crappie, white bass, channel and blue catfish, and paddlefish. The lake and tailwater downstream of the project dam produce consistently good recreational fishing for paddlefish. The downstream tailwater area produced the 1992 state record paddlefish, weighing 112 pounds (ODWC, 2002). Channel catfish, which were last sampled in 1998, were moderately abundant. Crappie and blue catfish, sampled in 1998 and 1999, had below average numbers. Other species of fish found in Grand Lake, determined either from gill netting or seining efforts, include bluegill, longear sunfish, freshwater drum, smallmouth buffalo, river carpsucker, golden redhorse, flathead catfish, gizzard shad, brook silverside, and logperch (FERC, 2003b). During a site visit in August, staff observed drum foraging in the rocky shoals adjacent to the shoreline, and juvenile bass and sunfish were also observed in the open-water areas.

During the past decade, the Commission staff has examined annual largemouth and spotted bass sampling data collected by ODWC for trends. Data were available for 1990, 1994, 1996, 1998, 2001, and 2001. Calculations included in the data include catch per unit effort, size determination, number of “quality” sized fish, number of “preferred” sized fish,<sup>6</sup> and mean relative weight (a condition calculation derived from several elements). Annual changes in the data are not of a significant magnitude. The data describe a healthy bass fishery and do not show any strong trends in bass population size, individual length and weight, or fish condition for the period examined.

The ODWC staff noted that there are no immediate concerns for largemouth or spotted bass populations (personal communication, J. Burroughs, ODWC, Oklahoma City, OK, and B.P. Yarrington, Commission, Washington, D.C., regarding ODWC fish sampling and data handling methods on June 26, 2002). There are also no problems in the recruitment of young fish, indicating that successful reproduction and survival occurred in Grand Lake through the period examined.

The area near the shoreline at the marina sites consists of bedrock and cobble. Little to no sediment was observed near shore, making shoreline areas inadequate for bass and sunfish nesting. However, during the site visit, Commission staff observed juvenile fish using the shoreline area for rearing. Recruitment likely occurs in areas near the marina site where sands and silts occur. The healthy population of fish and the numerous juvenile fish observed along the shoreline suggest that the depth of the reservoir allows boats to pass without disturbing littoral habitats.

### **Wetland Functions and Values**

According to National Wetland Inventory maps, no wetlands occur in the immediate vicinity of Colony Cove. No wetlands were observed during the Commission staff’s site visit in August 2003. Therefore, we conclude that the proposed marina would have no effect on beneficial wetland functions and values.

#### **5.2.2.2 Environmental Effects**

##### **Water Quality and Lake-Bed Sedimentation**

Construction of the proposed docks and boat slips would have localized short-term effects on water quality in Ketchum Cove. Installation of the docks and associated anchoring points on the lake bottom would cause sediment disturbance and a short-term increase in turbidity and suspended solids in the immediate area.

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<sup>6</sup> Quality-sized fish are indicated in ODWC’s report to be largemouth bass ranging from 300 to 380 mm in total length and spotted bass ranging from 280 to 350 mm in total length. Preferred-sized largemouth bass are indicated as 380 mm and larger in total length and preferred-sized spotted bass are 350 mm and larger in total length.

Potential long-term effects on the reservoir's water quality could arise from increased boating-related point sources attributable to the marina's use, including petroleum product leakage from the boats, overboard discharges of wastes, and the re-suspension of near-shore sediment deposits from boat-generated waves. Given the number of boaters likely to use the Colony Cove Marina, there would be a greater potential for accidental fuel spills and oil discharges from normal boat servicing operations. Although GRDA requires all boats on Grand Lake to have a total-retention system, some of the additional boaters resulting from the marina's development would likely violate GRDA's sanitation rules, especially the overboard discharging of bilge water and the dumping of waste materials from boat-cleaning activities.

### **Fisheries and Littoral Habitat**

During construction of the proposed docks and boat slips, fish would likely be temporarily displaced from the area. This displacement could result in a short-term effect on the area's fish populations. Following construction of these facilities, the new floating structures would provide overhead cover for fish. The additional boat traffic associated with these docks could cause some sedimentation of any existing benthic habitat (e.g., stumps, boulders), and this could affect recruitment of baitfish and non-sport species that spawn and forage in these types of habitats (see above *Affected Environment* discussion on lake-bed sedimentation).

## **5.2.3 Recreation and Other Land and Water Uses**

### **5.2.3.1 Affected Environment**

A survey conducted in conjunction with the preparation of the recreation plan for the project identified boating as the primary recreational activity on Grand Lake (GRDA, 2003d). Boaters in all types of boats (fishing and touring boats, keeled sailboats, and large yachts) use the lake and cove. Boating traffic increases dramatically during the summer recreational season, particularly on weekends and holidays (FERC, 2003b).

In 1992, 120 commercial boat docks and over 2,600 private boat docks were permitted on Grand Lake (FERC, 1992). By 1997, the number of private docks had risen to 3,500, but the number of permitted commercial docks remained the same (GRDA, 1997a). Currently, there are about 2,821 commercial boat slips, 1,349 homeowner-association boat slips, and 4,179 private boat slips permitted on the lake. The total number of boat slips on the reservoir has risen from about 7,500 in 1997 to about 8,350 currently installed. The reconfiguration of several large marinas in recent years has resulted in the total number of commercial slips decreasing slightly since 1997 (GRDA, 2003d and 2004).

Two existing marinas in the immediate vicinity of the Colony Cove site contain approximately 130 commercial boat slips; an additional dock with 28 slips is permitted but not yet installed at one of these developments. Sixteen private slips are also located in this half-mile-long finger of Ketchum Cove.

In a July 4, 1997 aerial photographic survey of major boat concentrations on Grand Lake, 16 boats were observed using areas of Ketchum Cove that allow accelerated boating (GRDA, 1997b, 1998). Approximately 45 acres of Ketchum Cove are available and usable for medium-speed boating. Therefore, each of the 16 observed boats had about 2.8 acres of water available for recreational use, or, conversely, there was about 0.36 boat using the cove per acre of available water. In comparison, Duck Creek Cove experienced approximately 2.6 acres of usable water per boat, and the entire Grand Lake experienced an overall average of 11.15 acres of usable water per boat. However, GRDA's survey did not include the many acres of Ketchum Cove that are in no-wake zones, including the small arm on which the proposed docks would be located.

The above data suggest that a larger than average number of the boaters recreating on Grand Lake use Ketchum Cove. These results also confirm that boating densities are higher in Ketchum Cove relative to the lake as a whole. It is expected that these uses and densities have increased since 1997, resulting in corresponding reductions in the quality of recreational boating experiences and boating safety.

Because of the growing popularity of Grand Lake for recreational boating, boat-traffic congestion and navigational safety have become increasingly important issues. GRDA's Rules and Regulations encompass a number of boating-related requirements to address these concerns, including provisions regarding speed, buffer-zone, time-of-day, and activity restrictions and prohibitions (GRDA, 2001). The proposed docks would be located in an existing no-wake area, such that all boats, either entering the proposed marina or continuing up the cove to other sites, would be operated at idle speeds.

The average annual number of boating accidents on Grand Lake for the years 1998 through 2002 was 22. During this period, no accidents were reported at Ketchum Cove (GRDA, 2003d). GRDA (2003c, 2003d) indicates that most incidents involved injuries related to boat operators who were jumping boat wakes or collisions between personal watercraft when operators were attempting to splash someone on another boat. The data do not indicate that these accidents were associated with anglers or swimmers.

#### **5.2.3.2 Environmental Effects**

##### **Boating Use and Navigational Safety**

Several public comments on GRDA's application express concern that the proposed marina would contribute substantially to boat traffic in Ketchum Cove and that

the proposed docks would interfere with safe navigational clearance in the cove. Two interveners in the case state that the proposed docks would narrow the navigational channel to about 90 feet at one end of the marina and about 110 feet at the other. According to Colony Cove, the navigational channel at the marina site is currently a minimum of 90 feet wide and the channel's width would be the same after the proposed docks are installed.

Staff estimates that the footprint of the proposed marina would occupy an area of approximately 149,872 square feet (see figure 1). The most-protruding dock (Dock D) would extend 169 feet from the 750-foot-msl contour line into the cove. Where it borders the navigational channel, Dock D would be 96 feet wide. Taken together, the six proposed docks would cover approximately 1,099 feet of the shoreline.

The distance between the footprint of the proposed docks and the opposite shore would be approximately 300 feet at the widest point (see figure 1). Private boat docks are located on the opposite shore at this point, leaving about 225 feet of open water for navigation. At the narrowest point near the western end of the development, the navigational channel would be approximately 90 feet wide. At the second narrowest point, from the end of Dock D to an approved future dock on the opposite shoreline, the navigational channel would be 117 feet wide. The navigational channel in this area is generally straight with unobstructed views in both directions. The proposed dock configuration would not interfere with views from boaters moving along the channel.

The existing navigational channel adjacent to the marina site is currently designated as an idle-power zone because it has less open water than needed to accommodate higher boat speeds.<sup>7</sup> The proposed docks would not further narrow the existing 90-foot channel at the western end of the marina site and because boat traffic would be moving at idle speeds through this area, boats entering or exiting the main channel at the marina would not create an unsafe boating situation. However, the space between docks C and D would provide insufficient room for boats to maneuver safely in and out of the docks' slips.

Although it is unlikely that the 71 boats that could be housed at the proposed docks would be on the water simultaneously at any given time, a portion of these boats would contribute incrementally to cumulative traffic-congestion effects on Ketchum Cove and Grand Lake.

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<sup>7</sup> Oklahoma boating safety regulations require a minimum of 150 feet on each side of boat traffic lanes (ODPS, 2002).

## **Swimming and Angling Opportunities**

A number of interveners in this case assert that existing boat traffic in the cove is already at a level that is dangerous for boaters and swimmers. These interveners further contend that the addition of 70 boat slips would substantially increase the degree of interference with existing swimming and fishing opportunities in Ketchum Cove. Residents of Grande Lake Towne are particularly concerned about the safety of individuals who use this community's swimming dock, which is located on the opposite shore of the cove from the proposed marina site.

As noted above, the navigational channel adjacent to the proposed docks is a no-wake zone. Boat traffic in this area is required to move at idle speed, which would not pose safety hazards to swimmers or anglers. Also, GRDA's Rules and Regulations prohibit wake jumping in Ketchum Cove, which reduces the chance of boater conflicts with anglers or swimmers in association with the primary types of reported accident events on the lake. Further, all vessels are required to be operated in such a manner that will best safeguard the lives and property of other lake users (GRDA, 2001).

The shoreline that would be occupied by the proposed docks is adjacent to a private, gated community. It does not appear to be currently used as a public shoreline angler or swimmer access area. However, it is possible that some boat angling and boat swimming opportunities could be reduced at the proposed marina site. The proposed marina would be located at one of the more narrow areas of Ketchum Cove and some recreational boaters who currently use the area in front of the Colony Cove condominiums may be displaced. However, many acres of the reservoir exist outside of primary navigational channels. In this context, displacement of anglers and swimmers from the area of the proposed marina footprint would be insignificant. It is also likely that the proposed docks would provide improved habitat for bait fish and game fish, such that angling opportunities from the docks would be enhanced.

## **Scenic Views and Ambient Noise Levels**

Several of the public comments received on the Colony Cove Marina also express concern about the aesthetic effects that would result from the proposed docks and associated boats. One filing claims that adding 71 slips to 840 feet of shore would result in boat densities so high that it would destroy the quiet and secluded nature of the cove. Other filers contend that the additional slips and boats would obstruct views and detract from the scenic character of the shoreline.

Colony Cove asserts that the proposed docks would not result in an increase in noise because the navigational channel through the area is designated as a no-wake zone and any additional boat traffic associated with the marina would be operated at idle speeds. Colony Cove further asserts that placing the proposed docks perpendicular to the



shoreline allows some room for views between the docks. Also, in support of the proposed marina, an adjacent property owner's filing asserts that the changes resulting from the development would enhance his view of the area.

During installation of the proposed marina facilities, the presence of construction machinery and equipment would be visually objectionable and would cause some temporary noise-producing disturbances. Also, the appearance of partially-completed dock structures would temporarily degrade the visual quality of the area landscape.

After completing the proposed docks, the shoreline landscape would appear substantially altered. Although the proposed marina would be in character with the surroundings, the overall size of the marina and density of its docks would make the development look crowded and out of scale with the cove. These effects would be most evident between docks C and F where there is little or no space between the docks and where the cove narrows abruptly. In addition, the increased boating activity that would result from the marina would contribute to the area's overdeveloped and overused appearance.

The increased level of boating attributable to the marina also could cause some intermittent increases in the area's ambient noise levels associated with boaters testing motors or accelerating, once they leave the no-wake zone and enter the main channel downstream of the docks. GRDA's Rules and Regulations include the requirement that all vessels must be muffled pursuant to 63 OSA § 4208. Any noise-emitting boats in violation of this requirement would be subject to compliance enforcement by the licensee's Lake Patrol.

To further assist in the control of noise at Grand Lake, GRDA should consider including other noise-specific requirements in its Rules and Regulations. For example, the states of Tennessee and Alabama prohibit the operation of a vessel that exceeds 86 decibels at a distance of 50 feet. Tennessee also has a muffler regulation designed to control exhaust noise and prevent muffler tampering. Most noise complaints result from violations of these muffler regulations (TVA, 2002).

Consistent with previous staff findings on other commercial-dock proposals, any permit approved by the Commission for the proposed marina should include the following conditions adapted from License Article 410 (FERC, 2003b).<sup>8</sup> These permit conditions would help to ensure that the permit grantee would properly monitor and

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<sup>8</sup> License article 410 provides that the licensee: (1) has the continuing responsibility to supervise non-project uses and occupancies of project lands and waters; and (2) shall take any legal action necessary to correct violations of conditions imposed by the licensee for the protection of the project's scenic, recreational, or other environmental values.

control noise and other aesthetically undesirable effects associated with its commercial operation.

1. The grantee's permitted use and occupancy of project lands and waters shall not endanger health, create a nuisance, or otherwise be incompatible with the project's overall purposes, including public recreation and resource protection.
2. The grantee shall take all reasonable precautions to ensure that the permitted use of project lands and waters shall occur in a manner that will protect the scenic, recreational, and other environmental values of the project.

#### **5.2.4 Cultural Resources**

The OAS/SA states that an archaeological field inspection of the area potentially affected by the proposal is considered unnecessary because: (1) no known archeological sites are listed as occurring in this area; and (2) no archaeological materials are likely to be encountered, due to the area's topographic and hydrological setting. Based on staff observations of the marina site, the proposed marina would have no effect on any properties eligible for listing on the National Register of Historic Places. Neither Colony Cove nor GRDA propose any contingency measures for the potential discovery of archaeological resources during construction.

### **5.3 Action Alternatives**

In this section, we examine each of the staff-identified action alternatives listed in section 3.2. Under each alternative, we describe the specific environmental measures that Colony Cove would take, if included as a condition in GRDA's permit. We further evaluate these alternatives in section 6.2.

#### **5.3.1 Restore an Appropriate Amount of Shoreline Habitat**

Although FWS did not comment on Colony Cove's proposal, its letters regarding the expansion of docks at Arrowhead Marina (P-1494-232) and the reconfiguration of docks at Thunder Bay Marina (P-1494-251) indicate substantial agency concern about the rapid pace of shoreline development around Grand Lake and the lack of monitoring and mitigation of related cumulative effects on fish and wildlife habitat (letter from the Regional Director of FWS, Albuquerque, NM, to Magalie R. Salas, Secretary, FERC, Washington, DC, dated October 21, 2002; letter from J. Brabander, Field Supervisor, FWS, Tulsa, OK, to T. Hicks, Legal Assistant/Land Department, GRDA, Vinita, OK, dated May 8, 2003). Interior's comment letter on the proposed marina (see *Agency Consultation* section) recommends that the cumulative impacts of shoreline development be monitored and that appropriate measures be implemented to mitigate adverse effects on important resource conditions and values.

In order to compensate for the impacts of the proposed marina on the project's terrestrial and aquatic resources, Colony Cove would help restore an appropriate amount of shoreline habitat. Specifically, the permit grantee would plant native riparian- and littoral-habitat vegetation at a shoreline location selected in consultation with ODWC and with GRDA's approval. The permit grantee's habitat restoration measures would be sized and designed to offset the direct and indirect effects -- or incremental cumulative effects -- of the proposed docks and associated boating activity, as discussed in sections 5.2.1 and 5.2.2.

### **5.3.2 Provide Additional Habitat for Fish**

The overhead cover provided by the proposed docks would help to congregate some baitfish, which, in turn, would enhance foraging opportunities for game fish. Placing natural-habitat material under the proposed docks would provide more shelter and better feeding opportunities in an area that has little bottom structure near the shore.

Colony Cove would provide additional fish habitat at the marina site by suspending one discarded Christmas tree, with a minimum height of 5 feet, under each of the proposed docks. Alternatively, the permit grantee could submerge and anchor to the lake bottom a minimum of six trees bunched together at a near-shore location in the vicinity of the proposed docks that would not be affected by boating activities. The marina owner would remove and replace these trees at least once each year in December, January, or February for the term of the permit. The natural habitat provided by these trees would help crappie and other fish populations, which ODWC states are below average numbers in this reservoir.

### **5.3.3 Reduce the Size of the Marina and the Density of Its Docks**

The Colony Cove Marina, as proposed, would look crowded and out of scale with its surroundings. In order to reduce the development's congested and overbuilt appearance, the permit grantee would reduce the size of the marina and the density of its docks to provide more open space within the cove and along the adjacent shoreline. Specifically, dock D would be eliminated, dock C would be moved about 50 feet to the west and realigned perpendicular to the navigation channel, and dock E would be moved about 50 feet to the east.

### **5.3.4 Establish Procedures for Potential Archaeological Discoveries**

The OAS/SA advises that if construction activities at the marina expose any buried archaeological materials, the OAS should be immediately contacted so that it can evaluate the significance of the materials. Also, OAS/SA reminds the Commission of its

responsibility under 36 CFR Part 800<sup>9</sup> to consult with appropriate Native American tribes that may ascribe traditional or ceremonial value to such a discovery.

The OAS staff has expertise in the preservation of archaeological resources. Therefore, its advice and assistance would be essential in determining the importance of any resource discoveries and the scope of any protection measures that should be taken. Also, consultation with interested Native American tribes would be a necessary step in identifying whether these tribal groups attach any cultural or religious significance to a discovered resource and deciding how such a resource should be treated.

To ensure that any previously unidentified archaeological resources are properly taken into account during the marina's construction, Colony Cove would immediately stop construction activities upon such a discovery and contact GRDA. The licensee would notify OAS and those Native American tribes/groups that may have an interest in the discovery. These notified parties would be given an opportunity to: (1) examine the discovered materials to evaluate their significance; and (2) provide the results of their assessments to GRDA. The licensee would take any OAS or tribal comments into consideration in deciding how to proceed.

In the event significant archaeological resources are discovered, GRDA would file for Commission approval, pursuant to License Article 409, a cultural resource management plan that describes how these resources would be protected. Upon approval, the licensee would require the permit grantee to implement any measures prescribed in the plan to mitigate adverse effects on any important resource discoveries.

#### **5.4 No-Action Alternative**

Under the no-action alternative, there would be no change to existing environmental conditions.

### **6.0 CONCLUSIONS AND RECOMMENDATIONS**

#### **6.1 Summary of Proposed Action's Environmental Effects**

Table 2 summarizes the probable environmental effects of Colony Cove's proposed marina improvements, as discussed in detail in the *Environmental Analysis* section. The table uses the resource issues identified in the *Agency Consultation and Public Involvement* section as a checklist for the impact summary.

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<sup>9</sup> Regulations of Advisory Council on Historic Preservation.

Table 2. Probable environmental effects of the proposed marina.

| <b>Resource Issue</b>   | <b>Impact Rating<sup>a</sup></b> |    |     |
|---|----------------------------------|----|-----|
| Shoreline stability and soil erosion  | 1                                | A  | S/L |
| Wildlife and riparian habitat   | 1                                | A  | S/L |
| Threatened and endangered species   |                                  | NI |     |
| Water quality and lake-bed sedimentation  | 1                                | A  | S/L |
| Fisheries and littoral habitat  | 1                                | A  | S/L |
| Wetland functions and values  |                                  | NI |     |
| Boating use and navigational safety   | 1                                | A  | L   |
| Angling and swimming opportunities  | 1                                | A  | L   |
| Scenic views and ambient noise levels   | 2                                | A  | S/L |
| Archaeological and historic properties  |                                  | NI |     |
| <sup>a</sup> 1 – Minor                      A – Adverse                      S – Short Term<br>2 – Moderate                      B – Beneficial                      L – Long Term<br>3 – Major                      NI – No Impact |                                  |    |     |

## 6.2 Evaluation of Action Alternatives

In this section, we further evaluate the action alternatives examined in section 5.3. Our evaluations weigh the tradeoffs, or cost-effectiveness, of each of the alternatives under consideration.

### 6.2.1 Restore an Appropriate Amount of Shoreline Habitat

As discussed in section 5.3.1, Colony Cove would contribute to the restoration of shoreline habitats on Grand Lake to compensate for the marina's impacts on terrestrial and aquatic resources. Using the impact ratings in the above table, the restoration measure undertaken (i.e., planting native shoreline vegetation), would be sized and designed to fully offset the habitat effects resulting from the marina's use and occupancy of project lands and waters.

Considering the ecological importance of Grand Lake's riparian and littoral habitats, we conclude that the above habitat-restoration measure would provide valuable long-term benefits to the fish and wildlife that use them. Therefore, as a condition for approval of GRDA's application, the licensee should require Colony Cove to implement this impact-mitigation measure.

### **6.2.2 Provide Additional Habitat for Fish**

Placing natural-habitat materials under the proposed docks, as described in section 5.3.2, would provide more shelter for bait fish and better feeding opportunities for bass, crappie, and other game-fish species. Considering the minimal implementation expense involved, GRDA, as condition for approval of its application, should require Colony Cove to carry out this habitat-enhancement measure.

### **6.2.3 Reduce the Size of the Marina and the Density of Its Docks**

Eliminating dock D, as described in section 5.3.3, would remove 16 boat slips from the proposed marina (12, 14x43-foot slips and four, 12x43-foot slips). Removing these 16 slips would reduce by 23 percent the total number of docking facilities available to residents of the adjacent condominium development. The elimination of dock D also would cut by 42 percent the number of slips designed to accommodate smaller boats and wave runners (i.e., slips less than 50 feet long) and would exclude all of the marina's 43-foot-long slips. Adjusting the location of docks C and E, as described in section 5.3.3, would not require any design changes to the docks. However, at the permit grantee's discretion and with GRDA's approval, these two docks could be modified to provide a number of 43-foot-long slips instead of the 50- and 37-foot-long slips, as currently proposed.

Considering the scale of the landscape encompassing the marina site-area, and the number of docks and boats already occupying and using this inlet of Ketchum Cove, we conclude that the above changes to make the proposed development more aesthetically acceptable are warranted. In addition to relieving the marina's crowded and congested appearance, the above changes also would have the added benefit of providing more space for navigation in the constricted channel-area between the proposed docks and a permitted-but-not-yet-constructed dock on the opposite shore (about 190 feet instead of 117 feet). Therefore, as a condition for approval of GRDA's application, the licensee should require Colony Cove to make the above changes to its dock facilities.

### **6.2.4 Establish Procedures for Potential Archaeological Discoveries**

The discovery of archaeological materials during the marina's construction could result in delays and additional costs to mitigate potential adverse effects on significant resources. Given the possible importance of previously unidentified resources to the area's cultural heritage, the contingency procedures described in section 5.3.4 are reasonable and justified. Therefore, as a condition for approval of GRDA's application, the licensee should require Colony Cove to comply with these procedures. However, in the interest of permit grantee's development objectives, a concerted effort should be made to expedite the steps taken to properly consider such discoveries.

### **6.3 Findings**

Based on the information, analyses, and evaluations contained in this EA, we find that approval of the proposed marina, with staff's recommended environmental measures, would not constitute a major federal action significantly affecting the quality of the human environment. We also find that approval of the proposed marina, with staff's recommended measures, would not be inconsistent with the operation and maintenance of the project or with the project's public-recreation and resource-protection purposes.

With staff's recommendations, Colony Cove's proposal would:

- help meet the demand for additional boat dock facilities on Grand Lake;
- compensate for the adverse impacts of the marina and associated boating activity on terrestrial and aquatic resources;
- enhance fish habitat in the immediate area of the proposed docks;
- alleviate the effects of the marina and associated boats on the landscape aesthetics and recreational use of Ketchum Cove; and
- ensure that any archeological resources discovered during the marina's construction are properly taken into account.

In our judgement, the positive aspects of the proposal with staff's recommended measures outweigh its negative environmental consequences. Also, in our judgement, the net benefits of the proposal with staff's recommended measures outweigh the alternative of taking no action (i.e., maintaining the status quo). Based on these conclusions, we find that the licensee's application should be approved along with staff's recommendations.

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