Resource Analysis

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All Exhibits require Adobe Acrobat Reader

The North Carolina Aquariums, as a division of the North Carolina Department of Environment and Natural Resources (NCDENR), must adhere to the state of North Carolina's Policies and Procedures. The Aquariums has a Web site hosted in Raleigh by the Aquarium Division office. Each aquarium has individual Web pages linked to the Aquariums' Web site. Jim Connoly, Webmaster for the Aquariums in Raleigh, receives all program and exhibit information from the individual aquariums for posting to their respective Web pages. Policies established at the state level require approval of the North Carolina Information Resource Management Commission (NCIRMC). This process takes considerable time from conception to implementation. Standards can be written and approved at the division level, as long as they meet or exceed State Policy guidelines.

Established State Policies

Given that the Web will be the vehicle for delivering the technology change to the public, it is important to note that the main purpose of any state site is to provide the public with easy and clear access to information they may need. The state has NCDENR Acceptable Information Technology Services Policies, dated August 1, 1997 that regulate Information Technology Services (ITS). They are individual policies that mirror the North Carolina Information Resource Management Commission (IRMC), August 2, 1994 "Policy and Guidelines on the Use of the Internet." Policies that are applicable to the technology change and already in place at Fort Fisher Aquarium are listed below:

Desktop Workstation Standard:

All workstations will be IBM PC compatible. All new purchases and

installations must comply with this standard (See [Exhibit 1](#)).

The Fort Fisher Aquarium meets the above policy.

Departmental Operating System:

Operating systems can be categorized as: 1) Network operating systems (NOS), 2) Application Server operating systems, and 3) workstation operating systems that provide operating system services for desktop computers.

Network Operating System Standard: All local area networks (LANs) will adopt Novell's NetWare 4.x as their standard network operating system. This is consistent with the North Carolina Information Resource Management Board (NCIRMB) recommendations.

Application Server Operating System Standard: ITS will support Windows NT 4.0 applications servers. Exceptions may be granted for specific applications.

Workstation Operating System Standard: All desktop computers will adopt Windows 95 as their desktop operating system standard. ITS will support this standard.

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Evolution of NOS, application server, and workstation versions:

The Networking Engineering Team of ITS will be responsible for evaluating and recommending new network, application server, and desktop operating system releases. The Team will deliver its

recommendations to the NCIRMB for review. Based on the review, the NCIRMB may choose to update the NOS, application server, and desktop operating system standards.

The Fort Fisher Aquarium meets and/or exceeds the above policy standards. The technology change will require the use of Fort Fisher's technology equipment. No additional equipment will be required unless the Change Management Team recommends additional dedicated equipment.

The technology change will require the acquisition of new specialized licensed server/client software from a selected specialty software vendor.

Use of North Carolina Integrated Information Network (NCIIN) and Internet:

The State's wide area network (WAN) is the NCIIN. The open connection afforded by Internet access underscores the need for heightened awareness among public employees regarding prudent behavior as it pertains to information dissemination and access.

> 1. While in performance of work-related functions, while on the job, or while using publicly owned or publicly provided information processing resources, public employees are expected to use the NCIIN and the Internet responsibly and professionally and shall make no intentional use of these services in an illegal, malicious, or obscene manner.

> 2. The Internet provides easy access to software distributed by companies on a trial basis. This free access does not indicate that the software is free or that it may be distributed freely. All applicable software copyright and licensing laws must be followed.

This policy pertains to the legal use of digital media and is a reflection of The Digital Millennium Copyright Act of 1998. In short, it prevents the unauthorized use, distribution or public performance of a work that falls under this law (See Exhibit 2 &

Exhibit 3).

Fort Fisher Aquarium meets these policies.
These policies should be reinforced during implementation of the technology
change.

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The Rehabilitation Act, Section 508, [29 U.S.C. 794 (d)]

As amended by the Workforce Investment Act of 1998 (P.L. 105-220), August 7, 1998 states in part that the individuals with disabilities who are members of the public seeking information from a government agency to have access to and use of information and data that is comparable to the access to and use by individuals without disabilities. However, under General exceptions, Subsection 1194.3(d), agencies are not required to purchase products for access and use by individuals with disabilities at a location other than that where the electronic and information technology is provided to the public (See Exhibit 4).

Fort Fisher Aquarium meets the above policy.

NC Aquariums Standards

North Carolina Policies and Procedures include "standards" that must be followed. These policy standards should not be confused with NC Aquariums standards. The NC Aquariums has recently developed a specific Web Team that is responsible for the Web site content, navigation, needs, and to a limited extent design. They consist of representatives from each aquarium, technical staff, and NC Aquarium Society leaders. The Aquarium' Division Director, David Griffin, leads the Team. This Team will develop Web standards

for all of the Aquariums locations.

Needed NC Aquarium Standards

Aquariums standards must be set forth and established for the following as they pertain to the implementation of the technology plan ([Exhibit 12](#)):

1. **User Account:** Though a free service, all users accessing and participating in the live, interactive sessions must first create a user account. This will allow the Aquarium to gather information pertaining to the volume of participants, and it will aid the moderator in monitoring the participants' actions during the sessions. A link to the privacy policy should be set on the page where users establish their accounts, as well as an agreement to participate in a responsible manner.

2. **Security:** When using the Web as a vehicle, security is a major concern. Measures, such as firewalls, shall be taken to prevent unauthorized access to the Aquarium's systems.

3. **Rights and Responsibilities of Users:** It is the users' right to participate in the Web conferences; however, it is their own responsibility to participate according to the state's Web guidelines, omitting any illegal, malicious or obscene comments. The users will have agreed to the guidelines when setting up their user accounts, so any user who does not adhere may be removed and banned by the moderator.

4. **Moderator's Responsibilities of Enforcement:** It is the moderator's responsibility to monitor the online sessions and enforce the state's netiquette guidelines during said sessions. Any user who is not in accordance with their agreement to participate in a responsible manner shall be removed immediately and banned from future use.

5. **Web Page Standardization:** Site design shall have similar headings and navigation throughout the Web site and all shall reflect the organization. Content on Web pages shall be specific to the subject matter and the organization's mission statement.

Personal views and opinions are not permitted.

6. **Web Use Standards:** Staff and end users are expected to use the Internet responsibly and professionally. Reiterate state policy for responsibility and professionalism, and establish personnel guidelines for network etiquette (netiquette), customs and courtesies (See [Exhibit 5](#)).

7. **Tracking Standards:** Mirror NCDENR Standards for Internet

    a. The Internet domain and IP address used to access the site.

    b. The type browser and operating system used to access the site.

    c. The date and time the site is accessed.

    d. The pages accessed.

8. **Disclaimer Standard:** A privacy disclaimer statement shall be placed on the Web site for end user's review.

These standards shall be written, approved, and training provided prior to implementing the technology change.

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Current Technology Resources

Presently, the Fort Fisher Aquarium is using the following computer-related technology resources:

1. **Hardware:** Forty-three (43) PC compatible, Pentium desktop computers with 128-512 megabytes of Random Access Memory (RAM), 20-40 gigabyte (GB) hard disk drives, 533-3000 megahertz processors, 10/100 network cards, and CD-ROM, CD ±RW, DVD-ROM or DVD ±RW, one (1) Seagate 20/40 GB internal tape drive

(See Exhibit 6).

2. **Software:** All computer systems use Microsoft Windows 98/2000/XP Operating Systems and Symantec AntiVirus version 9.1 (Corporate Edition - MLA). Additionally, five systems have Microsoft Office 2000, three have Adobe PhotoShop and two have Corel Draw. All specialty software has single-user licenses (See Exhibit 7).

3. **Network:** *Server software* – Novell Netware 5.1 (with MLA licensing and maintenance agreement – unlimited users and servers), with F-Prot AntiVirus.

Network Hardware – Two 24-port Dell 10/100 managed switches connected to T1 line via fiber optic cable through GBIC port, one 16-port NetGear 10/100 hub and one Cisco 2600 Series router, which provides connectivity to the LAN/WAN using T1 connection (See Exhibit 8, Exhibit 13).

4. **Personnel:** Thirty-one (31), on-site, technical and administrative staff members, all qualified in computer applications. A Webmaster and a LAN Administrator are available from Raleigh, NC, to maintain and troubleshoot the Web and the network as required (See Exhibit 9).

5. **Facility:** Individual staff offices with computers, plus two (2) fifteen-student classrooms and one (1) 250-person auditorium. Available audio/video equipment includes a video camera, projectors, VCRs and DVD players. Facilities are air-conditioned, wired for T-1, broadband network with adequate lock and key security (See Exhibit 10).

Current Technology Usage

The majority of the technical staff at Fort Fisher Aquarium is computer literate. They make extensive use of the available computer-related technology resources for research, documentation, and communication purposes. Staff communicates with the parent organization, fellow marine biologists, research facilities, sponsors, and the public using the Internet, primarily through e-mail communication. There are six people at the Fort

Fisher Aquarium and two people in Raleigh that will be primarily involved with the technology change. These people are:

Fort Fisher Aquarium Personnel:

Joanne Harcke, Research Conservationist
Bridgette Del Pizzo, Special Events Coordinator
Richard Roberts, Design Coordinator
Robert Roush, Public Relations
Nancy Peterson, Business Manager
Danielle Wallace, Scheduler

NC Aquariums – Raleigh Personnel:

Chris Mills, LAN Manager
Jim Connoly, Webmaster

All of the Fort Fisher Aquarium personnel are skilled in computer operations, word processing, desktop publishing, and the Internet. In addition, several of these people have additional skills in spreadsheet, database, image editing, and electronic presentations. These exhibited skills make it possible to proceed with the proposed technology change with minimal software training (See Exhibit 10).

Chris Mills will be responsible for setup, installation, and training for the specialized software involved with the technology change. Jim Connoly will be responsible for the procurement and licensing of the specialized software used in the proposed technology change.

Chris Mills provided the survey data regarding the current Aquarium software, hardware, server, and network capabilities, which show the existing equipment is more than adequate to proceed with the technology change (See Exhibit 6, Exhibit 7, Exhibit 8, Exhibit 13).

Jacob Rudolph, Media Specialist at Fort Fisher Aquarium, provided the survey data of the facilities at the Aquarium. The facilities also meet the requirements for the technology change (See Exhibit 10).

Student Participation Survey

Student participation in the proposed technology change will be crucial to the success of the program. The technical skills required by the public to engage in the live Web chat with Aquarium personnel will consist of typing pertinent questions and then selecting the "post" button displayed on their computer monitor.

In 1995, the NC Board of Education established a computer proficiency requirement for diplomas issued beginning with the graduating class of 2001. The computer skill requirement, considered fairly challenging and rigorous, includes a multiple-choice test as well as a performance test that requires students to demonstrate their ability to use software for word processing, database and spreadsheets.

For the 2000-2001 school year, 92.1% of students statewide met the requirement by the end of the 11th grade. Statewide, 92.5% of the students met the requirement by the end of the 12th grade.

In 2004, out of 574 schools offering the test to eighth graders, 86% was the average pass grade for students. Roland-Grise, a middle school in New Hanover County, had a completion score of 90% for students.

By directing the technology change to upper high school and college students, these people will already possess the technology skills required to participate as evidenced by the NC Computer Skills Test scores (See [Exhibit 11](#)).

Proposed Change Technology Resource Usage

Implementation of the change plan will require many of the Aquarium's already-in-place technology resources. The current technological conditions (such as T1 line and server environment) exceed the software's requirements,

so no new equipment will need to be added.

Training classes will be required for Aquarium personnel in the use of the new technology change software and netiquette procedures for live, moderated on-line forums. As stated within the sections entitled "Current Technology Resources" and "Current Technology Usage," the Aquarium has ample technologically skilled personnel to roll out the technology plan with minimal training. However, because the technology change software will be new to all involved and the usage of it will be live, it will be necessary for the involved personnel to receive training upon implementation. Likewise, because of the importance of the state's netiquette policies, it is essential that all involved are aware of how the live sessions must be conducted.

The current Web site will need modifications to include acceptance of on-line registration and passwords, live questions and answers, and archiving. In addition, the Aquarium at Fort Fisher and the LAN Manager and Webmaster need to establish procedural guidelines. It will be imperative to ensure that updates to the Aquarium's Web site are timely and effective. The Web site will need to reflect current online offerings at all times, and likewise, measures will need to be taken to fix broken links and remove old, outdated session offerings. Archived sessions will need to be placed on the Web site in a timely manner and removed at the appropriate expiration date (See Exhibits 9, Exhibit 12).

Several online chat room software vendors were researched for the purposes of this project plan, and the one which has tentatively been selected is Digi-Net. According to the Digi-Net Web site, DigiChat v5.1 software features include, but are not limited to:

- Ensemble GUI with fully skinnable interface
- New client-side plug-in architecture so as to extend and create new programs within DigiChat
- Moderated auditorium style chat event support (Web casts)
- 5th generation messaging engine for solid reliability
- File transfer support
- Chatmaster-based remote administration
- Membership/authentication system
- Firewall and proxy friendly
- SSL security
- Chatwatch text chat filtering
- Configurable user and administration level security permissions
- Real-time communications architecture

- Scalable architecture

One of the most attractive aspects of DigiChat v5.1 for this project's purposes is the moderated chat feature. As stated on Digi-Net's Web site (March 7, 2005), "Moderated chat introduces a series of tools aimed at providing the site administrator with the ability to assign limited powers to discussion moderators and guest speakers. Discussion moderators control the pace and flow of the conversation while site visitors may only pose questions to the moderator (and private message amongst themselves), thereby shielding the Guest Speaker from unruly or repetitive questions or comments."

Digi-Net recognizes that not all organizations will have the expertise in-house to quickly and efficiently install and configure their products for the Web. Through their Professional Services Division, installation and set-up assistance may be sought, including turnkey on-site set-up, as well as product training, troubleshooting and special chat event coordination and management. In-house training, support and installation fall into the hands of Chris Mills, the Aquariums' LAN Manager. The Webmaster, Jim Connoly, will work with Digi-Net on the purchasing of the product.

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