

STATE OF THE LAKE REPORT

*A progress report on rehabilitation efforts from March 2000 through June 2002
as part of the continuing*

SWAN LAKE WATERSHED RECOVERY STRATEGY



Progress Report

Prepared for the **CITY AND BOROUGH OF SITKA**

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PREFACE

This *State of the Lake Report* highlights the results of Swan Lake watershed restoration activities conducted over the period March 2000 through June 2002. A diverse number of tasks were completed during this period. Guided by a comprehensive restoration strategy, the progress and relative success of each task are reported here. Recommendations are included for future lake and watershed rehabilitation activities.

Swan Lake is a naturally eutrophic lake with typical symptoms of high plant growth, sedimentation and poor water circulation. The growth of native aquatic plants in the lake has progressed to the point of depressing dissolved oxygen levels and negatively affecting recreational and perhaps fisheries uses. Maintaining and enhancing these uses has been a priority of the City and Borough of Sitka (CBS) since the 1960's and was provided formal impetus with the 1981 adoption of the Swan Lake Meriting Special Attention (AMSA).

Restoration activities in the watershed include annual community trash cleanups, manual harvest of lily pad in high use recreational areas, dredging the lake outlet channel and the Wrinklneck Creek delta, citizen and professional water quality monitoring, improving hydraulic efficiency of culverts in the Arrowhead Creek/Monastery Street intersection, completing a stormwater control strategy, and public education and participation in restoration. Some are one-time tasks; other tasks are continuing.

Several prior documents provided direction and were drawn on in preparing this report. *The Swan Lake Watershed Recovery Strategy. Phase 1: Debris and Solid Waste Removal and Control (January 2000)* outlines an action strategy to improve water quality conditions in the watershed. It also includes a Total Maximum Daily Load (TMDL) for debris in the watershed in keeping with federal requirements. *The Swan Lake Watershed Recovery Strategy. Phase 2: Eutrophication Report and Action Plan (June 2000)* includes an in-depth, multi-task, Action Plan to slow and reverse the eutrophication process in the lake. A range of alternatives to address the problems are proposed and a preferred alternative was selected after public discussion. *A Guide to Volunteer and Agency Water Quality Monitoring in the Swan Lake Watershed and a Quality Assurance Project Plan (QAPP)* was completed in June 2001 to guide student and professional water quality monitoring. Data quality objectives, monitoring parameters, and data management and reporting are discussed. Sitka High School students and City and Borough of Sitka staff are joined by professional monitors in collecting data over time. Lastly, the *Stormwater Control Strategy and Action Plan for the Swan Lake Watershed (June 2002)* is designed to improve management of stormwater runoff. It describes the sources and pathways of stormwater runoff, existing water quality conditions, and both current and newly proposed stormwater controls and management practices. The adequacy of current CBS controls is evaluated against federal guidelines for stormwater management.

Considerable progress has been made through the combination of these efforts. More work remains to be completed and is confirmed in the long-term Action Plan for the years 2002 and beyond.

“STATE OF THE LAKE AT A GLANCE”

A SUMMARY OF ACTIONS

- *Dredged over 240 cubic yards of vegetation and sediments from the lake outlet channel and 480 cubic yards from the Wrinkleneck Creek delta, removing restrictions and improving water flow out of and into Swan Lake.*
- *Established an active student and professional water quality monitoring program for the lake and creeks, involving over 370 hours of student volunteer effort through April 2002.*
- *Documented seasonal dissolved oxygen levels, pH, water temperature, nutrient and sediment loading, and turbidity at multiple stations throughout the watershed.*
- *Cleared out lily pads and other aquatic vegetation in high use recreational areas through a combination of dredging and manual harvest techniques.*
- *Maintained a high level of resident participation and interest in rehabilitation efforts.*
- *Sponsored annual community watershed debris and litter cleanups, with over three tons of debris, trash and metals removed from the lake and creeks to date.*
- *Mailed educational flyers and brochures to each watershed resident on best management practices to keep their lake and creeks clean and pollution-free*
- *Reduced sedimentation of the lake through improved municipal maintenance practices and stormwater controls.*
- *Completed a Stormwater Control Strategy for the watershed.*
- *Initiated culvert and other drainage improvements at the Monastery Street/Arrowhead Creek intersection.*

Still to do:

- *Initiate further dredging in small areas of the lake not accessible by shore-based equipment.*
- *Continue selective harvest of lily pads in high use recreational areas at the lake outlet and the Spit area. Conduct demonstration/experimental projects on the effectiveness of various aquatic plant harvest and other control techniques, including use of diver teams.*
- *Upgrade culverts and drainage at the intersection of Monastery Street and Wrinkleneck Creek.*
- *Continue student and professional water quality monitoring to better evaluate water quality trends over time.*
- *Continue to evaluate resident compliance with Swan Lake AMSA streamside buffer protections and complete a vegetation and forest park management manual to guide lake and streamside revegetation, reseeding and tree/brush clearing in the AMSA.*
- *Implement the recently completed Swan Lake Stormwater Control Strategy.*
- *Continue a dialogue with other Southeast communities on common lake problems and possible sharing of resources and equipment.*
- *Continue to actively involve watershed residents in rehabilitation work.*

OVERVIEW

Swan Lake is a small (23 acre), shallow lake located within the City and Borough of Sitka (CBS) (Figure 1). It is a sunken bog, with bottom peat deposits ranging from five to seventeen feet thick. The lake is a popular recreation area for Sitkans and is the centerpiece of the Swan Lake Meriting Special Attention (AMSA) established in 1981. Like many older, shallow lakes, it suffers from such symptoms as overabundant aquatic plants, rich organic deposits, periodic depression in dissolved oxygen levels and restricted access for recreational boating and fishing. The natural succession of the Swan Lake plant community towards a higher density is enhanced by eutrophication – an increase in nutrient content of the water and sediments as a consequence of human and natural activities. Left unchecked, the lake will eventually fill in with organic matter, turning the lake into a swamp and, ultimately, into terrestrial habitat.

In an effort to address the means to slow down and reverse the eutrophication process, the CBS and its contractor prepared the *Swan Lake Watershed Recovery Strategy. Phase 2: Eutrophication Report and Action Plan*. Funded under a Section 319 federal grant from the Alaska Department of Environmental Conservation (ADEC), this Strategy outlined a series of over 20 tasks to restore Swan Lake and its tributaries.

This *State of the Lake Report* summarizes the results of the variety of restoration tasks completed from March 2000 through June 2002. A progress report and “report card “ on each task is provided. Recommendations for future rehabilitation efforts are included at the end of the report.

This report summarizes and compiles the accomplishments of numerous individual efforts. As such, it does not repeat details that are found in prior individual reports. The reader is referenced to those Reports, Strategies and Action Plans for a full description of purpose and task rationale.

Swan Lake Watershed Recovery Strategy: Goal and Objectives

The purpose of Swan Lake Watershed Recovery Strategy mirrors the purpose found in the Swan Lake AMSA. Simply, to carry out a strategy to *protect and enhance the recreational, aesthetic, and fish and wildlife values of Swan Lake for the enjoyment and use of the public.*

The rehabilitation - or restoration - process works towards this process by taking actions to slow down and reverse the natural aging of Swan Lake.

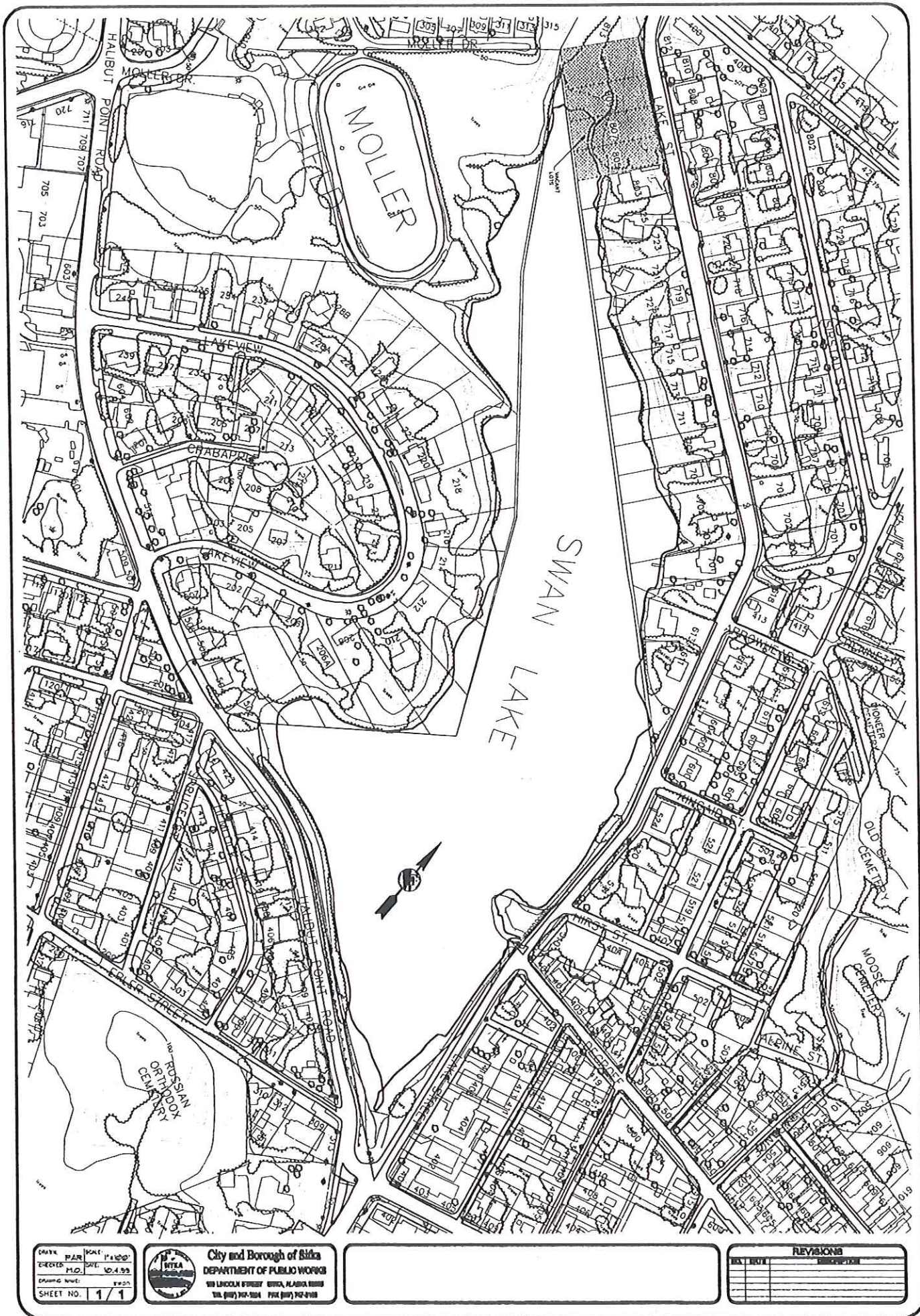


Figure 1. Swan Lake, Sitka, Alaska

Rehabilitation objectives supporting the purpose/goal include:

Objective 1. Substantively involve watershed residents as participants in protecting and keeping their watershed clean.

Objective 2. Control and reduce nuisance plant growth in the lake through active management.

Objective 3. Increase water flow out of the lake, reduce flooding events, and improve drainage into the lake.

Objective 4. Actively address the causes of eutrophication, not just treating the symptoms.

Objective 5. Manage stormwater quality and quantity to reduce pollutants entering Swan Lake and its tributaries.

Objective 6. Educate residents on best management practices to keep the watershed clean.

Objective 7. Conduct monitoring, research, and instruction to better understand lake and watershed processes and to objectively evaluate trends in water quality over time.

THE ELEMENTS OF THE RECOVERY STRATEGY – A PROGRESS REPORT

The following section summarizes progress on individual restoration tasks through June 2002. Tasks are referenced to the Action Plan (2000 through 2002) task sequence in the *Swan Lake Watershed Recovery Strategy. Phase 2: Eutrophication Report and Action Plan* and the *Swan Lake Watershed Recovery Strategy (TMDL). Phase 1: Debris and Solid Waste Removal and Control*. The reader is referred to that document for a full explanation of the individual tasks, timelines, responsible parties and estimated costs.

Major “Action Plan tasks for the years 2002 through 2002” either partially or fully completed include the following:

1. Annual community spring cleanups in the Swan Lake watershed

One of the key tasks associated with the Swan Lake Watershed Recovery Strategy and debris TMDL was to institutionalize the annual cleanup of debris and solid waste in Swan Lake, Wrinklneck Creek and Arrowhead Creek. The task serves restoration objective 1 (substantively involve watershed residents as participants in protecting and keeping their watershed clean) and objective 4 (actively address the source of eutrophication, not just treating the symptoms).

Progress report: Annual lake and creek cleanups have been sponsored by the CBS since March-April 2000. Swan Lake Cleanup Days held during April 15-16, 2000 (Year 1) involved scores of volunteers and resulted in over 5,000 pounds of debris, metals, plastics and other solid wastes removed from the lake. Municipal staff organized and supervised work crews. In March 2000, over 1,320 pounds of debris and garbage was removed from the creeks. Students, lake residents,

and municipal, state and federal employees participated. The cleanup was coordinated with the Department of Fish and Game to ensure that fish habitat was not degraded along the streams. Inventory sheets documented the quantity and type of waste removed so those trends could be tracked over time. News releases and telephone calls during late March and early April were effective tools in notifying residents of cleanup events. A follow-up "walkthrough" by agency staff certified that the creeks and lake were clear of debris and solid waste.



Year 2 (April 21-22, 2001) solid waste cleanups were conducted in conjunction with the city-wide Spring Cleanup. Over 15 volunteers removed an estimated 1,000 pounds of litter, metals, and solid wastes from the lake and creeks. This was significantly lower than the previous year's removal of over 6,000 pounds. Based on the total weight and number of materials removed in 2001, it appears the watershed had considerably less debris and accumulated trash and is cleaner than in previous years. Excel spreadsheets were maintained as an inventory-tracking tool for comparison with previous and future years.

Year 3 watershed cleanups occurred from April 15th through April 25th. Volunteers removed debris from the shoreline of Swan Lake and Wrinkleneck Creek. The greatest effort was carried out on April 20, 2002 in conjunction with Earth Day celebrations. Over 20 resident volunteers removed glass, wood, tires, and bits of paper, plastic and metals from throughout the watershed. A total of 770 pounds of solid wastes and debris were removed and disposed of at the landfill. Local efforts by residents along Wrinkleneck Creek have resulted in a fairly debris-free creek bed. Letters to the Editor were submitted by CBS staff commending participants in keeping their watershed clean.

Task Summary: The spring solid waste cleanups are institutionalized as an annual event. The progressive reduction in total number and weight of debris and solid wastes provides strong evidence of a cleaner watershed and a broad community commitment to keeping it clean.

Grade: A

2. *Selective harvest of lily pads and other aquatic vegetation in high use recreational areas in Swan Lake*

Lily pads, pondweed and marestalk characterize the macrophytic vegetation of Swan Lake. As lakes age, these species typically increase their distribution and density. The *Swan Lake*

ANNUAL COMMUNITY SPRING CLEANUPS IN THE SWAN LAKE WATERSHED



Volunteers cleaning lakeshore, April 2002



Volunteer wading the lakeshore to clear trash, April 2001



Collected lake debris awaiting disposal at the municipal landfill (above), April 2000. A deserted skiff turns into a handy garbage barge for metal drums (left).

Eutrophication Report and Action Plan cites manual harvest of these species in high use recreational areas as the best initial approach to open up the lake and maximize its uses. Areas around the Wrinklneck Creek Spit, fishing areas, and inflatable boat launch sites were primary areas targeted for plant removal. Various manual techniques were used to determine the most practical methods. Heterogeneity in plant distribution was sought, so that efforts would “design with nature”. Photo documentation of “before and after” plant densities were completed, along with a summary report on the relative success of various removal techniques. This task serves restoration objective 2 (control and reduce nuisance plant growth in the lake through active management) and objective 3 (increase water flow out of the lake, reduce flooding events, and improve drainage into the lake).

Progress report: A matrix identifying proposed aquatic plant harvest areas, recommended methods, and scheduling was completed in April 2001 and presented to the public for discussion on May 13. Based on public comments, a new harvest map (and notes on areas to avoid) was prepared. A final matrix of responsible parties and methods of removal was prepared. The restoration plan calls for considerable lakeside resident participation in the harvest plan and hopes to also enlist diver teams to remove lily roots from the lake bottom.

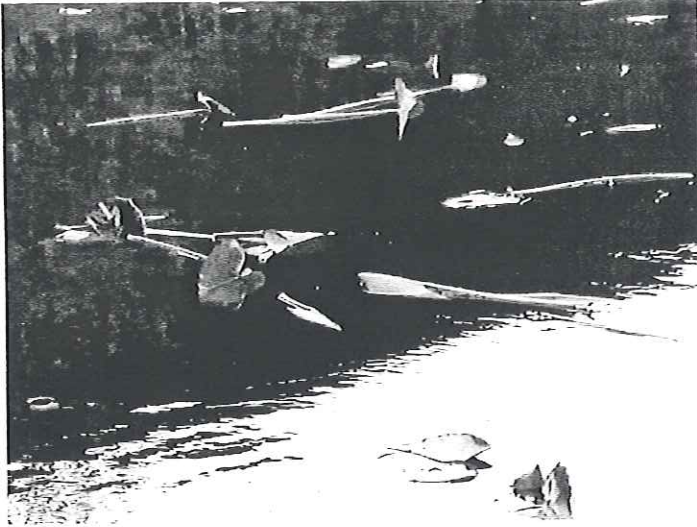
CBS staff and their contractor initiated experimental plant harvest in May 2001 using a rented gasoline-powered weed cutter and skiff. Channels in lily pads were cut along the north side of the Spit area and along the western lake shore to test the capabilities of the equipment and make adjustments to improve efficiency. Boat access routes were also cleared near the Wrinklneck Spit. The weed-hedge cutter proved efficient, with a permanent mounting plate fabricated and installed on the bow of the skiff to simplify the cutting operation. Some harvest occurred again in fall 2001 prior to the plants degrading and dying out in late fall. Approximately ½ acre of plants was removed during 2001 using the portable weed cutter.



Lily roots are extensively anchored and difficult to remove. Also, lake visibility is low, compounding problems for

diver removal. To date, no volunteer dive teams have attempted root harvest. In June 2002, the CBS was notified that it will receive new grant funds for use between January 2003 and June 2004 for hiring professional divers to complete root removal in high use areas and to complete small-scale dredging at several identified priority areas. Until that time, reliance on skiff-deployed weed cutters will continue to be the principal means of removing lily stems and clearing pathways around the lake. Priority areas remain the Spit area, the mouth of the lake outlet channel, and popular fishing spots on the west shore of the lake.

Task Summary: Difficult challenges are posed by the extensively anchored lily root systems, requiring dredging or a professional dive team to permanently remove roots. Sub-surface cutting of lily stems using the skiff-deployed weed cutter is effective in the short-term for



clearing small lake areas. Continued effort will be placed on getting more student research projects and other volunteer harvest efforts off the ground to supplement CBS and professional harvest teams.

Dredging sediment and vegetation from the lake outlet channel in June 2001 and the Wrinklneck Creek delta in February 2002 have been very successful in removing lily pad, bogbean and mareetail from about $\frac{3}{4}$ acres of shallow shoreline areas. Further details

on the success of dredging efforts are discussed under Task 3 below.

Grade: C (manual plant harvest); A (dredge (backhoe) removal of plants)

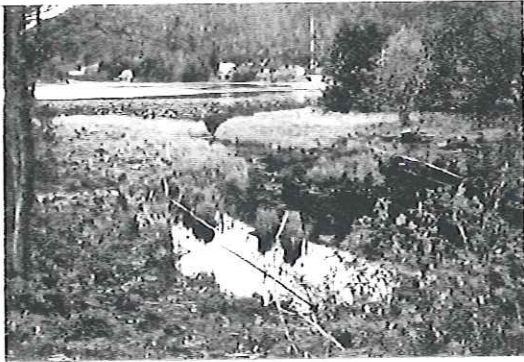
3. Dredge and stabilize the lake outlet channel and Wrinklneck Creek delta

An important tool in actively managing eutrophic lakes is dredging to remove accumulated sediments and vegetation that reduce water flow. The Swan Lake outlet channel controls the lake's height, water flow out of the lake and affects street flooding in creek crossings. Deepening the lake outlet channel also allows improved management of shallow shoreline vegetation and enhances recreational options for the area.

This task serves restoration objective 2 (control and reduce nuisance plant growth in the lake through active management) and objective 3 (increase water flow out of the lake, reduce flooding events, and improve drainage into the lake).

Progress report: Federal and state permits were acquired in February 2001, including a Corps of Engineers Nationwide Permit for Restoration. Outlet channel dredging was completed from June 19-22, 2001. The channel was surveyed before dredging and lake height and crest gages installed by the USGS to measure changes in lake elevation over time. Approximately 240 cubic yards of material were removed from the channel, with an average channel deepening of three to four feet. Photographs were taken to document "before and after" conditions. Lake height elevation measurements after dredging confirmed the moderating effect on peak (fall) lake heights and the slight lowering of the average lake height over the year. This has reduced the

SWAN LAKE OUTLET CHANNEL, PRE AND POST DREDGING CONDITIONS



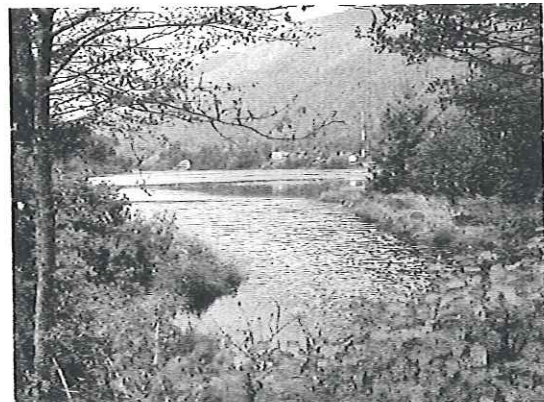
Swan Lake outlet channel, pre-dredge condition, May 2001



Vegetation and sediment removal, Swan Lake outlet channel, June 19, 2001



Swan Lake outlet channel, post dredging condition, June 21, 2001



Swan Lake outlet, post dredging view, June 2001

WRINKLENECK CREEK DELTA DREDGING PROJECT, PRE AND POST CONDITIONS



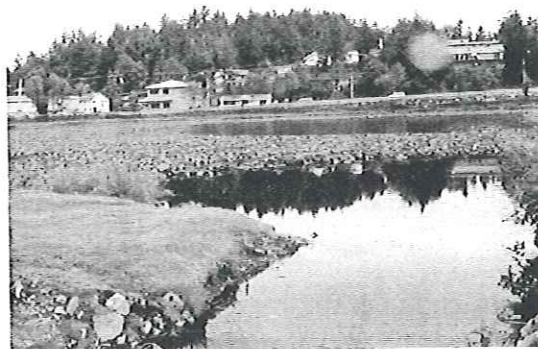
Wrinkleneck Creek delta, before dredging, October 2001



Wrinkleneck Creek channel, October 2001



Wrinkleneck Cr delta, after dredging, June 2002



Wrinkleneck Creek channel, June 2002

Post-dredging views of the delta



potential for back street flooding. Lake elevation just prior to dredging in June 2001 was 27.62 ft. Example fall elevations were 27.60 ft (November 26, 2001) and 27.84 ft (December 10, 2001). Early April 2002 lake elevation was 27.54 feet, confirming the more moderate range in post-dredging lake elevations through the year.

The Wrinklneck Creek delta dredge project was completed in February 2002. The perimeter of the dredge area was staked, photographed, and a silt screen installed to contain sediment and turbidity and protect fisheries. Log cribs, steel plating, and gravel work pads were used to protect the banks and grasses of the Spit area and to support heavy backhoes and trucks. An estimated 483 cubic yards of sediment and vegetation were removed from the delta. The delta was deepened by 2 to 3 feet and the lake entrance channel at the mouth of Wrinklneck Creek stabilized. Photographs were taken to document “before and after” conditions.

Task Summary: The two dredging projects were successful from both a visual and functional standpoint. Excellent contouring of banks characterized the outlet dredge project. The deepening of the outlet channel and delta areas has improved water flow out of, and into, the lake and increase habitat and recreational uses of the two areas. Further “touch up” dredging will be needed at the outer perimeter of the delta in areas that were not accessible using the backhoe. In summary, dredging is the most effective and permanent solution to clearing and controlling the excessive growth of nuisance aquatic plants in small areas.

Grade: A (lake outlet channel); B+ (Wrinklneck Creek delta)

4. Citizen and professional water quality monitoring

A vital aspect of lake restoration and rehabilitation is water quality monitoring. Data provide an objective “yardstick” against which to evaluate the success of rehabilitation efforts over time. The *Swan Lake Watershed Recovery Strategy* completed in January 2000 identified the need for both citizen and professional staff participation in water quality monitoring in the watershed. The relevant task called for efforts to “Expand the information base on the hydrology, physical, biological, and chemical characteristics of the Swan Lake Watershed through a citizen-based inventory and monitoring program”.

Citizen monitoring builds stewardship. While the Swan Lake watershed is not polluted in the classical sense, the lake is eutrophic, and hard trend data will allow documentation of reductions in nutrients, sediments, oils and other pollutants entering Swan Lake. Tracking dissolved oxygen, turbidity, pH and temperature over several seasons and years provides a running “report card” on the health of the watershed. This task serves restoration objective 4 (actively address the source of



eutrophication, not just treat the symptoms), objective 5 (manage stormwater quality and quantity to reduce pollutants entering Swan Lake and its tributaries) and objective 7 (conduct monitoring, research and instruction to better understand lake and watershed processes and to objectively evaluate trends in water quality over time).

Progress report: Prior to monitoring, a Quality Assurance Project Plan (QAPP) was completed in August 2001 to guide data collection by student, CBS, ADEC and contract monitors. The *Guide to Volunteer and Agency Water Quality Monitoring in the Swan Lake Watershed and a Quality Assurance Project Plan* lays out the objectives, parameters, sampling stations, data management and reporting requirements to ensure high quality and credible data. Professional data on lake dissolved oxygen levels, total suspended solids, and turbidity have been collected since 1999. Student monitoring began in September 2001, and was conducted monthly from January 2002 through May 2002. Six different classes have been involved, with student samplers organized into teams of four. Hack kit reagents, supplies, and training support are provided by the municipality. Through April 2002, over 371 hours of student field time had been devoted to monitoring Swan Lake and the two creeks.

Stormwater runoff is an important source of pollutants to the lake. Documenting stormwater quality and nutrient source loading in the watershed is essential to controlling these sources. Nutrient concentrations, measured as nitrates and phosphates, have been documented by students at several stations. Results to date suggest relatively low to normal levels of nutrients entering the lake. Dissolved oxygen concentrations measured by a combination of student, CBS and contractors at multiple stations in the watershed over winter, spring and summer seasons are at acceptable levels. Levels of dissolved oxygen typically ranged from 7 to 14 mg/liter throughout the watershed, varying with the season. Winter DO concentrations under the lake ice ranged from 3.5 to 10.5 mg/l, depending on station location. Lake bottom levels are naturally low during winter periods. Turbidity, TSS, and settleable solids levels have been documented professionally in the lake and creeks since October 2001. Stormwater outfall effluents have also been sampled for sediments. The relatively low levels of sediments discharged from major stormwater outfalls suggest that the street sediment catch basins, and regular cleanout of the sumps, are working effectively. Also, maintenance of the vegetative buffers adjacent to the major creeks is serving as an effective filter for removing sediments and turbidity.

Task Summary: Water quality data collected to date confirm that Swan Lake is not in violation of water quality standards. Low-level, long term introduction of nutrients and sediments and oils, coupled with the natural breakdown and nutrient recycling of plant organic material as part of lake aging, is responsible for the current eutrophication process. Continued monitoring of selected parameters is recommended to better understand and control this process. The challenge with any citizen monitoring program is providing adequate oversight and training to ensure high quality data are gathered. Further effort is required here to “work out the bugs”.

Grade: B+

5. Public education and participation in watershed restoration

Active citizen involvement and hands-on participation in watershed restoration builds stewardship, a sense of pride, and a long-term commitment to maintaining a healthy lake. Resident participation in rehabilitation activities has taken many forms, from annual spring cleanups of trash and garbage, comments and guidance on the Restoration Strategy, collecting monitoring data, reporting illegal fills, spills and other activities in the watershed, and following best management practices to keep the watershed clean. This task serves restoration objective 1 (substantively involve watershed residents as participants in protecting and keeping their watershed clean), objective 6 (educate residents on best management practices to keep the watershed clean) and objective 7 (conduct monitoring, research and instruction to better understand lake and watershed processes and to objectively evaluate trends in water quality over time).

Progress report: The City and Borough of Sitka has coordinated an extensive, and successful, education and citizen involvement effort in the restoration project since early 2000. In addition



to sponsoring annual spring cleanups, a variety of news releases, Public Service Announcements (PSAs), municipal website postings of restoration progress reports, and public meetings on multiple aspects of restoration have occurred. Letters to the Editor have been effectively used to commend residents for their participation in lake restoration activities. Educating the public on ways to protect lake health, including a simple “dos” and “don’ts” in the watershed, was cited as a priority early in the planning process.

In June 2001, the “*Citizen’s Guide to Protecting Water Quality in the Swan Lake Watershed: Little things you can do to help keep your lake and streams clean*” was completed and mailed to each homeowner in the Swan Lake watershed. This brochure identifies the problems in the watershed, sources of pollution, current priorities to address problems, and a “dos and don’ts” list of best management practices that residents should follow. The brochure also educates residents on ways to avoid introducing non-indigenous species, such as milfoil, to the lake. Lastly, it urges residents to get involved in any of the many opportunities to improve watershed health.

In spring 2000, each watershed resident was mailed a copy of ADEC’s *Spill Prevention for Residential Heating Oil Tanks* and the *Consumer Alert for Homeowners with Heating Oil Tanks*. Residential above-ground heating oil tanks are numerous along Wrinklneck Creek and proper maintenance remains a long-term concern in minimizing oil leaks to the creek.

Task Summary: The City and Borough of Sitka has done an outstanding job of notifying and involving interested citizens in all phases of the restoration project. PSAs, news releases, meeting participation, hands-on cleanups, student water quality monitoring, and brochures on proper BMPs for lawn care and heating oil tank checks are examples of educational tools used. Citizens are actively involved in helping restore their watershed.

Grade: A

6. Institutionalizing BMPs for protecting lake and stream health

The municipality has a leadership role in setting a good example for proper management of water quality and land uses in the Swan Lake watershed. This responsibility is highlighted in the Swan Lake Meriting Special Attention (AMSA) and in local land use planning and zoning powers. Institutionalizing best management practices (BMPs) for protecting water quality are one of several important tools used by the CBS, and range from drainage improvements, sediment controls and storm drain sump cleanouts and maintenance, periodic water quality monitoring, controlling erosion and sedimentation from new developments, street cleaning, less use of corrosive salts, maintaining waste oil collection facilities, and retention of vegetated swales, or buffers, along watercourses.

This task serves restoration objective 3 (increase water flow out of the lake, reduce flooding events, and improve drainage into the lake), objective 4 (actively address the source of eutrophication, not just treating the symptoms), objective 5 (manage stormwater quality and quantity to reduce pollutants entering Swan Lake and its tributaries) and objective 7 (conduct monitoring, research and instruction to better understand lake and watershed processes and to objectively evaluate trends in water quality over time).

Progress report: CBS Public Works staff clean sediments from storm drain sumps and retention channels along the Lake Street shoreline at least annually. Retaining the sedge grass community along the lake fringes is an excellent BMP and serves to filter and trap sediments along the lake shoreline. CBS staff annually cleans sediments from the channel between Lake Street and the sedges.

The Arrowhead Creek/Monastery Street sediment pond is also cleaned annually to reduce sediments entering Swan Lake. Sand and gravel are used for winter road maintenance on back streets; use of corrosive chemicals is restricted to only a few major roads. Vegetation in roadside drainage ditches is maintained to maximize filtration and removal of sediments before they reach the lake. Vegetative swales are retained in key stream areas as an effective natural treatment of oils, metals and sediments. Maintenance of the city's waste oil collection facilities at the harbors, and the hazardous waste collection facility at the landfill, help reduce illegal disposal of these wastes into stormdrains. Sanitary sewer connection to the city main system has been verified for all residents in the watershed. Routine inspection of the sanitary sewer system (dye and smoke tests) helps reduce the potential of leaks and fecal coliform contamination of the lake. CBS participation in long term water quality monitoring of Swan Lake, coupled with training of student monitors, has also set a good example of stewardship.

Task Summary: The CBS has a good record of implementing responsible BMPs in routine road maintenance, stormwater drainage, sump cleanouts, waste oil and hazardous waste collection, and water quality monitoring. Additional future tasks are recommended as part of the *Swan Lake Stormwater Control Strategy* (see Element 7).

Grade: B+

7. Complete a Stormwater Control Strategy for the Swan Lake Watershed

Stormwater management is a critical element of water quality protection in the Swan Lake watershed. The quality of stormwater discharges entering the lake and the existing and future controls on stormwater quality and quantity must be documented. This information will help determine the issues and controls the municipality will face should EPA determine at a future date that Sitka is subject to the Phase II stormwater regulations for small municipalities. The six minimum elements of the EPA Phase II regulations were used as a guide in preparing the *Stormwater Control Strategy and Action Plan for the Swan Lake Watershed*.

This task serves restoration objective 5 (manage stormwater quality and quantity to reduce pollutants entering Swan Lake and its tributaries).

Progress report: A draft Stormwater Strategy was completed in May 2002 and reviewed by municipal staff. Maps were secured and analyses of stormwater quality completed and current and newly proposed stormwater controls and management practices summarized. A matrix was completed that evaluates the adequacy of CBS stormwater policies and procedures against each of the EPA minimum elements for a comprehensive stormwater management plan. The final Strategy was completed in June 2002. A map of stormwater directional flow in the watershed on an intersection-to-intersection scale was included as part of the final Strategy.

Task Summary: Considerable review and discussion of the draft Strategy occurred during April and May 2002. The final Strategy was approved by CBS and completed in June 2002. It identifies policies and procedures that are currently adequate and proposes new procedures and policies to improve stormwater management. While the Strategy is voluntary at this time and is geographically limited to the Swan Lake watershed, it should also prove very useful should EPA determine that a stormwater management plan is required for the entire municipality. The Strategy is structured to provide systematic guidance to CBS should that occur.

Grade: B+

8. Arrowhead Creek/Monastery Street drainage improvements

This intersection has historically experienced flooding and sedimentation. It is a collection point for drainage coming from both the uplands near the High School and Arrowhead Creek. The lack of grade on the Lake Street culvert, undersized culverts and fill encroachment along the

banks of Arrowhead Creek all contribute to poor drainage and periodic flooding. Hydrologic problems affect water quality in the lake. Annual routine maintenance of the settling pond at this intersection helps remove accumulated sediments and increase stormwater storage capacity. During FY02, a variety of options were examined to improve hydraulic efficiency. Routine site drainage improvements are authorized under a Corp of Engineers Nationwide Permit for restoration activities.

This task serves restoration objective 3 (increase water flow out of the lake, reduce flooding events, and improve drainage into the lake) and objective 5 (manage stormwater quality and quantity to reduce pollutants entering Swan Lake and its tributaries).

Progress report: Discussions among members of the Swan Lake watershed team (CBS, Forest Service, ADEC, Fish and Game and the project contractor) focused on a number of options for improving drainage. Installation of a 70 ft length of culvert linked to the Lake Street culvert, continued maintenance dredging of the settling pond, replacement of the Monastery Street culvert and conducting a hydraulic survey of the area were all discussed. An April 2002 field assessment by the watershed team resulted in a consensus on the need for a hydraulic survey and channel assessment by Forest Service hydrologists. The survey was completed in May 2002 and concluded that flow would best be improved through installing a wing wall/apron inlet retrofit to the Lake Street culvert, coupled with a headwall inlet (culvert barrel should be cut flush to the road sub-grade) for the Monastery Street culvert. Replacement of the Monastery Street culvert with a 60" x 46" pipe arch culvert is to be considered as a future task should retrofits prove ineffective.

Task Summary: A comprehensive review and hydraulic analysis of the site was completed by Forest Service hydrologists in May 2002. Watershed team consensus was reached to use retrofits at this time, recognizing that they may not be entirely successful. Wing wall structures were purchased in June and installed in July 2002. Annual mucking out of the settling pond by CBS Public Works Maintenance staff is also prescribed. Depending on the near-term success or failure of these culvert retrofits, further improvements and adjustments may be necessary at the site.

Grade: B

9. Future priorities for lake and watershed rehabilitation

Slowing, and eventually reversing, the lake aging process is time consuming and costly. Indeed, the *Swan Lake Watershed Recovery Strategy and Action Plan* acknowledges and anticipates this challenge by including both near term (years 2000 through 2002) and long-term (years 2002 and beyond) tasks. Any comprehensive rehabilitation approach must address both the *causes* of eutrophication (through nutrient controls, monitoring, BMPs and policies) and the *symptoms* of eutrophication (physical manipulation by dredging and harvesting plants).

Restoration priorities for the years 2002 and beyond include:

- *Initiate further dredging in small areas of the lake not accessible by shore-based equipment.*
- *Continue selective harvest of lily pads in high use recreational areas at the lake outlet and the Spit area. Conduct demonstration/experimental projects on the effectiveness of various aquatic plant harvest and other control techniques.*
- *Upgrade culverts and drainage at the intersection of Monastery Street and Wrinklneck Creek.*
- *Continue student and professional water quality monitoring to better evaluate water quality trends over time.*
- *Continue to evaluate resident compliance with Swan Lake AMSA streamside buffer protections and complete a vegetation and forest park management manual to guide lake and streamside revegetation, reseeding and tree/brush clearing in the AMSA.*
- *Implement the recently completed Swan Lake Stormwater Control Strategy.*
- *Continue a dialogue with other Southeast communities on common lake problems and possible sharing of resources and equipment in managing eutrophic lakes.*

Lake restoration is an ongoing, long-term effort. Over \$190,000 in federal and local matching funds have been spent on watershed restoration over the last three years. New funding is necessary to carry out many of the remaining high priority restoration tasks. A combination of federal and state grants and local match will remain the likely sources. To date, Section 319 grants awarded from the Alaska Department of Environmental Conservation have funded the first three years of restoration work. Importantly, the City and Borough of Sitka recently received notice that they were awarded a \$89,100 grant from NOAA's Coastal Impact Assistance Program (CIAP) for continuing small-scale dredging and plant harvest as part of the ongoing rehabilitation project. These federal funds will be available starting January 2003. Other sources will be applied for by CBS over the coming years.

APPENDICES

Larry C. Zervos

613 Lake Street
Sitka, Alaska 99835

February 2, 2002

Mark Buggins
City and Borough of Sitka
100 Lincoln Street
Sitka, Alaska
99835

Re: Grant for Swan Lake Improvement Project

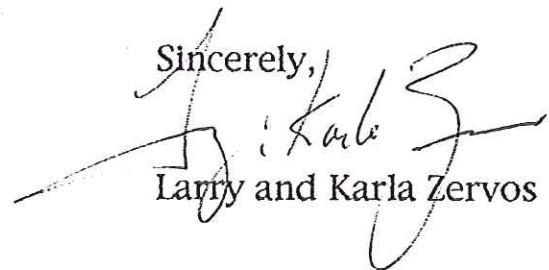
Dear Mr. Buggins:

We are writing to encourage and support the City's efforts to improve Swan Lake. This unique urban lake is an important part of Sitka's past and present and it needs attention and maintenance.

During the last three years the City has cleaned up the area around the lake, restructured the lake drainage and removed the excess silt from the outflow area. But much work remains to be done to improve water quality and flow, to remove silt from areas where the creeks flow into the lake, to reduce the aquatic vegetation and to enhance fish habitat.

We support the City in these efforts and we believe that preserving Swan Lake enhances the quality of life for all Sitkans by improving the beauty of our area and by increasing outdoor recreational opportunities. If we can help you in these efforts, please let us know.

Sincerely,



Larry and Karla Zervos

February 6, 2002

To: Coastal Impact, Grant Committee

From: Steve Paustian
502 Halibut Pt. Rd.
Sitka, Alaska

I am writing in support of the City of Sitka's grant proposal for Phase II of the Swan Lake rehabilitation project. My home is located near the northeast shore of the lake. I am the Watershed Program Manager for the Tongass National Forest and have advised the City and their consultants on remediation options for Swan Lake.

Swan Lake is a magnet for a variety of local recreation activities including kids fishing derby, fly fishing, non-motorized boating, bird watching and ice-skating. The lakes riparian zone provides diverse habitat for many species of waterfowl, birds and aquatic organisms. I commonly observe Great Blue Heron, Bald Eagles, Trumpeter Swans and a variety of duck species from my home.

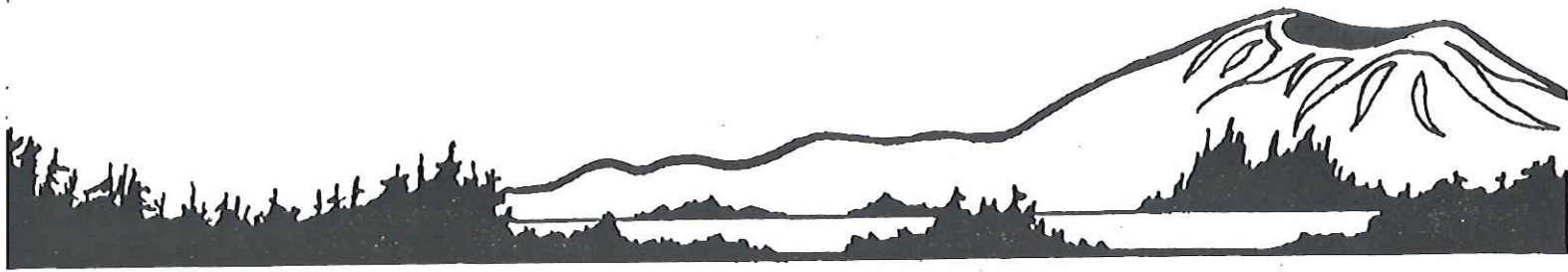
Swan Lake is a uniquely important wetland ecosystem because it is located in the middle of an urban area. This "people pressure" has impacted the health of the lake over the past several years. Some key ecological concerns associated with Swan Lake include solid waste pollution, accelerated eutrophication from nutrient rich urban runoff and increased risk of flooding.

The City is to be commended on its recent efforts to address these concerns. They have developed a solid restoration plan in cooperation with the community, State and Federal agencies. Students from the local school district have been heavily involved in monitoring lake health and in helping with annual cleanup work. Great strides have been made in removal of solid wastes from Swan Lake and its tributary streams. Selective removal of pond lilies shows promise as a measure to reduce the rate of detrital buildup along the margins of the lake. The dredging activity proposed for this phase of the project will help improve flushing rates for nutrients and fine sediments entering the lake. This work will also reduce the risk of extensive flooding in low lying areas around the lake that could occur during a large storm event.

I hope that you will approve Sitka's funding request so that the community can reach a major milestone in the rehabilitation of Swan Lake.

Sincerely,

/s/ Steve J Paustian (spaustian@fs.fed.us)



Sitka State Parks Citizens Advisory Board, Box 142, Sitka, AK. 99835

February 4, 2002

Mr. A.E. Zimmer
Administrator, City and Borough of Sitka
100 Lincoln St.
Sitka, Alaska 99835

Dear Mr. Zimmer:

The Sitka State Parks Citizens Advisory Board which has been active in developing and implementing recreational opportunities on local State lands has also supported and worked closely with other recreational entities in Sitka over the years.

The deteriorating condition of Swan Lake has been discussed yearly by the Board and we have supported the recent efforts to clean the lake and its tributaries.

We fully support the City and Borough of Sitka application for a grant to dredge the outlet area and to deepen areas as needed to prevent additional eutrofication.

Swan Lake provides many pleasurable experiences to both local citizens and visitors; we trust this proposal will enhance and widen its appeal to all who enjoy it.

Sincerely,

Sitka State Parks Citizens Advisory Board


Marlys E. Tedin, Chair.

February 4, 2002

Mr. A. E. Zimmer
Administrator, City and Borough of Sitka
100 Lincoln St.
Sitka, Alaska 99835

Dear Mr. Zimmer:

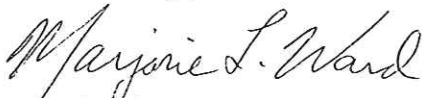
This letter is in support of the City and Borough of Sitka applying for a grant to dredge the outlet of Swan Lake and to deepen areas to prevent further shallowing of the lake.


Swan Lake which is an attractive feature of Sitka is endangered by the accumulation of silt and debris over the years. It is an important area for both spring and fall migratory birds - an example of which are the four Trumpeter Swans that have been present in this area since last fall and have been seen frequently using the lake (even resting on it when it has been covered with ice).

We have authored a chapter on Sitka in a book 'Finding Birds in Alaska' to be published this year by the American Birding Association in which Swan Lake is noted as a good to excellent site for seeing a selection of both land birds and water fowl present in Alaska.

We support any effort to enhance and preserve Swan Lake because it is an important part of Sitka.

Sincerely,


Marjorie L. Ward
P.O. Box 22
Sitka


Marlys E. Tedin
P.O. Box 892
Sitka

STATE OF ALASKA

OFFICE OF THE GOVERNOR

OFFICE OF MANAGEMENT AND BUDGET
DIVISION OF GOVERNMENTAL COORDINATION

TONY KNOWLES, GOVERNOR

SOUTH CENTRAL REGIONAL OFFICE
550 W. 7TH AVENUE, SUITE 1660
ANCHORAGE, ALASKA 99501
PH: (907) 269-7470/FAX: (907) 269-3981

CENTRAL OFFICE
P.O. BOX 110030
JUNEAU, ALASKA 99811-0030
PH: (907) 465-3562/FAX: (907) 465-3075

PIPELINE COORDINATOR'S OFFICE
411 WEST 4TH AVENUE, SUITE 2C
ANCHORAGE, ALASKA 99501-2343
PH: (907) 271-4317/FAX: (907) 272-3829

June 25, 2002

Mark Buggins
City & Borough of Sitka
100 Lincoln Street
Sitka, AK 99835

Dear Mr. Buggins:

On behalf of the Coastal Policy Council, I would like to thank you for your interest in receiving a Coastal Impact Assistance Program, Competitive Grant Program grant. I am pleased to inform you that your project, Swan Lake Rehabilitation & Enhancement, has been selected for a grant award in the amount of \$89,100. I also need to advise you of several important conditions regarding these grant funds.

First, though the Division of Governmental Coordination received authority from the legislature to accept the federal CIAP funds, the authority is not effective until January 1, 2003. Therefore, **grant funds will not be available until after January 1.**

If you will be unable to use all or a portion of the funds awarded, please let me know by **July 30, 2002.**

Second, as soon as possible prior to January 1, a grant administrator from the Department of Community and Economic Development (DCED) will contact you to develop a grant agreement. The grant agreement is the legal document which governs the administration of the grant and includes:

1. The amount of CIAP funds provided, as well as the amount and source of other funds committed to the project.
2. A detailed project description outlining the scope of work to be completed.
3. A detailed budget for implementation of project activities.
4. The schedule for implementation of project activities.
5. The general and special terms and conditions associated with the grant.

Third, this notification of project selection does not imply approval of all activities or specific costs proposed. CIAP grant agreements are administered on a **cost reimbursable** basis. Any

costs you incur prior to an executed grant agreement and January 1, 2003 will not be reimbursed.

Finally, if your project involves GIS mapping, the Coastal Policy Council requires that you follow the GIS Protocols developed by the Division of Governmental Coordination. To obtain a copy of the protocols, contact Chas Dense at Chas_Dense@gov.state.ak.us or call him at 907-465-3937. Also, mapping projects in the same region should be coordinated to avoid duplication and share information (see mapping projects that received an award listed below).

In the next month, DGC will forward all projects awarded a grant to the National Oceanic and Atmospheric Administration (NOAA) for their review and approval of disbursement of the federal funds. We do not anticipate any problems in this process.

Again, thank you for your interest. It is very encouraging to know that so many people are looking for ways to improve Alaska's coasts.

Sincerely,



Lisa A. Weissler
CIAP Coordinator

Funded Map Projects:

Lake and Peninsula Borough Community Profile Mapping
Nome District Mapping and GIS Project
Western Alaska and Bristol Bay Environmental Sensitivity Index Mapping
Kachemak Bay Research Reserve Mapping Intertidal Habitats
Kenai Coastline Maps and Models
Anchorage Bowl Coastal Resource Atlas Project
Mat-Su Borough GIS Mapping of Coastal Zone Watershed
Wrangell Resource and Community Mapping

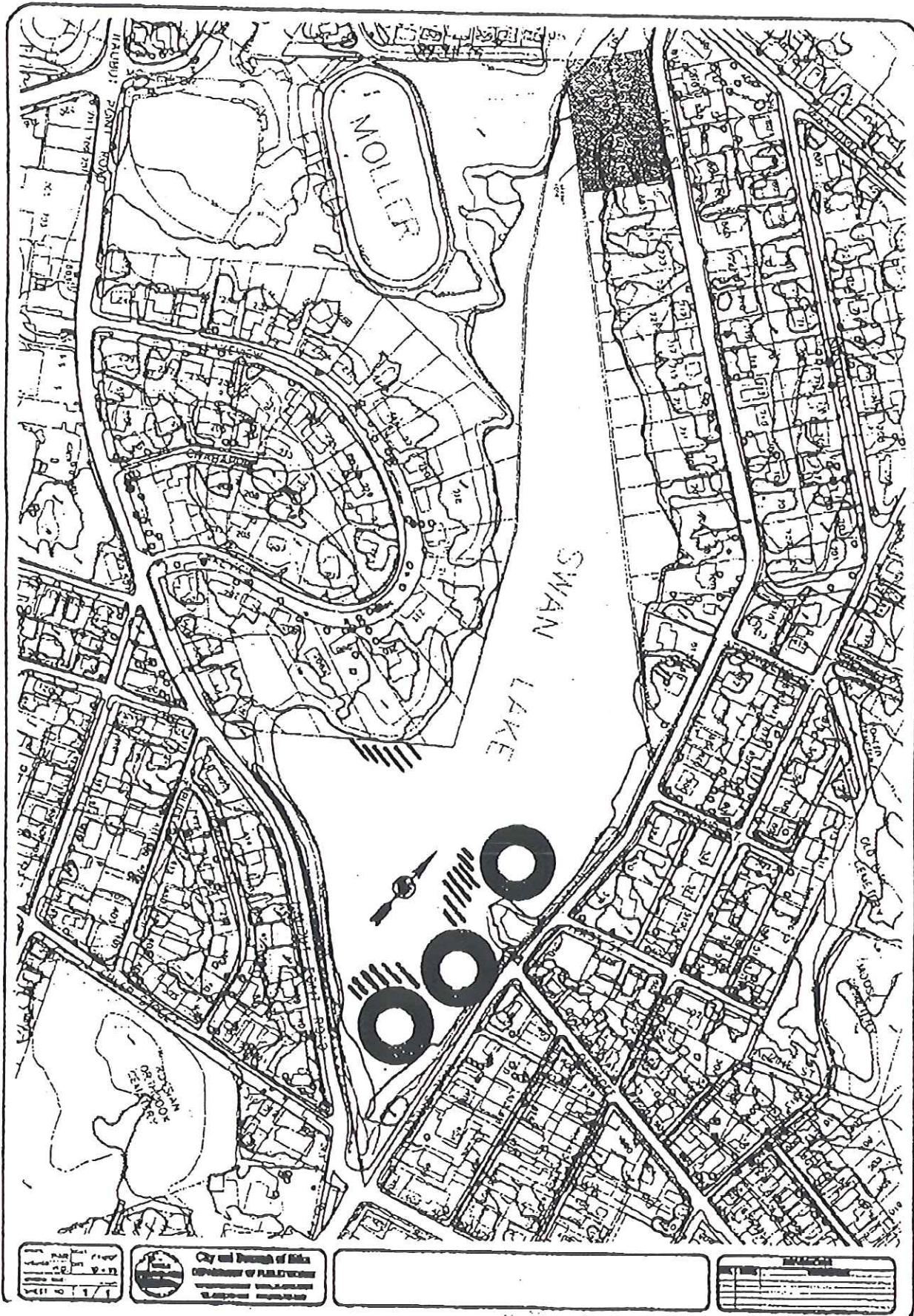


Figure 1. Dredge sites (circles) and lily pad harvest zones (hatched), Swan Lake (not to scale)

**A CITIZEN'S GUIDE TO
PROTECTING WATER
QUALITY IN THE SWAN
LAKE WATERSHED**

*Little things you can do to help
keep your lake and streams clean*



By the
City and Borough of Sitka
100 Lincoln Street
Sitka, Alaska 99835

June 2001



Lake/Stream	Site#	Date	Per Time	TtlTime	AirTemp	24HrPep	Cir	Cldy	Shwrs	Rain	Snow	WtrTemp	pH	Cond	Turb	DO	Nit
Swan Lake	SW3	09/11/01	10:30 AM	4.0	17	0.00	N	Y	N	N	N	14	7	130.1		5	0.04
Swan Lake	SW1	09/11/01	1:00 PM	2.0	17	0.00	N	Y	N	N	N	14	6	234		9	
Swan Lake	SW1	09/11/01	1:00 PM	2.0	17	0.00	N	Y	N	N	N	14	6	234		9	
Wrinkleneck Creek	WC1	09/11/01	9:05 AM	3.0	19	0.00	Y	N	N	N	N	10	7	68	0.1	13	
Wrinkleneck Creek	WC1	09/11/01	1:00 PM	3.0	15	0.00	N	Y	Y	N	N	8	7	70.7	0.8	15	
Arrowhead Creek	AC1	09/11/01	2:00 PM	3.0	12	0.00	N	N	Y	N	N	9	6	4.9		9	
Swan Lake	SW3	09/11/01	2:30 PM	4.0	17	0.00	N	Y	N	N	N	12	7	123.7	5.8	10	
Swan Lake	SW3	09/11/01	12:55 PM	3.0	15	0.00	N	Y	N	N	N	10	7	121.3	15	10	
Swan Lake	SW2	09/11/01	2:30 PM	2.0	15	0.00	N	Y	N	N	N	12	6	4.3		8	
Swan Lake	SW1	09/11/01	2:30 PM	3.0	18	0.00	N	Y	N	N	N	14	6	235.3	3.5	8	0
Arrowhead Creek	AC1	09/11/01	9:05 AM	2.0	14	0.00	N	Y	N	N	N	10	10	71		7	
Wrinkleneck Creek	WC2	09/11/01	2:33 PM	3.0	18	0.00	N	Y	N	N	N	10	10			3	
Wrinkleneck Creek	WC2	09/11/01	10:00 AM	4.0	18	0.00	N	Y	N	N	N	8	8			8	
Swan Lake	SW2	09/11/01	9:05 AM	4.0	15	0.00	N	N	N	Y	N	13	7	81	3.2	10	
Wrinkleneck Creek	WC1	09/11/01	10:55 AM	4.0	16	0.00	N	Y	N	N	N	9	6	71.1	1.8	12	
Arrowhead Creek	AC1	09/11/01	10:50 AM	4.0	11	0.00	N	Y	N	N	N	9	6	87.4	4.3	12	
Swan Lake	SW1	09/11/01	9:13 AM	3.0	15	0.00	N	Y	N	N	N	11	6	77.6	3.7	13	
Wrinkleneck Creek	WC1	09/11/01	2:30 PM	3.0	10	0.00	N	Y	N	N	N	6	6	67.5	1.2		
Swan Lake	SW2	09/11/01	1:00 PM	4.0	18	0.00	N	Y	N	N	N	15	6	80.1	4.2		
Wrinkleneck Creek	WC2	09/11/01	9:07 AM	5.0	17	0.00	N	Y	N	Y	N	10	6	67.1			
Swan Lake	SW3	09/11/01	9:03 AM	4.0	15	0.00	N	Y	Y	N	N	11	6	130.3			
Wrinkleneck Creek	WC2	09/11/01	1:02 AM	4.0	17	0.00	N	Y	N	N	N	10	10				
Wrinkleneck Creek	WC1	09/12/01	9:00 AM	1.0	12	0.03	N	N	Y	N	N	8	6	67.5	0.9	10	
Swan Lake	SW1	09/12/01	9:00 AM	3.0	13	0.03	N	N	N	Y	N	12	6	235.6	4.6	7	
Wrinkleneck Creek	WC2	09/12/01	8:50 AM	4.0	13	0.03	N	Y	Y	N	N	10	6	9.5		11	0
Arrowhead Creek	AC1	09/12/01	8:50 AM	3.0	10	0.03	N	Y	Y	N	N	9	6	82.6	4.1	6	
Swan Lake	SW3	09/12/01	8:45 AM	1.0	14	0.03	N	N	Y	N	N	11	6	125	21	6	
Swan Lake	sw2	09/12/01	9:00 AM	4.0	14	0.03	N	Y	N	Y	N	13	5	81.3	4.2	7	
Wrinkleneck Creek	WC1	09/26/01	9:00 AM	1.0	15	0.31	Y	Y	N	N	N	8	6	46.5	0.5	11	0
Wrinkleneck Creek	WC1	09/26/01	1:00 PM	3.0	15	0.31	N	N	N	Y	N	8	6	44.7	0.1	14	
Swan Lake	SW1	09/26/01	8:30 AM	3.0	12	0.31	N	Y	N	N	N	9	5	50	5.6		
Swan Lake	SW3	09/26/01	8:27 AM	1.0	14	0.31	Y	N	N	N	N	10	6	71.5	5.1	9	0
Arrowhead Creek	AC1	09/26/01	8:20 AM	5.0	11	0.31	N	Y	N	N	N	9	7	63.2	7.5	10	0.8
Swan Lake	sw2	09/26/01	8:30 AM	5.0	12	0.31	N	Y	N	N	N	10	6	50.7	5	8	
Wrinkleneck Creek	WC2	09/26/01	9:00 AM	2.0	11	0.31	N	Y	N	N	N	7	5	47	1	11	
Swan Lake	SW3	09/27/01	10:30 AM	4.0	15	0.27	N	Y	N	N	N	10	6	72.9	6.2	7	0.05

SWAN LAKE ANNUAL COMMUNITY-BASED WATERSHED CLEANUP

During the period of April 15, to April 25, 2002 volunteers from the community of Sitka dragged debris from the shoreline of Swan Lake and Wrinkleneck Creek.

The resident at 502 Halibut Point Road gathered an eighty-pound load. This included a couple of inflatable balls, a metal pipe, a tire and rim, and much paper, plastic and aluminum pieces. This was all pulled out of the lake at the southwestern corner.

On Saturday April 20, in conjunction with Earth Day, the greatest effort was expended with 12 people spending from one to five hours walking the lakeshore. Eight people gathered 10-12 bags of paper, plastic, metal and wood from the shoreline bordering Halibut Point Road and Lake Street adjacent to the outlet end of the lake. Three of the volunteers concentrated efforts on the upper end of the lake on the west side where a great deal of debris was carried out. At least four heavy bags of glass bottles were found. Other items were a small bicycle, a few pieces of wood, another tire and various bits of paper, plastic, metal and toys. Five of the volunteers finished up the day's effort by combing the north end of the lake bordering Lake Street with more of the same types of debris taken out there. An aluminum window frame and a length of transite pipe were the only unusual pieces taken out. The total weight of the debris taken out on Saturday was 660 pounds.

Local effort by residents along Wrinkleneck Creek have made the creek fairly debris free. The resident at 405 Degroff has a lot of things stored along the creek-bed but a call from the Fish and Game office and a follow up call by a City of Sitka person prompted this resident to clean up the creek bank on his property. Although this cleanup was not itemized or weighed the appearance of the shoreline across this lot improved. A couple of bags of mostly paper and plastic were picked up by a volunteer along the creek on April 25.

A grand total of 770 pounds of "stuff" was gathered and weighed during the cleanup effort.

George Erickson

il 26, 2002

Letters To The Editor

Unsung Heroes

Dear Editor: We would like to express our sincere appreciation to several members of the community of Sitka who have volunteered many hours tutoring English as a second language students in speaking, reading, writing, comprehension and cultural traditions that often present an overwhelming obstacle to becoming part of community life for peoples of other language groups.

These devoted philanthropists are Amy Kipp Phillips, Sommer Shafer, Josh Horan, Laura Elly, Marion Allen, Renee Rensmeyer and Sarah Lawrie. Know you have made an enormous difference in the lives of your students by extending your hand, your help and your friendship.

There are still other ESL students who want to improve or receive assistance with communication skills. This is an important and rewarding experience for both tutor and student. If you should want to help another in this way, or just to inquire about our tutor program, please call the Adult Education Department at 747-7717.

Thanks is just not enough, so "a thousand thanks" to our ESL tutors for an extremely successful academic year.

Karen Johnson, instructor, English as a second language, Adult Education Department, University of Alaska Southeast

Cultural Thanks

Dear Editor: Sitka Native Education Program had a wonderful end-of-the-year program the evening of Wednesday, April 24, at Centennial Hall. The students proudly displayed their efforts to a standing-room-only crowd. Gunalcheesh.

To everyone who helped, and all

Swan Lake Cleanup

Dear Editor: On April 20, residents of the city of Sitka participated in the annual Swan Lake Cleanup. A total of 13 people climbed, crawled and waded around Swan Lake to pull debris out of the lake. Although the numbers were few, the effort was great and over 800 pounds of "stuff" was removed.

Sitkans should thank Kathy Erickson, David Evenson, Greg Littlefield, Larry Zervos, Este Fielding, Paula Hardy, Phil Mooney, Linda Speerstra, Kelsey Erickson, Alice Hanson, Ann Chojnacki and Steve Paustian for their efforts.

Residents along Wrinklneck Creek should also be commended for keeping the creek bed clean during the past year.

George Erickson, Sitka

By-Pass Road

Dear Editor: This Tuesday some concerned citizens suggested to our Assembly that we need to make a by-pass road for construction equipment using Indian River Road.

This is a "not in our neighborhood" request, "now that they have their houses built by construction equipment, they do not want to see them anymore. What about the houses on HPR and SMC, do they get by-pass roads? The speed of equipment is higher and there are many more people affected.

I have been on Indian River Road and it seems plenty wide for both pedestrian and vehicular traffic; unfortunately while the vehicles utilize the rules of the road the pedestrians seem to wander wherever they want to.

Please teach your children the rules of the road. Ask any professional driver and they will tell you their worst nightmare is hitting a pedestri-

Wh Hoi

SHIMON
This once-didn't hide the hunt as world met h day to disc

Its aquaribit of an blue whale. leaves sits and a local steak, whale -- what it menu" after ing Comm here.

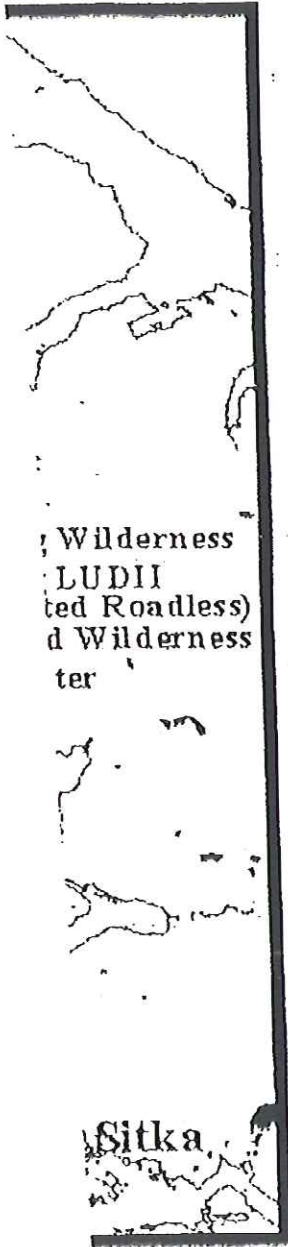
"We bor Norway to whaling ind Wada, a Kaikyokan

Sitka

A chance northwest around 40. Cloudy Sat with highs in the low and Monday and lows in rain 60 per day with low the mid at chance of s in the upper

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Bay gain

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