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# The Shorebird Sister Schools Program

## Introduction

**T**he Shorebird Sister Schools Program is an interactive Internet education program designed to educate students about shorebird ecology, wetland conservation, migration, and cultures throughout the Western Hemisphere. The program was initiated in Homer, Alaska, in 1994, with 17 schools participating on the West Coast (U.S. Fish and Wildlife Service 1995). The program was expanded in 1996 to include thousands of schools throughout the Western Hemisphere (U.S. Fish and Wildlife Service 1997). Students not only learn about shorebird ecology, but also about wetland ecosystems and cultures throughout the world. There are now three major components of the program: an Arctic-nesting shorebird curriculum, a Shorebird Sister Schools Program Web page, and a shorebird listserv.

The goals of the program are to teach students about the fascinating migration of Arctic-nesting shorebirds and the importance of conserving wetland habitats for their survival. They learn the concept of conserving these critical habitat areas for the continuing benefit of shorebirds and other migratory bird species. Finally, students learn more about other cultures in the world so they will have a better understanding of the idea of "sharing" a resource with others.

### Arctic-nesting Shorebird Curriculum

An Arctic-nesting shorebird curriculum was completed in March 1998 (U.S. Fish and Wildlife Service 1998). It is a K-12 curriculum with teacher background information and children activities for all the major

components of shorebird life history and ecology. These include an introduction ("What are shorebirds?"); shorebird adaptations, habitat, nesting and breeding, and migration; the Shorebird Sister Schools Program; field trips; and a "tying it all together" section. Each of these chapters includes activities for all age groups. Additional appendices provide more in-depth or advanced information about shorebird ecology. Included with the curriculum is a full-color poster of shorebird wintering grounds, stopovers, and nesting grounds; and a field guide to shorebirds. Available to Alaska teachers are shorebird kits with videos, slides, books, activity pieces, puppets, and posters. The kits can be checked out through inter-library loan at the Alaska Resources Library and Infor-

mation Services in Anchorage, Alaska. The curriculum materials are also being translated into Russian and Spanish, and will be available in the fall of 1998.

### Shorebird Listserv

In 1996, a shorebird E-mail listserv (fws-shorebirds-digest) was developed to allow students to share their own field trip information with other students, ask questions of biologists, and learn about issues of and threats to shorebirds throughout the world. Postings are made each week from Anchorage, Alaska ("Shorebird Central"), providing shorebird life history information and challenging questions for the students. Answers to the questions are given the following week, with another challenging question added.

By the time students are ready to conduct their own shorebird field trips, they have completed an entire lesson within the classroom, including shorebird identification, how to use a field guide, information on where the shorebirds have migrated from, what shorebirds eat, and where and when they nest in the Arctic. Students are encouraged to complete projects (as individuals, as a class, or as an entire school) that make improvements to shorebird habitats or assist individual birds. Many schools choose to conduct beach clean-ups or community wetland clean-ups prior to the arrival of shorebirds.

As Arctic-nesting shorebirds mi-

grate from their wintering grounds to Alaska and the Canadian Arctic, students are watching and waiting for the birds to pass through their communities. Upon arrival, the students conduct their own field trips and submit the data to the listserv. Students from the Arctic regions are excited to know where the birds are each day and anticipate their arrival in May or early June. Students from the wintering grounds are excited to see the shorebirds arrive safely. During the fall migration, the reverse process happens, and students from the Arctic and along the flyway share field notes as the birds are heading back down south.

The concept of migration becomes much more realistic for students, and when we talk about "long-distance migrants" and the tremendous amount of threats to the birds along their journey, it is much easier for them to understand.

To subscribe to the E-mail listserv, send a message, leaving the "subject" line blank, to <listserv@www.fws.gov>. In the body of the message, type "subscribe fws-shorebirds-digest" and your name. (Exclude the quotation marks and do not put your name in parentheses.)

### Worldwide Web Site

In 1996, a Worldwide Web site was created for the program <<http://www.fws.gov/r7envded/sssp.html>> so students could learn more about shorebird ecology, test their



**Figures 1 and 2. Fish & Wildlife biologists host childrens field trips at the Kachemak Bay Shorebird Festival.**



Figure 3. Students at Clark Middle School painted a mural of the birds traveling from their wintering grounds to the nesting grounds.



Figure 4. La Mancha, Veracruz—Many beautiful shorebirds.



shorebird identification skills through on-line quizzes, and track the migration of shorebirds electronically. Curriculum materials were added to the Web site in both English and Spanish to provide educators with classroom materials to use prior to conducting field trips with their students. Currently, translation into Portuguese is being completed.

Additional materials were produced specifically for shorebird enthusiasts and families who are interested in "where the birds are today" and when and where the next shorebird festival is taking place. Links to wetland and other migratory bird ecology and education Web sites are available to enhance the Shorebird Sister Schools Program and learn more about wetland ecosystems. National Wildlife Refuges are highlighted, showing some of the protected areas for shorebirds and other bird species. Endangered species, such as the snowy plover, are highlighted to emphasize added protection in particular sensitive areas. Maps are included to show where the Western Hemisphere Shorebird Reserve Network sites are located, where the major stopover locations are for Arctic-nesting shorebirds, and the locations where they winter, nest, and breed.

A "Just for Kids" section was created that highlights children's artwork, poetry, and Web pages. In addition to sharing information with the many schools involved in the Shore-

bird Sister Schools Program, students are also participating in pen pal exchanges with specific schools. They are exchanging letters, artwork, and interesting things from their own cultures. These projects are highlighted in the Web page for others to enjoy.

### **Project Successes and Evaluation**

The Shorebird Sister Schools Program participation has exploded, going from 17 schools in 1995 to 250 subscribers on the E-mail listserv in 1996 to 800 subscribers in 1998. There are currently 23 countries participating in the program, with thousands of people accessing the Web site each month. Written and oral evaluation of the program shows there was a tremendous need for such a program, and we anticipate further growth.

From the time we established the Shorebird Sister Schools Program on the Worldwide Web until the present, we have received hundreds of positive comments about the quality of information on the Web page. One participant wrote: "Just wanted to drop you a note to say how much I love this program! I'm a mega-shorebird enthusiast, and it thrills me no end to see the flow of E-mail messages over the past few months, especially from school kids."

Although we have already reached thousands, the program is still in its infancy. Several organizations and school groups have applied for grants

successfully and now have received the funds. This will allow them to get more involved, conducting teacher workshops, train-the-trainer workshops, and children's field trips.

Since 1996, workshops have been conducted in Mexico, Russia, Canada, and the United States. Many of these were specific to the Shorebird Sister Schools Program. Others were in conjunction with other migratory bird education programs or wetland workshops. The program has expanded from a Pacific Coast project to a Western Hemisphere project, and countries elsewhere have expressed interest in expanding the project worldwide.

Students participating in the program have not only learned many new skills they can use throughout life, but have contributed to scientific data and research of shorebirds. Students have helped at banding stations, have found flag-banded birds and provided the information to research biologists, and have helped determine

species, numbers, and timing of shorebirds as they migrate to and from their non-breeding to breeding grounds each year.

## Conclusion

The Shorebird Sister Schools Program has been a very successful way to share information with students about shorebird ecology, threats to wetland habitats, and cultures throughout the world. Teachers and students throughout the Western Hemisphere are combining classroom learning, field studies, and computer technology to expand their knowledge and understanding of the importance of shorebirds to wetland ecosystems. They are learning life skills in bird identification, research methods and data collection, wetland ecology, and world cultures and geography. The contributions to society, stemming from the skills learned in the program, are potentially immense.

## References

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