

Linking Shorebird Conservation and Education along Flyways: An Overview of the Shorebird Sister Schools Program¹

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The Shorebird Sister Schools Program (SSSP) is an internet-based environmental education program that provides a forum for students, biologists, and shorebird enthusiasts to track shorebird migration and share observations along flyways. The program's vision is to engage public participation in the conservation of shorebirds and their wetland, grassland, and shoreline ecosystems along flyways. The target audiences are students and educators. However, facilitating interaction between biologists, students, and educators is an essential component of the program. In addition, numerous volunteer shorebird enthusiasts participate in the program and greatly enrich the information that is shared. Partnerships at the local, state, regional, national, and international levels are crucial for this program to function. Although the U.S. Fish and Wildlife Service (USFWS) is responsible for maintaining the primary program components that include a web site, list server, and K-12 curriculum, partner input into each component is essential.

The Shorebird Sister Schools Program (<http://sssp.fws.gov>) began in May of 1994 as a supplemental education program of the Kachemak Bay shorebird festival in Homer, Alaska. The Alaska Maritime National Wildlife Refuge, the local chamber of commerce, and local educators hosted the festival. During the first two years of the festival, 1992 and 1993, school field trips were planned to observe the thousands of shorebirds that stopped to rest and feed for two weeks before continuing to their arctic breeding grounds. The birds' migration stops were predictable and viewing was easy because of a vast open stretch of water and mudflat. Local festival planners recognized that their conservation education efforts were only focused on the short time while the birds were in Homer, so they began looking for a way to make the phenomenon of migration more real to students.

A local teacher proposed the use of e-mail to build an information-sharing network among schools located along the Pacific flyway. Students from each stopover site monitored the progress of shorebird spring mi-

gration and reported their observations by e-mail to other schools participating in the project. In 1994, 17 schools from California to Alaska were connected using a basic Internet e-mail service.

At the start of the program the focus of the effort was to link schools along the United States portion of the Pacific flyway. The program has grown to include links between schools and partners along five flyways in the western and eastern hemispheres. The goal of SSSP is to increase awareness and knowledge and facilitate public participation in the conservation of shorebirds and the wetland, grassland, and shoreline ecosystems they depend on (Chapman et al. 2002b). This paper serves to provide an account of the SSSP development and current status.

In 1996, the program was transferred from the Alaska Maritime National Wildlife Refuge in Homer, Alaska to the USFWS Alaska Regional Office. From 1996 to 2000, the program grew to include a kindergarten to 12th-grade curriculum (De Zeeuw 1998), a World Wide Web site (<http://sssp.fws.gov>), and a faster and more convenient e-mail list server. The program also expanded its geographic coverage to include volunteer program coordinators for Mexico, South America, and Japan and, accordingly, the curriculum was translated into Spanish, Russian, and Japanese. Educator workshops for teachers and non-formal educators were held in Mexico, Argentina, Russia, and numerous places in the United States. The focus of this period was to expand the program along the entire Pacific Flyway and introduce the program to partners along the East-Asian Australasian Flyway. This was possible due to support from USFWS Alaska regional staff and the assignment of a dedicated education specialist who worked with biologists to further develop the program.

The current focus is to continue working along the Pacific Flyway and expand the program to the American Central and Atlantic Flyways through educator workshops, presentations, networking, and developing new partnerships (*fig. 1*). Education and outreach to communities living near and within important coastal and inland habitats that shorebirds depend on along these flyways is critical. In 2000, the SSSP moved to the USFWS National Conservation Training Center.

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Figure 1— The five shorebird migration flyways for shorebirds breeding in northern North America.

The USFWS Alaska regional office continues to maintain the lead coordination for SSSP activities in Alaska and along the East Asian-Australasian and the central Pacific Flyways (Chapman 2002). Also, as part of national support for the program, SSSP receives cross-program support from a number of USFWS offices at the national and regional level, including the Division of International Conservation, the National Wildlife Refuge System, the National Conservation Training Center, and the Division of Migratory Birds. A vital part of national expansion is USFWS staff in each region who have accepted collateral duties as their region’s SSSP coordinator. The World Wide Web site and curriculum are being revised to reflect all flyways in the Western Hemisphere and include, for the first time, non-artic nesting shorebirds.

SSSP curriculum, field trips, and workshops provide a foundation of awareness and knowledge about shorebirds and their habitat. The program goes the next step by providing opportunities for action. Action projects are vital for making the educational linkage to the larger conservation goal: ecosystem conservation along flyways. SSSP action projects include observing shorebirds in the local community and reporting their observations on the SSSP list server; becoming involved with community habitat conservation and nominating their community for a Shorebird Sister City award; learning about other communities along the flyway through pen-pal exchanges; and tracking shorebird migration as it is reported via the SSSP list server.

Students learn that habitats in their own communities are part of a chain of healthy habitats that shorebirds and other migratory species depend on. Expanding the possibilities for students to monitor, research, and participate is an important area of focus for the program. This type of inquiry learning is an important compon-

ent of the National Science Education Standards (National Research Council 1996).

The tracking projects and other participatory projects engage students in real life science—the successes, challenges, and setbacks. Over the years, SSSP has collaborated with the Prince William Sound Science Center, the Point Reyes Bird Observatory, and the U.S. Geological Survey to provide the opportunity for students to track shorebird movements on-line, contribute data, and report banded birds.

In keeping with the program’s vision, the SSSP must connect closely with research and management. A good example is a recent Buff-breasted Sandpiper (*Tryngites subruficollis*) project in which researchers from USGS teamed up with SSSP to involve students and shorebird enthusiasts (Johnson 2002). The U.S. Shorebird Conservation Plan Council provides the link to a network of researchers and managers who work with educators to ensure that SSSP is integrated with shorebird conservation priorities. This strengthens the program’s relevance and guides the program’s expansion in the best direction. Moreover, the SSSP is a recommended education program in the United States Shorebird Conservation Plan (Brown et al. 2001).

Evaluation is crucial to determine if the program is meeting its vision and contributing to shorebird conservation goals. Educator evaluations, annual work plans, web site use, and list server interaction are all evaluation tools used by SSSP. The use of the SSSP web site grows every year and demonstrates a growing interest in the program. Since the web site was first established in 1996, the program has gone from several thousand hits on the web page during spring migration to over 100,000 hits in 2001 (fig. 2). Web site use also indicates which pages are of the most interest to users; program staff can then focus on improving and increasing attention on those topic areas. Evaluations from SSSP workshops, the curriculum, and other educational resources provide a guide for making program revisions. Feedback from teachers and their students is also very helpful. An evaluation of the program is completed on an annual basis (Chapman et al. 2002a).

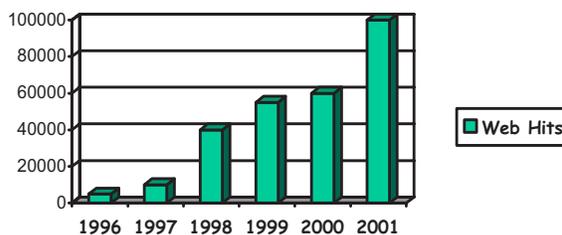


Figure 2— Number of visits (“hits”) to the Shorebirds Sister School Program website from 1996-2001.

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The SSSP would not exist without partnerships. For example, a new partnership with National Estuarine Research Reserve sites designated by the National Oceanic Atmospheric Administration will help expand SSSP to key shorebird stopover and breeding areas along the Pacific, Atlantic, and Gulf coasts. Examples of partner projects include educator workshops, spring tracking projects, new product development, and distance learning broadcasts. In all aspects, state and federal agencies, non-government organizations, and universities work together to achieve shorebird conservation education. Because of these partnerships more can be accomplished for flyway conservation. In addition, partners help SSSP compete more effectively for grant money.

In the future, we would like to increase and strengthen our partnerships in the United States and internationally. We would also like to introduce a research project in which students can participate. We intend to expand our web site to include a new on-line registration system and electronic pen pals program in an effort to better connect people along flyways.

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