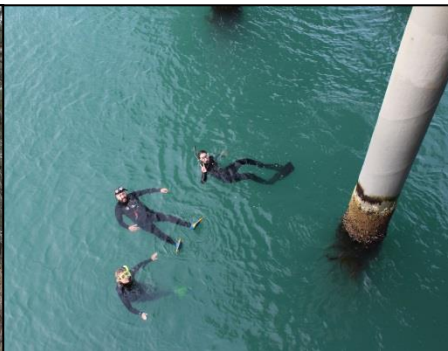
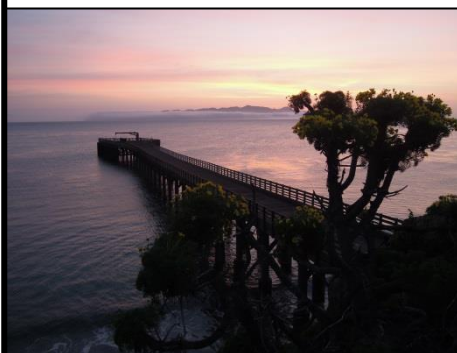




Santa Rosa Island Research Station

2021-22 Annual Report



Russell Bradley, Santa Rosa Island Research Station Director
Robyn Shea, Santa Rosa Island Research Station Asst Director



I. DIRECTORS' SUMMARY

The Santa Rosa Island Research Station is part of California State University Channel Islands. The SRIRS creates unique transformative interdisciplinary educational and research experiences that also provide professional development and networking opportunities. Most of our station visitors come from traditionally underserved communities with limited or no experience in a remote outdoor setting. As the only program connecting the university (CSUCI) with the Channel Islands, and as one of only 11 university run field stations in US National Parks, SRIRS experiences are a core feature of the CSUCI brand. The SRIRS officially opened its doors in the spring of 2014, and we have experienced continued success across a variety of metrics. The 2021-22 Academic Year was one of continued challenges relating to the ongoing COVID-19 Pandemic. We continued to be impacted by greatly reduced visitor capacity for overnight accommodation, as predicated by State and Federal health-safety guidelines. While user days and in-person engagement improved from the 2020-21 Academic Year, there is still considerable growth anticipated to be back at full capacity. The contributions of the SRIRS to Channel Islands National Park and the greater Channel Islands community is represented not only by the number of user days but also by the quantity and diversity of research, education, and outreach projects and the partnerships the program continues to help develop and support. The following data summarizes the broad range of our users, partnerships, and the projects the SRIRS supported.

Santa Rosa Island Research Station: 2021-22 Summary	
Visitors	# User Days
Undergraduate Students	1,207
K-12 Students	413
Researchers	10
Service Learning	203
Total	1,833
Lost user days due to COVID-19	481
Types of Visitors	# Groups
Research	26
Education	43
Volunteer/Service Learning	19
Total	88
Research Support	# Projects
Minimal (e.g., assist with permitting/project logistics)	30
Moderate (e.g., provide housing/logistic support)	7
Significant (e.g., co-write research proposals/reports, perform fieldwork)	8
Total	45
Partnerships	# Partners
Colleges/Universities	6
K-12 or Informal Education Organizations	4
Professional Research Agencies/Organizations	12
Community Outreach/Service-Learning Organizations	6
Total	28

II. MISSION

Our Mission

We provide students, faculty, researchers, and our local community with the resources and opportunities to engage in natural and cultural resource-based research and education via a partnership between the US National Park Service and CSU Channel Islands.

Touchstones to the Mission

- Build inquiry centered educational partnerships
- Engage stakeholders in discovery and dissemination
- Inspire and transform participants and society
- Encourage broad sharing of interdisciplinary knowledge
- Promote stewardship of resources

III. ACHIEVEMENTS AND HIGHLIGHTS

A. Undergraduate Research

In 2021-22 we supported 9 CI undergraduate independent/capstone research projects. The place-based research opportunities – both on island and on campus - facilitated successful mentoring relationships while supporting student knowledge and critical thinking skills.

B. Educational Programming

Despite the protracted and continued impacts of the COVID 19 Pandemic – where we could not host more than 10 people overnight for more than 2 years, we were able to work closely with our partners at NPS to return our overnight capacity to 75% by late spring 2022. In addition, we continued expanded day trip programming to the station, which had fewer COVID restrictions. We were able to support 43 educational groups with over 1,500 student user days (college and K-12). This included 4 middle and high school programs and over a dozen of CSUCI's academic programs.

Worked with social media intern and staff to increase and expand SRIRS Instagram presence - 9% increase in followers to almost 1,300 in the past year.

C. Long-Term Inventory and Monitoring

We continued long-term monitoring of two lagoons (Abalone Rock Lagoon, Old Ranch House Lagoon) on the east side of Santa Rosa Island in Channel Islands National Park. Building on work initiated in 2016, and new sensors installed in 2020, physical measurements at each lagoon were taken using HOBO loggers and a YSI Pro. By tracking these hypersaline lagoons, and their varying dissolved oxygen, salinity, and pH levels – through the efforts of SRIRS staff and capstone students, we are able to meet critical monitoring needs for sensitive and unique habitats inside Channel Islands National Park.

One of the major challenges in making diverse island-based data and products publicly available is a sustainable digital platform for sharing these important results. In 2020, staff from the SRIRS and from the John Spoor Broome Library at CSUCI formed a partnership to ensure that the island-based work created would be accessible in an online repository. This work continues and has created a great resource to compile student research from SRIRS: <https://scholarworks.calstate.edu/collections/7d278t997>.

D. Partnerships

Continued to work closely with 50+ other field stations on the NSF Rapid funded "Virtual Field Project" to increase field research resources for students during the Impacts of COVID. Helped to organize "Live from the Field Event" as part of the Virtual Field Project that highlighted the Interdisciplinary connections between research and art.

E. Crossing the Channel (B-WET)

With on-going COVID-19 social distancing protocols in place at participating Santa Paula School District (SPUSD) and CSUCI (CI) campuses, Crossing the Channel (CTC) was still able to engage with Isbell Middle School students supporting Meaningful Watershed Educational Experience (MWEE) objectives. A number of adjustments were made to the original proposal to accommodate several field sites that limited or paused services due to COVID protocols.

With 2021-22 NOAA BWET funding, CI, in collaboration with its partners, supplemented and developed the experiential Santa Barbara Channel watershed program, for CTC students across academic levels in Ventura County. The Channel Islands National Marine Sanctuary (CINMS) and Channel Islands National Park (CHIS) provided educational curriculum to support MWEE of the participants. Field activities were still able to be conducted at Ventura Harbor, Santa Rosa Island (Day and Overnight trips), Carpinteria State Beach, and the Santa Clara River.

The ultimate goal of CTC is to cultivate a new community of Santa Barbara Channel Watershed stewards and transform the learning experiences of local students by building a collaborative professional network of local resources (i.e. federal agencies, local school district, non-profits, and universities) that support MWEEs for underrepresented students both in middle school and as undergraduate mentors. This project builds on the strong interdisciplinary and collaborative culture at CI and applies it across academic levels to achieve excellence in STEM education by integrating real-world, project-based learning into a MWEE. Students, as members of hierarchical mentoring teams (i.e. middle school students, CI undergraduates, and STEM Professionals), engaged in the STEM disciplines and actively participate in Santa Barbara Channel Watershed research by 1) designed and practiced data collection with professional research tools, 2) contributed to long-term monitoring protocols, 3) analyzed historical datasets, and 4) constructed scientific reports and outreach projects. As a result of the 2021-22 CTC program, support from BWET funding allowed for an increased investigation of CTC environmental concepts with onsite student projects that engage students in added hands-on opportunities revolving around Isbell school campus.

F. Marine debris removal on California's Channel Islands: improving critical habitats".

Santa Rosa Island Research Station's marine debris removal efforts take place within Channel Islands National Park (CHIS) and the Channel Islands National Marine Sanctuary (CINMS). The Channel Islands National Marine Sanctuary (CINMS) overlaps the subtidal portions of the park, and its boundary extends six miles seaward from the park islands. The isolated beaches of CHIS and CINMS provide habitat for large breeding populations of four species of pinnipeds, nesting sites for the threatened Western Snowy Plover, and food resources for the recently delisted island fox.

Starting in 2016 the Santa Rosa Island Research Station (SRIRS) has continuously removed marine debris from Sothern California's Channel Islands. Currently, the SRIRS removes and tracks debris from four beach sites on Santa Rosa Island (Sandy Point, Skunk Point, Tecolote, and Soledad) and three sites on Santa Cruz Island (Forney's, Saucos, and Christy Beach). Removal of debris from the beaches includes sweeps of the entire beach for large objects and derelict fishing gear and complete removal of debris from within historic transect locations. Detailed tracking of this debris consists of weighing and categorizing all debris within 3 x 100-meter shoreline transects at each location. The 21 total transects let SRIRS categorize debris along 2,100 meters (about 1.3 mi) of shoreline during each removal operation.

The major goals of this project were to:

- Remove 12,000 pounds (about twice the weight of an elephant) of marine debris over the three-year grant period
- Collect and catalog data on amount and type of shoreline debris at the island sites
- Compile a profile of plastic debris polymer types at each site
- Conduct outreach activities and recruit volunteers
- Share project results once the grant is complete

Summer Programs

After years of planning and COVID impacts we were able to successfully conduct two summer programs in 2022 – an interdisciplinary field studies program for ESRM and ANTH Students in June, and a BIO Field Studies Class in July. Both programs had significant donor contributions to support program expenses and some scholarships, to address significant equity issues in field programs for our student base. Whereas personal transformation can occur

overnight, practical training and experience for those intending to go into field-based disciplines require more protracted periods of time in the field. In many cases, having field experience, especially in the context of long-term field-studies programs, is a condition for employment; minimally it is one of the deciding factors in terms of whether a person will continue in that field professionally.

In the interdisciplinary field studies program (with 14 students) which lasted nearly a month with over 3 weeks on island, taught ESRM/ANTH 365 - Natural and Cultural History of the Channel Islands (3 units) and ESRM 351 - Field Methods: Monitoring and Assessment (4 units). Dr. Dan Reineman from ESRM, Dr. Jenn Perry from ANTH, and station director Russ Bradley led this program. For the BIO 490 Special Topics (Island Ecology) class (3units) plus 1 unit lab, 18 students participated, and the program was led by Dr.'s Dilly, Alvarado and Von May – with heavy support from station staff member Robyn Shea. That program had on campus activities before and after 10 days of class and research work on the island.

Student response to both of these programs was extremely positive, highlighting the value of continuing these programs in the future. More details on these programs and their impacts can be found in the linked article below from the CSU Chancellor's Office.

<https://www.calstate.edu/csu-system/news/Pages/the-great-outdoor-classroom.aspx>

IV. PARTNERS

A. Academic (10)

1. **K-12 (4):** Cate School, Los Angeles School District – Reseda Magnet High School, San Marcos High School, Santa Paula Unified School District – Isbell Middle School.
2. **Universities/Colleges (6):** Westmont College, UC Berkely, UCLA, UC Riverside, UC San Diego, UC Santa Barbara.

B. Non-Academic (18)

1. **Governmental:** Channel Islands National Park, Channel Islands Restoration, Los Angeles County Arboretum, National Marine Sanctuary Foundation, NOAA Marine Debris Program, NPS Inventory & Monitoring Program -Mediterranean Coast Network, United States Fish and Wildlife Service, US Forest Service, United States Geological Survey.
2. **Non-Profit:** Arts Center of College and Design and Arlington Garden, California Institute for Environmental Studies, Chumash Council, Lulapin Chumash Foundation, Santa Barbara Botanical Garden, Supercollider, Theodore Payne Nursery.
3. **Other:** 4 Points Guides/Expeditions, CSU STAR Program.

V. EDUCATION

CI Academic Programs Use of the SRIRS	CI Undergraduate Course Use of the SRIRS	High School Course Use of the SRIRS
Anthropology, Art, Biology, Chicana/o Studies, Communications, Center for Integrative Studies,	ANTH 499 - Capstone Project, ART 202 - Sculpture, ART 207 – Ceramics, ART 311 – Sculpture Media and Tech, ART 422 – Digital Media Art, BIOL 200 - Organismal and Population Biology, BIOL 203 - Quantitative Methods for Biology, BIOL 312 - Marine Biology, BIOL 433 - Ecology and the Environment, BIOL 451 - Ornithology, BIOL 494 - Independent Research,	AP Biology, AP Chemistry, Environmental Science, Special Education, Biotechnology

Environmental Communications, Environmental Science and Resource Management, Health Science, Presidential Scholars, Psychology, CIMAS, LSAMP	CHS 100 – Introduction to Chicana/O Studies, CHS 160 – Chicana/O Cultural Expressions, CHS 425 – Contemporary Immigration Issues, CHS 320 – Gender & Sexuality, CHS 335 - Chicana Feminisms, CHS 343 - Health in Latina/O Community, COMM 443 - Environmental Communication, ESRM 200 - Principles of Resource Management, ESRM 341 – the National Park, ESRM 351 – Field Methods, ESRM 494 – Independent Research, ESRM 499 – Capstone, HLTH - 499 Health Sciences Capstone, UNIV 105 – Empowering First Generation Students, UNIV 150 - First Year Seminar, UNIV 198 – Introduction to Interdisciplinary Research.	
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VI. RESEARCH

A. SRIRS Undergraduate Research

1. Student Capstone/Independent Research Projects

a. Biology (3 Students)

- **Intertidal Ecology:** Continued long term intertidal monitoring at Becher's Bay and Skunk Point to assess changes in species composition and abundance through time with field surveys and remote data sensors (*CI Faculty Mentor: Geoff Dilly; NPS Collaborators: Steve Whittaker*).

b. Environmental Science and Resource Management (5 students)

- **Water Quality/ Lagoons:** Using water chemistry and long-term sensors to look at varying characteristics of the Channel Islands only two brackish water lagoons and their changes seasonally and inter-annually. (*CI Faculty Mentor: Dan Reineman; NPS Collaborator: Steve Whittaker*).
- **Historic Mapping, Santa Cruz Island:** Utilized historic maps, data sites, and expert knowledge to produce more accurate maps of TNC property on Santa Cruz (*SRIRS Staff Mentor: Russ Bradley; TNC Mentor: John Knapp*).

c. Environmental Communications (1 student)

- **Educational Programming:** Improving impacts and community engagement of a current day environment education program for traditionally underserved middle school students – Crossing the Channel (*SPUSD Mentors: Chris Rini, Cynthia Martin; CI Staff Mentor: Russ Bradley*)

B. Faculty Research Projects

1. Biology

- **Dr. Geoff Dilly:** Investigating the impacts of climate change (i.e., sea level rise, ocean acidification, etc.) on the intertidal and sub-tidal habitats of Bechers Bay, Santa Rosa Island (*NPS Collaborator: Steve Whittaker*).

C. Additional Research Supported by the SRIRS

1. **Westmont College:** Examining the herpetology ecology & evolution on Santa Rosa Island.

2. **Santa Barbara Botanical Garden:** Native plant seed collection and preservation, rare plant monitoring.

3. USGS:

- Re-establishing plant diversity and functioning plant community dynamics on Santa Rosa Island.
- Establishing and monitoring tree demography plots for the Torrey Pines, Bishop Pines, Ironwood, and Island Oak on Santa Rosa Island.
- Cloud Forest Restoration.

4. **Coastal Marine Bio-labs/Reseda Charter High School:** Obtaining the unique DNA sequences of island arthropods and publishing the result within an international DNA Barcode database.

5. **UC Riverside:** Graduate research in the discipline of Entomology, focused on spiders of the Channel Islands.
6. **UC San Diego/NPS-CHIS:** Argentine Ant focused survey of specific monitoring sites included in the long-term ecological network monitoring.
7. **University of Nevada, Reno:** Field support for Archeological research.
8. **The Nature Conservancy:** Rare plant surveys on Santa Cruz Island.
9. **Supercollider:** Realizing Santa Rosa Island as a nexus where art, science and tech collide to inspire social and environmental responsibility. <https://www.supercollider.la/about/>
10. **NPS Inventory and Monitoring Program:**
 - Document and quantify changes in water quality and stream condition on Santa Rosa Island over time.
 - Initial assessment of long-term Nation-wide acoustic monitoring of Bats, assessing night sky qualifications.
11. **Channel Islands National Marine Sanctuary:**
 - Sandy beach and intertidal ecology citizen science programs.
12. **Channel Islands National Park:**
 - Sandy beach ecology monitoring and morphological assessment.
 - Marine debris monitoring and removal.
 - Native vegetation monitoring.
 - Photo-point Monitoring for long-term changes
13. **Channel Islands Restoration/UC Santa Barbara:** Monitoring songs of the Western Meadowlark on Park Islands, as a tool for determining endemism and/or divergence.
14. **CSU Service, Teaching, and Research Program (STAR):** Providing no-cost housing for 4 STAR Fellows during the Summer, to conduct research and lesson-planning for K-12 Science courses.

VII. FINANCES

A. Grants and Awards - \$201,530

1. NOAA B-wet (\$59,031)
2. NOAA Marine Debris (\$112,499) 2020-23
3. Native American Initiatives (\$5,000)
4. Edison International (\$10,000)
5. Strategic Initiatives (\$15,000)

B. Private Donations - \$120,140

C. User Fees - \$39,968

VIII. PEER COMPARISON

Research Station	Affiliation	User Days*	# of Users	Staff
Santa Rosa Island Research Station	CSU Channel Islands	1,833	689	4
Santa Cruz Island Research Station	UC Santa Barbara	3,186	719	3
Sedgwick Reserve	UC Santa Barbara	4,690	2,177	7
Hastings Natural History Reserve	UC Berkeley	5,176	642	4
Point Reyes Field Station	UC Berkeley	1,012	331	4
Angelo Coast Range Reserve	UC Berkeley	2,723	460	?
White Mountain Research Center	UCLA	10,235	1,409	6+
Quail Ridge Reserve	UC Davis	1,225	413	2
Yosemite Field Station	UC Merced	2,777	519	2
James San Jacinto Mountains Reserve	UC Riverside	1,247	333	2

***UCNRS Stats Averaged over 5 fiscal years between 2017-2022. SRIRS Stats specific for 2021-22 when there were still significant COVID impacts.

The Santa Rosa Island Research Station thanks the following organizations for their generous support:



If you would like more information on the SRI Research Station, please visit our website (www.csuci.edu/sri) or contact the Station Director, Russell Bradley, at (805) 437-8542 or russell.bradley@csuci.edu.