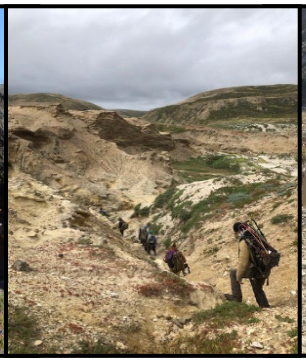
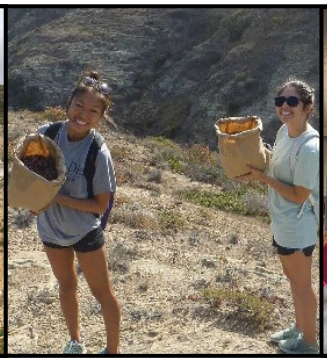
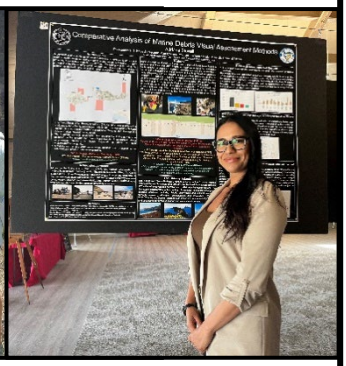
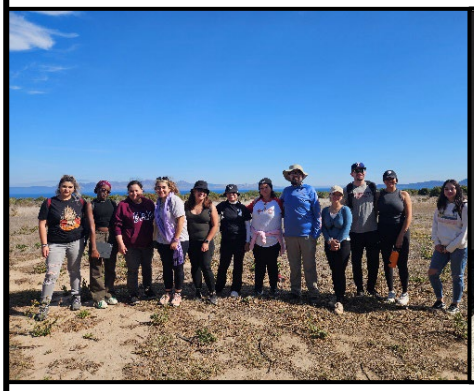
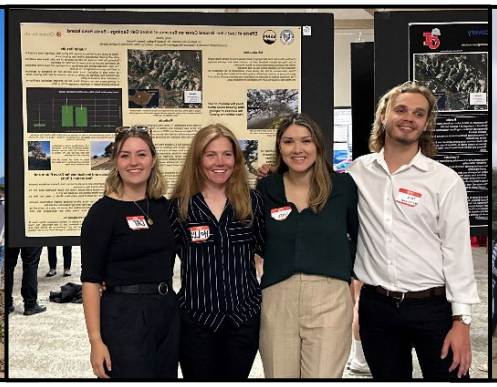
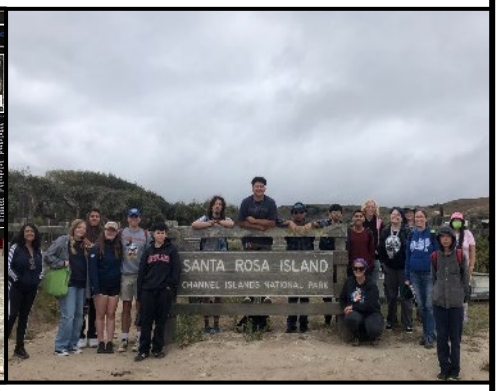
Santa Rosa Island Research Station

2023-24 Annual Report

Robyn Shea, Santa Rosa Island Research Station Director

Russell Bradley, Santa Rosa Island Research Station Exiting Director

I. DIRECTORS' SUMMARY Celebrating 10 Years of Impact!

The Santa Rosa Island Research Station (SRIRS) is part of California State University (CSU) Channel Islands (CI). The SRIRS creates unique transformative interdisciplinary educational and research experiences that also provide professional development and networking opportunities. Most station visitors come from traditionally underserved communities with limited or no experience in remote outdoor settings. As the only program connecting the university (CSUCI) with the Channel Islands, and as one of only eleven university-managed 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, since which time we have experienced continued success across a variety of metrics. While user days and in-person engagement have increased over time, there is still considerable growth anticipated to fully recover from COVID-19 related impacts. While the 2023-24 year was successful, it was not without some unexpected challenges. We continued onboarding our newest team member, SRIRS Coordinator Juliana Perez, who has been well received by students, faculty, and other partners, demonstrating the positive impact we anticipated. Unfortunately, we lost SRIRS's Marine Debris Grant Coordinator Joseph Forrest, who resigned his position with the SRIRS and accepted a new role with The Nature Conservancy's Santa Cruz Island Reserve. Additionally, SRIRS Director Russ Bradley resigned from his position and is now working as a California State Parks Program Manager, focused on Wildlife Management in the Natural Resource Division. We wish them both the best in their future endeavors and thank them for their contributions during their tenure with the SRIRS. With Russ's departure, Robyn Shea stepped in as the Interim Director of the SRIRS to ensure stability and continuity.

The contribution of the SRIRS to student success, resource protection and stewardship, and improving equity in our National Parks is represented not only by the number of user days but also by the quantity and diversity of scientific projects, interdisciplinary activities, and the partnerships it 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: 2023-24 Summary	
Visitors	**# User Days**
Undergraduate Students	1,297
K-12 Students	724
Researchers	219
Service Learning/Volunteers	141
Total	**2,381**
Lost user days	**732**
Types of Visitors	**# Groups**
Research	20
Education	56
Community Outreach	6
Volunteer/Service Learning	10
Total	**92**
Research Support	**# Projects**
Minimal (e.g. assist with permitting/project logistics)	-
Moderate (e.g. provide housing/logistic support)	14
Significant (e.g. co-write research proposals/reports, perform fieldwork)	5
Total	**19**
Partnerships	**# Partners**
Colleges/Universities	19
K-12 or Informal Education Organizations	11
Government Agencies	5
Non-profits/Other	11
Total	**46**

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 2023-24 we directly supported nine CSUCI undergraduate research projects which involved seventeen of our students. Undergraduate students were immersed in the start-to-finish process of research at the SRIRS; students learned how to apply for grant-funding and submit federal scientific collection permits; and received experience presenting and defending their findings. These students participated in place-based research and cultivated successful relationships with their faculty mentors while sharpening critical thinking skills, placing them ahead of their peers when applying for and attending graduate programs, and making them more competitive for jobs and internships.

B. Educational Programming

We were able to return our overnight capacity to 98% for AY 23-24, resulting in our ability to support fifty-six educational groups which generated over 2,020 student user days (college and K-12). This included eleven middle and high school groups and nineteen groups from other colleges/universities. With respect to CSUCI, this included fifteen academic disciplines and several of CSUCI's High Impact Practices, identified below in bold. High impact practices — or HIPs — are a nationally recognized set of practices widely demonstrated within higher education to promote deep learning, student engagement and retention. This applies most notably to historically underrepresented student groups. Examples of HIPs include: **Collaborative projects**, Diversity/Global Learning, **First-Year Experiences**, **Internships**, **Learning and Living-Learning Communities**, **Service Learning and Community-Based Learning**, and **Undergraduate Research**.

C. Long-Term Inventory and Monitoring

Long-term monitoring of two lagoons (Abalone Rocks Lagoon, Old Ranch House Lagoon) on the east end of Santa Rosa Island in Channel Islands National Park continues. Building on work initiated in 2016, with new sensors installed in 2020, 2023, and 2024, physical measurements are taken at each lagoon using HOBO loggers and a YSI Pro. Through the efforts of SRIRS staff and CSUCI students, we continue to meet critical monitoring needs for sensitive and unique habitats inside Channel Islands National Park by tracking these hypersaline lagoons, and their varying dissolved oxygen, salinity, and pH levels. In 2024 we submitted a report summarizing data analysis for the preceding three years. Previously identified as a Student Capstone project, SRIRS staff took over maintaining the project in 2021 to provide better management, consistency, and guidance for student researchers. As part of our permitting requirements, this was submitted to the National Park Service and a copy is available online in our ScholarWorks data repository.

D. Partnerships

We have been successful in maintaining long-term partnerships with several government agencies and organizations, as well as numerous school districts with plans for expansion in the 2024-25 Academic Year. Outgoing Director, Russ Bradley, continued to work collaboratively with other Field Station and Marine Lab Directors as part of our membership with the Organization of Biological Field Stations (OBFS). Robyn Shea will continue these collaborations.

E. Marine debris removal on the California's Channel Islands: improving critical habitats.

Since 2016, the SRIRS has consistently removed marine debris from the northern Channel Islands, improving critical habitats encompassed in Channel Islands National Park and Channel Islands National Marine Sanctuary. The work under SRIRS's grant from the National Oceanic and Atmospheric Administration's Marine Debris Program (NOAA) was completed in late Summer 2023. During the 2020-23 grant period 12,218 pounds of debris were removed from Santa Rosa and Santa Cruz Islands, bringing the cumulative tonnage the SRIRS has removed and catalogued to more than 20,000 pounds. The outreach and interdisciplinary nature of this project make it unique and highlights the true value of marine debris work in reaching across different audiences and disciplines. This work included several presentations at the 2023 California Islands Symposium, supported multiple paid internships, and resulted in several art exhibitions to further engage and educate our local community about this topic. CSUCI Art students and community artists worked with debris to create found object art pieces to highlight issues surrounding marine debris throughout the duration of this grant.

Building upon the successes of our 2016-2023 efforts, SRIRS continues its marine debris work with a new partner, updated assessment methods and renewed funding. The latest iteration of our marine debris grant, funded by NOAA as a subaward from the National Marine Sanctuary Foundation (NMSF), has simplified visual assessment methods which were implemented in late Spring 2024 for detailed tracking of the debris. Data is collected from roughly 1.3 miles (2,100m^2) of shoreline during each removal operation, which is then reported to NOAA as a part of their Marine Debris Program.

The main priorities of the current project are:
1. Remove derelict fishing gear (DFG) and large debris from high-impact areas
2. Identify new accumulation sites and conduct removal trips on identified beaches
3. Facilitate local community and CSUCI student engagement in project
4. Utilize sustainable practices for the disposal of debris removed within the CINMS and CHIS regions.

IV. PARTNERS

A. Academic (30)

1. **K-12 (11):** Adolfo/Camarillo High School (OUHSD), Frontier High School (OUHSD), Head Royce School (private College prep, Oakland), Hueneme High School (OUHSD), Pacifica High School (OUHSD), Reseda Magnet High School (LAUSD), Channel Islands High School (OUHSD), Isbell Middle School (SPUSD), Santa Paula High School (SPUSD), Foothill Technology High School (VUSD), Ventura High School (VUSD).
2. **Universities/Colleges (19):** Colorado College, CSU Chancellor's Office – Academic Senate Chair, Cal State Bakersfield, CSU Chico, CSU East Bay, Cal Poly Humboldt, CSU Long Beach, CSU Los Angeles, CSU Monterey Bay, CSU Northridge, CSU Sacramento, CSU San Bernardino, San Francisco State, CSU San Marcos, CSU Stanislaus, Oxnard College, Penn State University, Pepperdine University, Westmont College.

B. Non-Academic (16)

1. **Governmental:** Bureau of Ocean Energy Management (BOEM), Channel Islands National Park, Channel Islands Naturalist Corps, Grupo de Ecología Conservación de Islas, United States Geological Survey.
2. **Non-Profit**: California Institute for Environmental Studies, Crossing the Channel for a Cause, Natural History Museum of Los Angeles County, Reel Anglers, SAMO Fund, Santa Barbara Botanic Garden, The CREW.
3. **Other:** CSU STAR Program, Patagonia, Island Packers, Scholastic Expeditions.

V. EDUCATION

CI Programs Use of the SRIRS	CI Undergraduate Course Use of the SRIRS	High School Course Use of the SRIRS
Anthropology, Art, Astronomy, Biology, Business, Chicanx Studies, Early Childhood Studies, English, Environmental Communications, Environmental Science & Resource Management, Mathematics, Physics, Psychology, Advancement, Presidential Scholars, Regional and Educational Partnerships, Veterans Affairs, CIMAS, Summer SURF, 1st-Year Learning Communities, PEER Mentors, SASEI, Sociology, CI Solutions	ANTHRO 352, ANTHRO 445, ART 202 - Sculpture, ART 311 – Sculpture Media and Tech, ART 323 – Packaging and Pre-Press, ART 494 – Directed Independent Study, BIOL 335 – The Biosphere, BIOL 494 - Independent Research, CHS 100 – Introduction to Chicana/O Studies, CHS 160 – Chicana/O Cultural Expressions, CHS 200 – Diversity in Latina/O Communities, CHS 320 – Gender & Sexuality, CHS 335 - Chicana Feminisms, CHS 350 – Chicana/O History and Culture, COMM 332 – Media and the Environment, Dance 101, ECS 463, PA 210 – Understanding Dance & Music for elementary Education, ESRM 100 – Intro Environmental Science/Resource Management, ESRM 351 – Field Methods, ESRM 377 – Shaping the Coast, ESRM 499 – Capstone, Theater 100, Theater 300, Theater 302, UNIV 105 – Empowering First Generation Students, UNIV 150 - First Year Seminar, UNIV 198 – Introduction to Interdisciplinary Research.	AP Biology, AP Env. Science, Biological Oceanography, Channel Islands Marine Biology & Ecology Program, Honors Env. Science, E.S. Science Academy, Marine Science Academy

VI. RESEARCH

A. SRIRS Undergraduate Research

1. Student Capstone/Independent Research Projects

a. Art (4 students)

- **Cloud Forest Restoration Mural:** Development of mural at Santa Rosa nursery to provide outreach for Cloud Forest Restoration project *(CI Faculty Mentor: Matt Furmanski; SRIRS Staff Mentors: Robyn Shea and Joe Forrest; USGS Mentor: Kathryn McEachern).*
- **Multi-media Capstones – Interpreting Santa Rosa Island:** two students worked on various aspects of increasing communications and engagement via interpretive painting and photography. *(CI Faculty Mentor: Matt Furmanski; SRIRS Staff Mentor: Joe Forrest)*.
- **Marine Debris Engagement Capstone:** one student created a new suite of stickers to help increase outreach and engagement related to SRIRS's Marine Debris Grant. *(CI Faculty Mentor: Matt Furmanski; SRIRS Staff Mentor: Joe Forrest)*.

b. Biology (3 Students)

- **Intertidal Ecology**: Identified new intertidal monitoring locations and developed a protocol with the objective of supplementing and expanding upon the Channel Islands National Park long-term monitoring program (*CI Faculty Mentor: Geoff Dilly; NPS Collaborators: Stephen Whittaker*).

c. Anthropology (1 Student)

- **Archeology:** Compiling reference catalogue of historic items recovered from the SRIRS dripline (long-term monitoring) *(CI Faculty Mentors: Jenn Perry and Rachel Olsthoorn; SRIRS Staff Mentor: Robyn Shea)*

d. Environmental Science and Resource Management (9 students)

- **Island Oak Demography**: Demographic plots of Island Oaks at Black Mountain – part of research collaborations on large tree populations of Santa Rosa with USGS/NPS. *(CI Faculty Mentor: Dan Reineman; CI Staff Mentors: Russ Bradley and Joe Forrest; USGS: Kathryn McEachern).*
- **Marine Debris Survey Methods:** Assessment of current marine debris survey methods and visual survey techniques to determine best practices going forward (*CI Faculty Mentor: Clare Steele; CI Staff Mentors: Joe Forrest* a*nd Russ Bradley)*
- **Spatiotemporal patterns and abiotic influence on bat activity on Santa Rosa Island, California:** Utilizing acoustic monitoring, determining how wind speed and lunar patterns affect bat activity; Assessing migratory bat species on Santa Rosa Island *(CI Faculty Mentor: Isaac Quintanilla Salinas; SRIRS Staff Mentors: Russ Bradley and Robyn Shea)*
- **Long-term Photo Point Monitoring:** Creating a user-friendly platform to increase engagement and data collection through Survey 123 *(CI Faculty Mentor: Kiki Patsch; SRIRS Staff Mentors: Russ Bradley and Joe Forrest)*.

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: Stephen Whittaker; (SRIRS Support Staff: Russ Bradley and Robyn Shea)*.
- **Dr. Rudolf von May**: Invertebrates: Preliminary survey of terrestrial arthropods, with emphasis on beetles and ants, throughout varying habitat types on Santa Rosa Island. *(SRIRS Support Staff: Russ Bradley and Robyn Shea)*

2. Early Childhood Studies

- **Dr. Annie White**: Narrative Stories at the Santa Rosa Island Research Station Project: Creating and Supporting reciprocal family and community networks. *(SRIRS Support Staff: Russ Bradley and Robyn Shea)*

C. Additional Research Supported by the SRIRS

1. **Westmont College:** Examining the herpetology ecology & evolution on Santa Rosa Island.
2. **Santa Barbara Botanical Garden**: Seed banking and genetics of *Pinus torreyana*.
3. **CSU Northridge & Natural History Museum of Los Angeles**: Graduate work focusing on the genomics and climatic influences of Island Fence lizards (*Sceloporus occidentalis becki*) of the Channel Islands.
4. **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.
   - Historic photo point monitoring on Santa Rosa Island.
   - Rare tree census and population structure.
   - Cloud Forest Restoration.

5. **Coastal Marine Bio-labs/Reseda Charter High School & Foothill Technology High School**: Obtaining the unique DNA sequences of island arthropods and publishing results within an international DNA Barcode database.
6. **Supercollider**: Realizing Santa Rosa Island as a nexus where art, science and tech collide to inspire social and environmental responsibility both among professional artists, Undergraduate students, and their faculty. https://www.supercollider.la/about/
7. **NPS Inventory and Monitoring Program**:
   - Document and quantify changes in water quality and stream condition on Santa Rosa Island over time.
8. **Channel Islands National Marine Sanctuary**:
   - Sandy beach and intertidal ecology citizen science programs.
9. **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
   - Rare plant Ecology and Monitoring
10. **CSU Service, Teaching, and Research Program (STAR)**: Providing no-cost accommodations for 4 STAR Fellows and guests, during the Summer, to conduct research and lesson-planning for K-12 Science courses.

VII. FINANCES

A. Grants and Awards - $414,954

1. NOAA Marine Debris ($375,000) 2023-26
2. Native American Initiatives ($3,555)
3. Edison International ($10,000)
4. National Park Service – Cloud Forest Technician funding, Year 2 of 3 ($26,399)

B. Private Donations - $ 123,308

C. On island accommodations donated by SRIRS - $3,050

VIII. PEER COMPARISON

Research Station	Affiliation	User Days*	# of Users	Staff†
Santa Rosa Island Research Station	**CSU Channel Islands**	**2,381**	**866**	**3**
CSU Desert Studies Center^^	CSU Consortium	~3,300	Unknown	2
Santa Cruz Island Research Station^^	UC Santa Barbara	2,715	620	3
Sedgwick Reserve	UC Santa Barbara	5,201	2,320	7
Hastings Natural History Reserve^^	UC Berkeley	4,553	768	3
Point Reyes Field Station	UC Berkeley	1,376	437	2
Angelo Coast Range Reserve^^	UC Berkeley	2,418	322	1.5
White Mountain Research Center^^	UCLA	9,800	879	6+
Quail Ridge Reserve	UC Davis	1,122	433	2
Yosemite Field Station^^	UC Merced	3,685	511	2
James San Jacinto Mountains Reserve^^	UC Riverside	1,275	333	2

*UCNRS Stats averaged over five fiscal years between 2019-20 and 2023-24. SRIRS Stats specific for 2023-24.

† Staff numbers are from reserves' current website details.

^^ Indicates comparable overnight facilities.

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, Robyn Shea, at (805) 437-1653 or robyn.shea@csuci.edu.