Earth Systems & Conservation

14-Day Faculty-Led Program • Recommended: July – August

Forum on Education Abroad Member • Loyola University Maryland — Returning Partner 2026 • 20+ Years in Panama • STRI / Smithsonian Access

Recommended: July – August | Humpback whale migration (Pacific, peak Jul–Oct) + Pacific sea turtle nesting & hatchling release season

Why Panama for Earth Systems & Conservation?

Panama's geology is the reason modern biodiversity exists. The closure of the Central American Seaway roughly three million years ago — when the isthmus rose and fused the two continents — redirected ocean currents, triggered Northern Hemisphere glaciation, and opened a land corridor that allowed species to mix across two continents for the first time. Every field site in this program is downstream of that event. Students walk the volcanic crater at El Valle, where the stratigraphic record is visible in the crater walls. They stand at the BioMuseo where the isthmus formation story is told through the fossil record. They trace the Chagres River watershed from its cloud forest headwaters to the Emberá community on its floodplain. And in July and August, Panama's Pacific coast becomes one of the most ecologically alive places in the Western Hemisphere: humpback whales migrating from Antarctica to calve in the warm Pacific, leatherback and olive ridley sea turtles nesting on the beaches minutes from Istmo, and a marine system that students can compare directly against the Caribbean reef they visit four days later. There is no other 14-day program that puts students inside this range of ecosystems — volcanic, cloud forest, mangrove, open ocean, reef, and rainforest — with working scientists at one end and indigenous ecological knowledge holders at the other.

Program Itinerary

Day	Program	Earth & Environmental Science
1	**Arrival & Welcome Dinner** Airport pickup and transfer to Istmo (90 min). Settle into private bungalows on the Pacific coast. Welcome dinner. Faculty introduces the program's central framework: Panama as a live laboratory where geological history, ecological systems, and human land use intersect — and where summer brings the Pacific alive with migrating megafauna.	*Earth systems framing* *Field observation methods* *Program orientation*
2	**Pacific Beach Ecology — Tide Pools, Coastal Geology & Beach Cleanup** Morning field session: Pacific tide pool ecology — zonation, invertebrate communities, predator-prey dynamics, and the biological consequences of the Pacific's 5m+ tidal range. Coastal geology walk: beach sediment composition, wave erosion patterns, longshore drift, and evidence of tectonic uplift in the rock formations at San Carlos. Afternoon: community beach cleanup — microplastic sampling and marine debris data collection as a field exercise in pollution science.	*Intertidal ecology & tidal zonation* *Coastal geomorphology & sediment dynamics* *Marine pollution monitoring*
3	**El Valle — Volcanic Crater Geology + Continental Divide + Cloud Forest** Full-day excursion to El Valle de Antón (600m). El Valle sits inside the caldera of an ancient stratovolcano — one of the most accessible volcanic geology sites in Central America. Geology walk: crater morphology, basaltic and andesitic rock identification, hydrothermal features, and the continental divide's role in shaping regional climate and biodiversity. Cloud forest ecology: species richness at	*Volcanic geology & crater morphology* *Continental divide & orographic precipitation*

Day	Program	Earth & Environmental Science
	elevation, epiphyte communities, and the relationship between altitude, precipitation, and forest structure. (Lunch not included)	*Cloud forest ecology & altitudinal gradients*
4	**Panama Canal + BioMuseo — Land Bridge Formation & Watershed Hydrology** BioMuseo (Frank Gehry): the isthmus formation story — how the closure of the Central American Seaway (~3 million years ago) altered global ocean circulation, triggered Northern Hemisphere glaciation, and created the land bridge that enabled the Great American Biotic Interchange. This is the geological event that shaped modern biodiversity. Miraflores Locks: Canal watershed hydrology — how a 51-mile waterway depends entirely on a freshwater reservoir fed by tropical rainfall, and what that system looks like under climate change. (Lunch not included)	*Isthmus formation & plate tectonics* *Great American Biotic Interchange* *Watershed hydrology & climate systems*
5	**Whale Watching + Pacific Snorkeling ★ July – August** The program's signature summer day. Humpback whales (Megaptera novaeangliae) migrate from Antarctic feeding grounds to Panamanian Pacific waters June–November (peak July–October) to calve and nurse. Morning boat trip: whale behavioral observation — surface behaviors, mother-calf pairs, and marine mammal conservation context. Afternoon Pacific snorkeling: rocky reef fish communities, sea urchin and starfish populations, and the contrast with Caribbean coral systems students will see on Day 11. This day is only possible in summer — it is the program's clearest seasonal differentiator.	*Marine mammal ecology & migration* *Humpback population dynamics & conservation* *Pacific reef ecology (comparison baseline for Day 11)*
6	**Community Service — Local School + Pacific Sea Turtle Release ★ Seasonal** Morning: sea turtle hatchling release with local conservation partner. Pacific leatherback (Dermochelys coriacea) and olive ridley (Lepidochelys olivacea) turtles nest on Pacific beaches July–November. Students participate in nest monitoring, hatchling measurement, and supervised release. Faculty frames this as conservation biology in practice: population monitoring, nest success rates, and the human dimension of wildlife conservation. Afternoon: partner school community service visit — environmental education exchange with local students.	*Sea turtle conservation biology* *Nest monitoring & hatchling ecology* *Community conservation partnerships*
7	**Recreation Day — Surfing + Salsa** Morning surf lesson at Pacific beach. Afternoon free for rest, journaling, or independent field observation. Evening salsa dancing class at Istmo.	*Rest & integration* *Independent fieldwork time* —
8	**STRI Gamboa — Smithsonian Tropical Research Institute + Pipeline Road** Full day at STRI Gamboa: one of the world's premier tropical research institutions. Scientist presentations on tropical ecology, forest carbon dynamics, disease ecology, and climate monitoring — students engage directly with working researchers, a rare access point not available on general tours. Pipeline Road: one of the top birding and wildlife observation corridors in the Western Hemisphere. Guided naturalist walk: rainforest stratification, epiphyte ecology, mammal tracking, and Gatún Lake shoreline ecology. (Lunch not included)	*Tropical ecology & forest carbon dynamics* *Long-term ecological monitoring & field science* *Rainforest stratification & biodiversity*
9	**Finca Manatial — Watershed Ecosystem Services + Reforestation + Canal Buffer Zone** Visit to Finca Manatial: a working farm and active reforestation initiative inside the Panama Canal watershed buffer zone. Presentation on the ACP's Payment for Ecosystem Services (PES) program — landowners compensated for maintaining forest cover that protects Canal water supply. Reforestation plots:	*Watershed ecosystem services & PES programs* *Forest carbon & ecological restoration*

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	native species selection, carbon accounting, and the science of ecological restoration.	
10	**Emberá Village — Traditional Ecological Knowledge + Medicinal Plants + Overnight Portobelo** Dugout canoe into the Chagres River rainforest. Emberá community: traditional ecological knowledge (TEK) as a scientific framework — indigenous plant taxonomy, medicinal plant identification, forest management as a conservation strategy, and the relationship between cultural knowledge and biodiversity conservation. Discussion: what does Western science lose when indigenous languages and ecological knowledge disappear? Continue to Portobelo/Colón area. Overnight near Portobelo — the only night away from Istmo.	*Traditional ecological knowledge (TEK)* *Ethnobotany & medicinal plant ecology* *Cultural conservation & biodiversity*
11	**Caribbean — Mangrove Ecosystem + Coral Reef Snorkeling + Return to Istmo** Morning: Caribbean mangrove ecosystem boat ride— mangrove species identification (red, black, white), root architecture adaptations, nursery habitat function, and carbon sequestration rates. The Caribbean coast has some of Panama's most intact mangrove systems. Snorkeling: Caribbean coral reef — coral species identification, reef fish communities, bleaching indicators, and direct comparison with the Pacific rocky reef students experienced on Day 5. Same country, same latitude — why are the two coasts ecologically so different? Return to Istmo.	*Mangrove ecology & blue carbon systems* *Coral reef health & bleaching indicators* *Pacific vs. Caribbean marine ecosystem comparison*
12	**Pacific Mangrove SUP + Coastal Ecology Field Session** Stand-up paddleboard through Pacific coast mangroves: immersive access to canopy structure, prop root communities, fish nursery observation, and sediment dynamics from the water surface. Field session: mangrove carbon accounting context — how mangroves store 3–5× more carbon per hectare than tropical forests, and why coastal development threatens disproportionate carbon release. Beach geology exploration: Pacific sediment comparison, beach profile analysis, and evidence of seasonal erosion patterns. This day closes the coastal ecology arc opened on Day 2.	*Pacific mangrove ecology & blue carbon* *Coastal carbon accounting & climate relevance* *Beach profile & sediment comparison (Day 2 arc)*
13	**University Exchange — UTP Penonomé Environmental Science Students + Farewell Bonfire** Day trip to Universidad Tecnológica de Panamá, Penonomé campus. Faculty presents research or a topical lecture to Panamanian environmental science and natural resources students. Student-to-student exchange: what conservation challenges does Panama face — deforestation, water security, climate vulnerability, marine protected area enforcement — and how do Panamanian students approach them differently than US students? Return to Istmo. Farewell bonfire.	*Comparative conservation science* *Global environmental governance* *Peer-to-peer academic exchange*
14	**Departure** Breakfast at Istmo. Final reflection. Airport transfer to Tocumen International Airport (90 min). Departure from Panama.	—

All meals at Istmo included. Off-site lunches on Days 3, 4, & 8 not included. Overnight accommodation near Portobelo (Day 10) included.
★ Days 5 & 6 are seasonal — this program is designed for July–August departure.

What's Included

Private retreat center — 8 bungalows, 24 beds (exclusive use)
All meals prepared by on-site chef
All activities, bilingual guides, and entry fees
Ground transportation throughout
Airport transfers (arrival & departure)
STRI Gamboa visit coordination (Smithsonian access)
Whale watching boat trip (Jul–Aug, licensed operator)
Sea turtle release coordination (Jul–Aug, conservation partner)
University exchange coordination (UTP Penonomé)
Overnight accommodation — Portobelo area (Day 10)

Not Included

Airfare, travel insurance, off-site lunches (Days 3 & 4), personal expenses

Safety & Support

Panama: US State Dept Level 2 (same as Costa Rica & most of Western Europe)
US-trained EMT on staff at Istmo
Medical clinic 10 min away; hospital 90 min (Panama City)
Sean Davis: dedicated on-site coordinator, full program duration
24/7 emergency protocols and documentation available
Exclusive-use property — no other guests during your program
Forum on Education Abroad Standards of Good Practice

Program Pricing

Larger groups = lower per-student cost. All pricing includes lodging, meals, activities, and ground transport.

Group Size	Low Season(Apr–Nov)	High Season(Dec–Mar)	Per StudentLow Season	Per StudentHigh Season
7 students + 1 leader	**$28,102**	**$29,798**	**$287/day**	**$304/day**
12 students + 1 leader	**$40,035**	**$42,229**	**$238/day**	**$251/day**
14 students + 2 leaders*	**$44,808**	**$47,201**	**$229/day**	**$241/day**
22 students + 2 leaders	**$63,901**	**$67,089**	**$207/day**	**$218/day**

**At 14+ students, a second faculty leader included at no additional cost. | Prices include all lodging, meals, activities, and ground transport.*

Your Hosts

Sean Davis — M.S. Educational Administration. Returned Peace Corps Volunteer (Chile). Founded an international school in Panama City. 20+ years in Panama.

Ayesha Davis — M.S. Environmental Engineering. Returned Peace Corps Volunteer (Paraguay). 10+ years designing water/sanitation projects with the World Bank and IDB across Latin America. Istmo co-founder.

Ready to explore?

This itinerary is a starting point, not a contract. We work with study abroad offices to shape programs that fit the faculty member's course, the institution's timeline, and the students' level. July–August departures are strongly recommended to take full advantage of the whale watching and sea turtle release experiences. Reconnaissance visits available.

Schedule a call: https://calendar.app.google/Nve9vEcYxtJKpRpE8

Want to visit first? Our reconnaissance visits let you see the campus before you commit. 4 days / 3 nights — email us to book yours (info@istmoretreat.com).