



Promoting BlueTech
and Blue Jobs®

Education & Workforce Development in the US

Presented to the Expert Group on Skills in the EU

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Education & Workforce Development
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THE MARITIME ALLIANCE

Promoting BlueTech
and Blue Jobs®

Non-profit
industry
association &
**cluster
organizer**

Largest U.S.
BlueTech
cluster 100+
members

Triple Helix:
academia,
industry, &
policy makers

Create a
regional **Blue
Voice**

Founded 2007. In 13th year

Our Tagline:

**“Promoting BlueTech
and Blue Jobs”®**

Our Mission:

“Promote sustainable
science-based ocean &
water industries”



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For TMA, BlueTech includes fresh and salt:

- **BlueTech** is broad – from aquaculture to weather & climate change
- **BlueTech** permits ocean observation in places/ways not formerly possible
 - **BlueTech** critical to understand problems created over centuries
 - Ocean observation isn't "one time" – it is needed repeatedly
 - Blue Economy / Space Economy interface permits real-time comms
- Data allows us to understand impacts and change behavior
- **BlueTech** is essential for humans to address:
 - The Big 5: food, water, medicine, energy & real estate
 - Problems like abandoned netting, plastics, sunken vessels, etc.
- International collaboration is critical – problems & markets too big to act alone

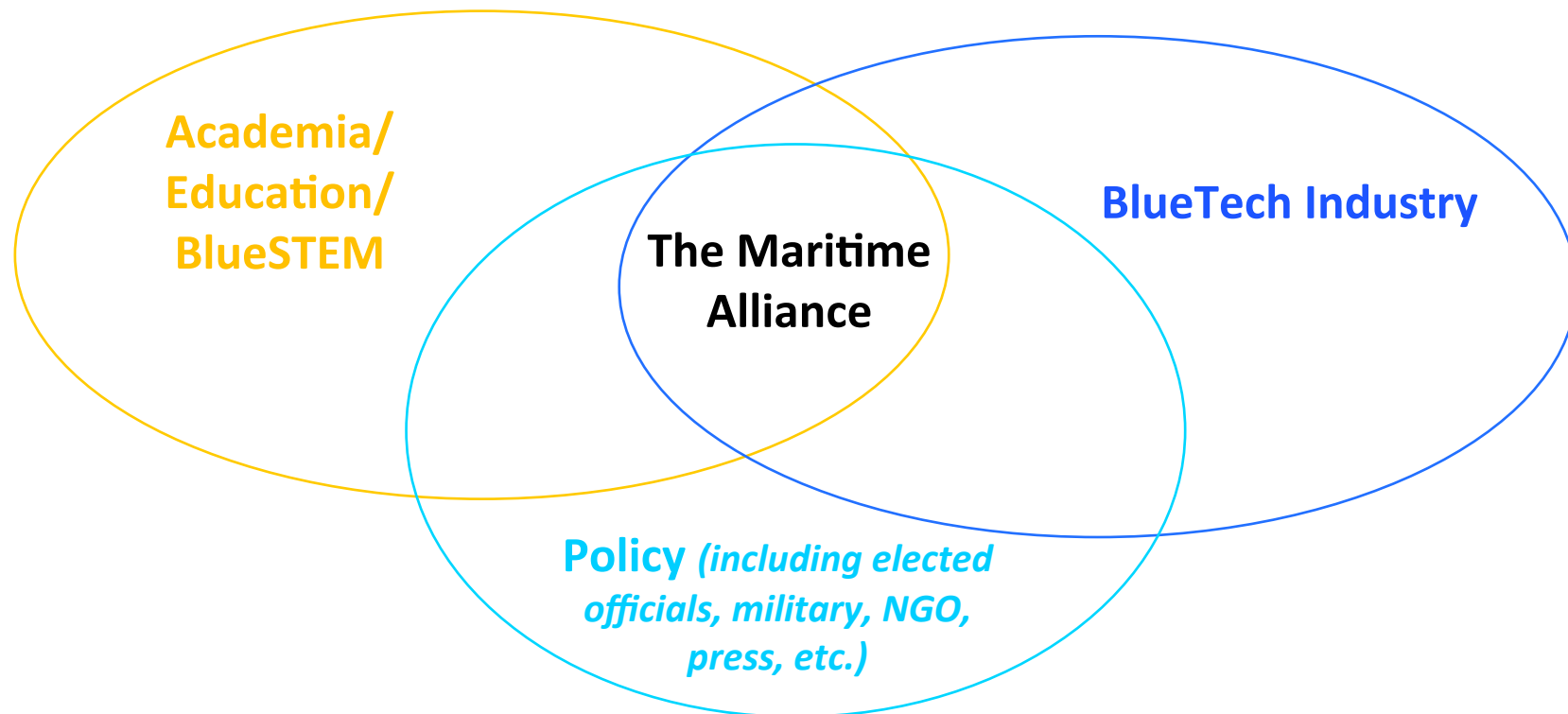
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TMA (like other “full-featured” clusters) is about collaboration across Academia, Industry & Policy (*the Triple Helix*) to create regional **Blue Voice** & promote **Blue** opportunity.





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Education & Workforce Development Overview:

- **BlueSTEM Academy & Career Pathway at San Diego Unified School**
- **Blue Economy** career pathway job videos and **BlueTech** Jobs website
- **Blue Economy** immersion program for HS students (from Blue Collar to **BlueTech**) and internships;
- SeaPerch San Diego chapter (national SeaPerch program)
- **BlueSTEM Internship Program** established in 2018
- **Blue Economy Education Collaborative (BEEC)** with 40+ focused on ocean/water
- “Workforce of Tomorrow” track part of annual **BlueTech Week**
- **BlueTech Foundation** at San Diego Foundation will be gathering additional funds and pursuing alliances to support **BlueSTEM** programs in the region

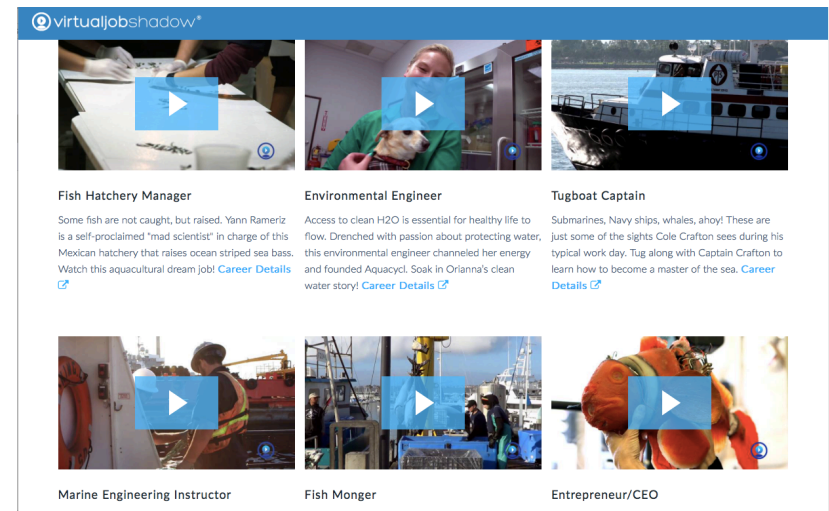


BlueSTEM Pathway Development







- Partnership with San Diego Unified School District to develop **BlueSTEM** Academy & Career Pathway.
 - Established in 2017 after Summer Site Visits to TMA Companies
 - Pilot High School: Mission Bay High School (grades 9 -12)
 - Focus on 9th Grade Biology Class
 - 11th & 12th Grade: Marine Biology and Environmental Studies
 - Pilot Middle School: Pacific Beach Middle School (grades 7 & 8)
 - Interdisciplinary, year long project: Blue Economy Video
 - BlueSTEM Advisory Group
 - First time the Middle School and High School teachers coordinate an interdisciplinary and themed effort
 - Project-Based Learning Institute
 - Intensive two-week workshop for teachers to gain industry exposure and develop interdisciplinary projects
 - Starting 2019, San Diego Unified will infuse **BlueTech** across K-12 130,000+ to promote STEM & align student experience to industry needs;
 - Including fieldtrips to Aquarium, Maritime Museum, BlueTech Week
 - Curriculum Development

BlueTech Career Videos & Website

- Awarded \$400,000 from MiraCosta Technology Career Institute over 4 years to develop **Blue Economy** career pathway job videos and launch a **BlueTech Jobs** website
- 10 Completed to date and 4 In Production
 - Cohort #1 – February 2018
 - Aquaai - CEO
 - Blue Robotics – Mechanical Engineer
 - Pacific Tugboats – Tugboat Captain
 - Plank Aerosystems – R&D Manager
 - Training Resources Limited
 - Cohort #2 – April 2018
 - Aquacycl (formerly Aquam) – Environmental Scientist
 - Cardinal Point Captains – Finance Director
 - Catalina Offshore Products – Fish Monger
 - Earthwise Sorbents – Business Development Manager
 - Pacifico Aquaculture – Hatchery Manager
 - Cohort #3 – March 2019
 - BlueNalu– Environmental Scientist
 - NAASCO –Catalina Offshore Products – Fish Monger
 - Gnostech – Tech Writer/Cybersecurity Engineer
 - Sontek/Xylem – Applications Engineer
 - Available
 - VirtualJobShadow.com/partners/maritime-alliance/
 - BlueSTEMCareers.org (to include Educational Resources, Career List, and Job Portal)

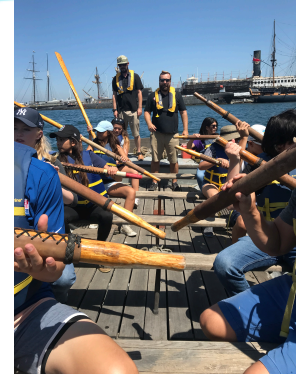


virtualjobshadow®

 Fish Hatchery Manager Some fish are not caught, but raised. Yann Rameriz is a self-proclaimed "mad scientist" in charge of this Mexican hatchery that raises ocean striped sea bass. Watch this aquacultural dream job! Career Details	 Environmental Engineer Access to clean H2O is essential for healthy life to flow. Drenched with passion about protecting water, this environmental engineer channeled her energy and founded Aquacycl. Soak in Orianna's clean water story! Career Details	 Tugboat Captain Submarines, Navy ships, whales, ahoy! These are just some of the sights Cole Crafton sees during his typical work day. Tug along with Captain Crafton to learn how to become a master of the sea. Career Details
 Marine Engineering Instructor	 Fish Monger	 Entrepreneur/CEO

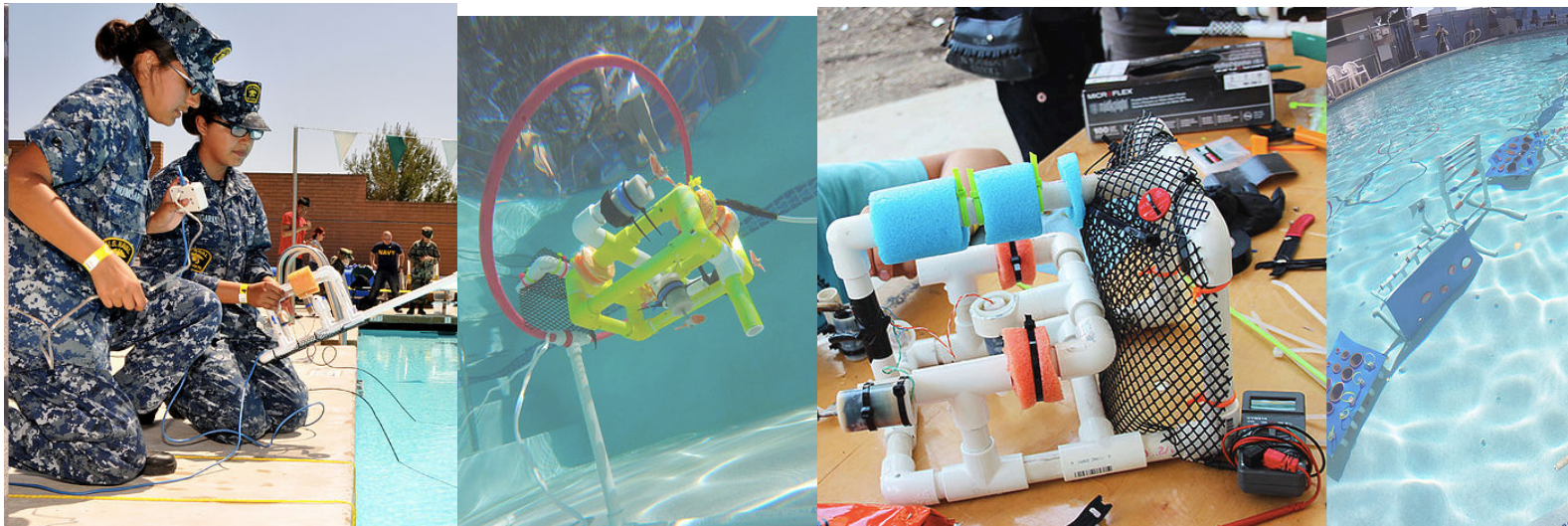
Blue Economy Summer Immersion Program

- Pilot program launched in 2018
- 3-day workshop for rising High School Juniors (entering 11th grade)
- Monday Maritime Museum
 - History of Maritime in San Diego (& internationally)
 - Hands-on Activities including team-building exercise on row-boat
 - Harbor cruise including viewing of commercial and military operations
- Tuesday – Training Resources Limited
 - Participated in technical training classes
 - Hands-on Activities
 - Navigation Skills Overview
 - Career Panel and Intern network session
 - Deck Simulator
- Wednesday – San Diego State University Coastal Marine Living Laboratory
 - Diving Equipment Overview
 - Field Study Data Skills Exercise
 - Wet lab activities including marine touch tanks
 - Teams selected data collection project and presented
 - Career Panel
- Lessons Learned for 2019
 - Additional day at BlueTech Company Site (3 day to 4 day)
 - More hands-on activities
 - Shortened hours per day (6 hours to 4 hours)
 - 3 sessions offered (weeks of 17 June, 24 June, & 5 August)



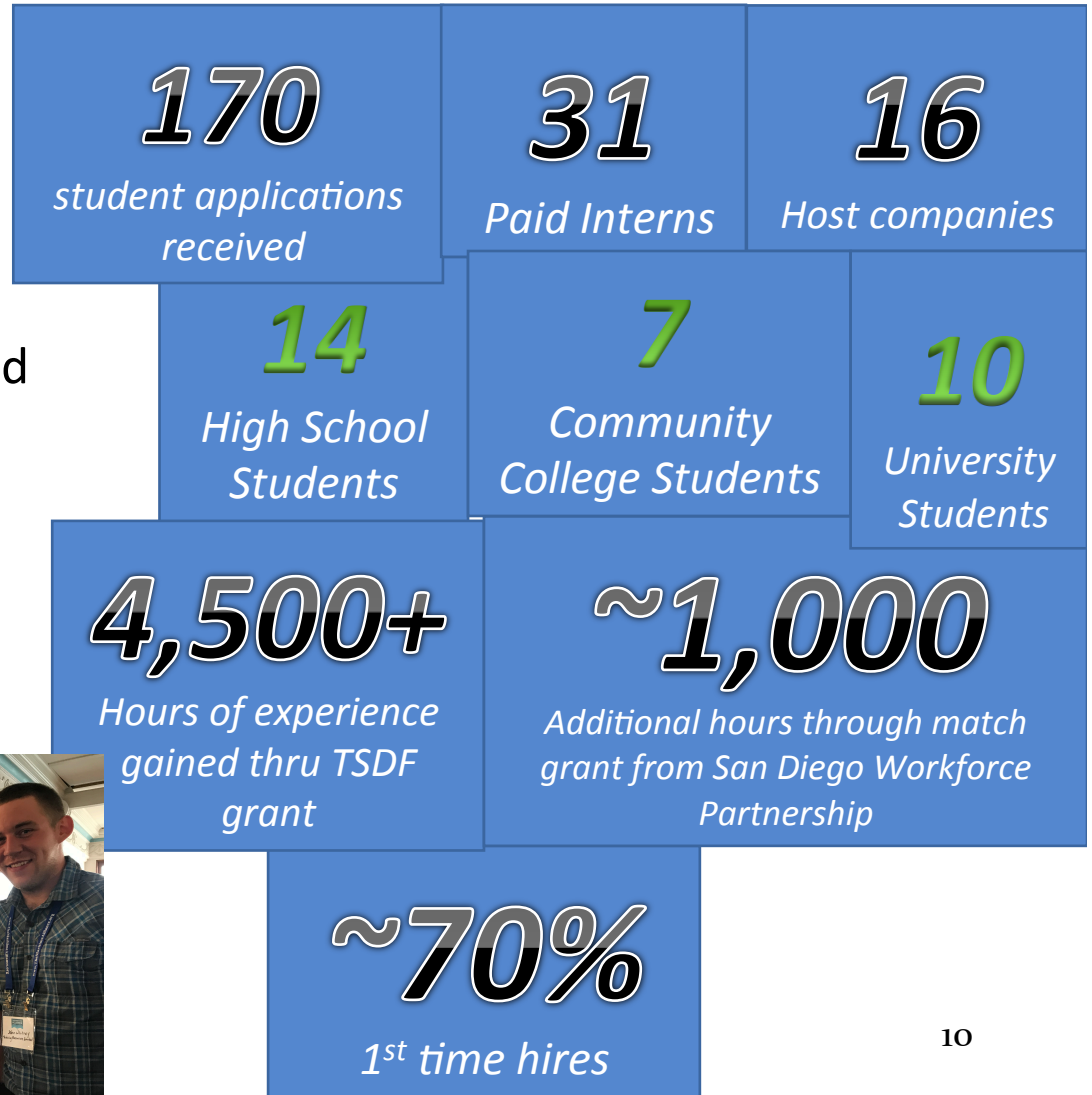
SeaPerch

- **TMA** manages San Diego SeaPerch chapter (national SeaPerch program)
- Teaching young students the basics of underwater robotics through Underwater Robotics Competition
- Fun, safe, and educational
- Semester Program with curriculum and kit
- Qualifying event for National Competition



BlueSTEM Internship Program

- \$70,000 USD grant from The San Diego Foundation
- Partnership with San Diego Workforce Partnership for intern onboarding and payroll services
- Outreach, intern/host pairing, and coordination labor intensive





Blue Economy Education Collaborative (BEEC)

- 40+ regional organizations focused on ocean/water education working in “silos” with little industry connection.
- **TMA**/San Diego Unified School District arranging on-going coordination effort:
 - get to know each other;
 - catalogue existing and proposed programs;
 - catalogue existing and explore potential new funding sources; and
 - promote concrete regional collaboration.
- Launched first meeting April 2018 and two subsequent meetings
 - Resulted in two attendees collaborating and receiving grant
 - Multiple connections with partner companies
 - Networking and collaborating
- Next meeting to be co-located at BlueTech Week (November 20, 2019)

Partner Program

- STEAM Leadership Lecture Series
 - Goal: bridge high-tech science and business with the high-school system and empower students to live their dreams and find great careers and jobs in smart city San Diego
 - Keynote Speaker, Career Panel, Exhibits, Museum Tours on USS Midway
 - Partners
 - STEAM Executive Events
 - The Maritime Alliance
 - San Diego Unified School District
 - USS Midway Museum
 - 2018 Theme: “Ocean Prosperity: Water & Jobs Everywhere”
 - 2019 Theme: “Clean Ocean. Clean Water. Clean Jobs.”



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BlueTech Week 2018 “At-a-Glance”

- 7 events in 5 days
- 550+ unique attendees representing Triple Helix (Academia/Education, Industry & Policy Makers)
- Tech Expo with 40+ table-tops
- 80+ speakers
- 100+ companies (95 companies in 2017)
- 18+ BlueTech clusters or clusters-in-formation
- 16+ countries represented
- 20+ companies in the PitchFest
- Maritime Gala Dinner & Awards Ceremony
- Unbundled daily event fee



“Promoting United Nations Sustainable Development Goals”

Monday Nov 5

4th annual BlueTech Clusters Meeting

Aquaculture & BioMarine

Tuesday Nov 6

Marine Debris Solutions Conference
Co-Hosted with Scripps Institution of Oceanography (proposed)

Blue Economy & Finance

Wednesday Nov 7

10th annual BlueTech Summit
10th annual Maritime Gala Dinner

BlueTech Clusters

Live Demonstrations

Thursday Nov 8

10th annual BlueTech Summit
Blue Economy Workforce of Tomorrow
Live Demonstrations

Marine Debris Solutions

Water/Wastewater

Friday Nov 9

3rd annual BlueTech PitchFest

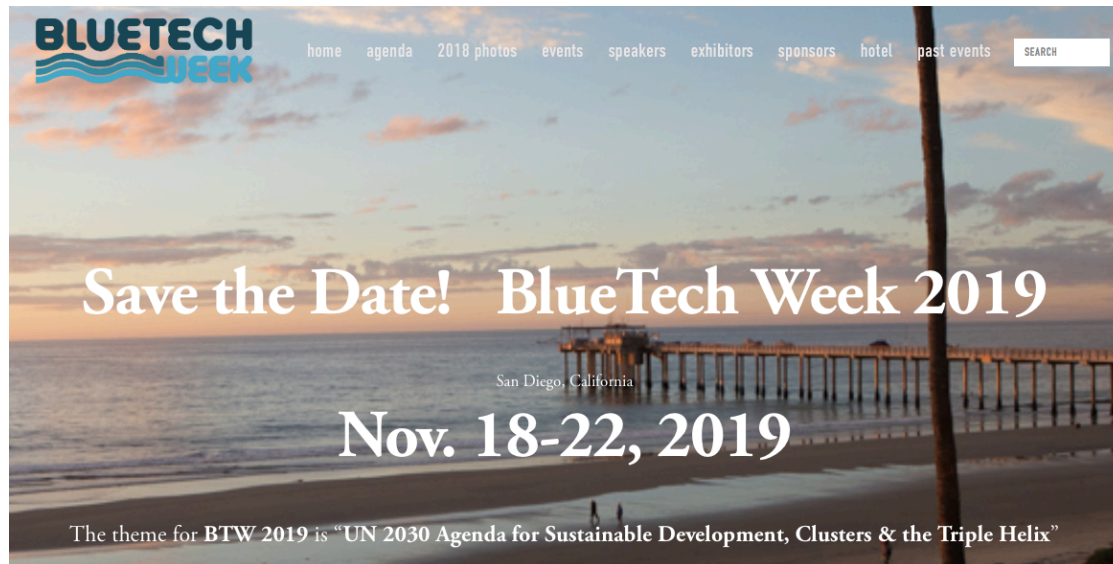
Offshore Renewables

PitchFest

Rev. 12 March 2018

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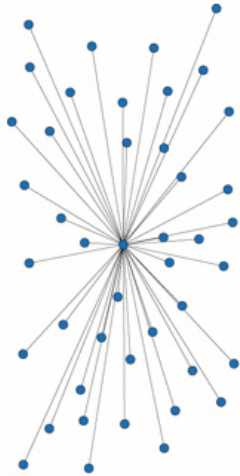
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- Location: Sheraton San Diego Marina – Bay Tower
- Theme: “UN 2030 Agenda for Sustainable Development, Clusters, and Triple Helix”
- 8 events in 5 days - “Green Connections” Co-located event
- Anticipating 600+ unique attendees representing Triple Helix (Academia/Education, Industry & Policy Makers)

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*"If you want to go quickly, go alone.
If you want to go far, go together."*

an African proverb

We need each other. We need to collaborate.
Thank you!



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Discussion



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