

WENDY SCHMIDT OCEAN HEALTH XPRIZE

Wendy Schmidt Ocean Health XPRIZE
Competition Summary
31 January 2014

The Wendy Schmidt Ocean Health XPRIZE Grand Challenge

The Ocean Health XPRIZE Grand Challenge addresses the appalling lack of data on oceans, particularly ocean acidification that is threatening marine organisms and ecosystems at an unprecedented rate.

The Wendy Schmidt Ocean Health XPRIZE is designed to tackle this critical barrier by creating tools that provide a robust knowledge about our oceans.

The Wendy Schmidt Ocean Health XPRIZE is a \$2 Million competition to inspire innovation of accurate, durable, and affordable pH sensors that will profoundly improve our understanding of ocean acidification.

Two purse winners of the prize will:

1. Create extremely high quality sensors that will finally give scientists the ability to measure ocean acidification throughout the world's oceans; and
2. Create affordable and easy-to-use sensors that will give anyone the tools necessary to track—and respond—to ocean acidification.

1. Background

Rising levels of atmospheric carbon are causing the oceans to steadily acidify. The absorption of carbon dioxide from the atmosphere is changing ocean chemistry by driving reactions that make seawater more acidic. Rising ocean acidity has the potential to challenge life on a scale that has not occurred for tens of millions of years. It could have significant biological, ecological, biogeochemical and societal implications, changing the health of shellfish, fisheries, coral reefs, and entire ecosystems. It could affect the economy and society globally.

Ocean acidification is well documented in only a few parts of the world's oceans—relatively little is known about pH in the high latitudes, coastal areas, deep sea, and marginal seas. In order to better understand and adapt to the threat of ocean acidification, we must have better pH sensing systems to monitor and collect ocean pH data.

Ocean acidification is a poorly understood grand challenge. Solving the grand challenge of ocean health requires first knowing what we are up against. The Wendy Schmidt Ocean Health XPRIZE is designed to tackle this critical barrier: creating tools that create robust knowledge about our oceans. Knowledge is the first step to understanding, and leads us on a path to solving ocean acidification.

The \$2.0 Million Wendy Schmidt Ocean Health XPRIZE is a global competition to incentivize the development of accurate, durable, and affordable pH sensors to profoundly improve our understanding of ocean acidification.

Two **Purses** will be available, each with a **First Place Prize** of \$750,000 and a **Second Place Prize** of \$250,000. Although different criteria will be evaluated in each Purse, teams may compete for, and win, both Purses.

Accuracy Purse - A \$1,000,000 Award to the two teams that navigate the entire competition to produce the most accurate yet affordable pH sensor under a variety of tests. The points awarded for this Purse emphasize the performance of sensors.

Affordability Purse - A \$1,000,000 Award to the two teams that produce the cheapest and most usable pH sensor that also meets a defined minimum standard on accuracy, precision, and stability. The points awarded for this Purse emphasize the cost and ease-of-use of sensors.

The Wendy Schmidt Ocean Health XPRIZE was launched in September 2013 and has a total duration of 22 months until the award. Over the final 10 months of the prize, the sensors will be put through a series of tests in laboratory, coastal, and deep-water environments to assess their effectiveness.

Bold and capitalized terms not defined herein bear the definitions in the **Competitor Agreement**, which will be available to teams that have registered their Intent to Compete.

2. Guiding Principles

The XPRIZE Foundation (“XPRIZE”) based the Wendy Schmidt Ocean Health XPRIZE on the following guiding principles:

- Inspire and demonstrate breakthrough technologies for measuring the pH of the world’s oceans at unprecedented accuracy and stability
- Provide critical new tools to accelerate ocean acidification research
- Catalyze the development of the ocean services industry to show the monetary and public value of ocean information and data
- Inspire innovations in ocean sensing technology to produce cheap, accurate, and durable ocean sensors that can be deployed on many platforms
- Be simple to understand and easy to communicate
- Remain independent, non-partisan, and technology neutral, treating Teams with equality and fairness
- Attract a balanced set of donors, sponsors, and partners to help Teams succeed
- Provide substantial opportunities for recognition to make competing worthwhile whether or not a Team wins an Award
- Make heroes out of the Teams and winners through widespread exposure, media coverage, and a significant cash award

- Educate the public on ocean acidification and inspire the public to engage in solving ocean acidification

The Wendy Schmidt Ocean Health XPRIZE organizers and sponsors are entering into this Competition in good faith. XPRIZE expects and requires the same attitude from all competitors and participants, so that the competition will be a positive experience for all.

3. Who Can Participate?

The competition is open to competitors globally. To be eligible to compete and claim any award, a team must be an **Eligible Entity**, as defined in the Competitor Agreement, and must otherwise comply with all the terms of the Competitor Agreement. The Competitor Agreement contains a number of restrictions on potential entrants that are intended to prevent conflicts of interest. Potential teams are also subject to these restrictions.

The competition is void in those countries where prohibited or restricted by law. XPRIZE reserves the right to limit, or restrict upon notice, participation in the competition to any person or entity at any time for any reason.

Teams may withdraw as set forth in the Competitor Agreement.

4. Competition Structure

Competition information will be available in the following documents:

- **Competition Summary** (this document) – Informational document that provides a high-level description of the prize competition
- **Competition Guidelines** – Detailed document that describes the general requirements and parameters of the competition and are binding on teams as referenced in, and as part of, the Competitor Agreement.
- **Competitor Agreement** – Legally binding contract that contains the requirements of the competition. All competing teams must sign this in order to compete for a Purse.
- **Rules and Regulations** – Document detailing the testing protocols, specific rules, dates/times, and other details that will govern the Competition and will be binding on teams.

The Wendy Schmidt Ocean Health XPRIZE is a 22 month, fixed-date competition and will occur in four phases, three of which involve testing the performance of competitors' entries. The **Competition Calendar** is available in the **Competition Guidelines**.

Phase 1: Wendy Schmidt Ocean Health XPRIZE Forum will take place during the first quarter of 2014.

Phase 2: Lab Trials will take place during the 3rd and 4th quarters of 2014.

Phase 3: Coastal Trials will take place during the 1st quarter of 2015. This phase of the competition will determine the winner of the Affordability Purse.

Phase 4: Ocean Trials will take place during the 2nd quarter of 2015. This phase of the competition will determine the winner of the Accuracy Purse.

XPRIZE encourages teams to merge, reorganize, collaborate and/or share technical assets during the course of the **Competition** in order to create the most effective submissions with the highest likelihood

of winning a Purse, subject to the terms and conditions in the Competitor Agreement. Teams cannot withdraw and enter into the Competition as a new team.

5. **Competition Goals**

The Wendy Schmidt Ocean Health XPRIZE is designed to incentivize teams to far exceed the existing standards of sensors for both performance and cost. It is expected that the winning teams will also far exceed the minimum standards set in the Competition Guidelines. Thus the Wendy Schmidt Ocean Health XPRIZE Purses will be awarded to team(s) that rapidly advance pH sensing technology.

All Entries will be judged on the following criteria:

1. **Accuracy**—closeness to the accepted value measured using a specified reference technique
2. **Precision**—repeatability of one measurement after another
3. **Stability**—rate that the measurement drifts away from where it started
4. **Affordability**— the cost of individual sensors. This will be directly assessed from the materials cost estimate for the manufacture of the sensor.
5. **Ease-of-Use**—how easy it is to calibrate, maintain, and operate

In order to ensure widespread utility, all Teams' Entries must meet certain physical and technical characteristics, such as, specific physical dimensions, power requirements, effectiveness in different ocean environments (varying salinity, temperature, depth), and the ability to be deployed on different platforms (e.g. moorings, floats, autonomous underwater vehicles, and shipboard deployment). Data sampling, storage, format, and transmission also affect the utility of a sensor.

In order to score highly in the Competition, Entries must be inexpensive and easy to use. The physical dimensions are expected to be small, lightweight, and usable in many physical environments. These criteria, in addition to the data and communications protocols, must conform to the use requirements of as broad a user group as possible, and will be judged as such. In addition, all sensors must be fully battery powered.

6. **How to Register**

To participate in the Competition, teams must complete the **Registration** process using the competition website once Registration has opened (<https://oceanhealth.xprize.org/>). Teams interested in competing and being eligible for a Purse in the Wendy Schmidt Ocean Health XPRIZE must have registered by 30 June, 2014. No late registrations will be accepted. Registration involves the following steps:

1. Complete and submit an Intent to Compete Form (<https://oceanhealth.xprize.org/competition-details/intent-compete-form>). Upon approval of this form by XPRIZE, the team will be invited to activate an account on the Team Portal with instructions sent to the Team Leader by email.
2. Activate Team Portal to add additional Team Information and pay the Registration Fee. Additional Team Information shall include a brief description of the team's proposed initial pH sensor technology, or **Entry**. The additional Team Information will be reviewed and approved by XPRIZE.
3. Upon approval, a Competitor Agreement and related documentation will be sent to the team for signature. These documents include the Competition Guidelines, the Media Rights Agreement,

Insurance Requirements, the Branding and Style Guide, the Public Relations Guide, the Team Sponsorship Guide, the Team Release and Waiver Document, and the Team Member Release Waiver and Confidentiality Document.

Teams must submit the **Registration Fee** at the time of Registration. The Registration Fee is \$1,000 or \$2,500 USD, payable in U.S. Dollars only. The Registration Fee that each team must pay depends upon when they register for the competition. The following are the registration fees:

- Prior to the Early Bird Registration Deadline (31 March, 2014): \$1,000 USD
- Prior to the Final Registration Deadline (30 June, 2014): \$2,500 USD

If XPRIZE has not received a signed, unrevised Competitor Agreement from a team by the Registration deadline, XPRIZE will refund any Registration Fee submitted by the team and will disqualify the team from the competition.

Registration must be approved and accepted by XPRIZE in order for a team to compete and be eligible to receive any Prizes. XPRIZE may refuse Registration for any reason, including, but not limited to, XPRIZE's determination that a prospective team: (i) lacks the understanding of the financial or technical means required to present a viable Entry; (ii) is not or will not remain an Eligible Entity; (iii) is not likely to comply with the terms of the Competitor Agreement; or (iv) is likely to disrupt relationships with the other teams, sponsors, or otherwise unreasonably endanger the administration of the competition or related activities. Registration materials will be reviewed by XPRIZE for completeness and for compliance with the principles and rules of the competition using all available information. XPRIZE may pose additional questions or requests for clarification to supplement the Registration materials as part of its evaluation. All rejection or acceptance decisions by XPRIZE will be final and in its sole and absolute discretion.

7. Competition Oversight

A **Scientific Advisory Board (SAB)** will be formed to assist with the formulation of the scientific aspects of the competition. The Scientific Advisory Board will be independent of XPRIZE, the Title Sponsor, and all Teams and Team Members. All members of the Scientific Advisory Board will be required to sign non-disclosure or similar agreements, as well as statements acknowledging that they make no claim to the **Intellectual Property** developed by teams or relevant team sponsors or partners.

The **Judging Panel** will evaluate the Entries and will be responsible for assessing compliance with the Competition Guidelines, Rules and Regulations. The judging panel will be comprised of highly qualified and impartial judges. The judging panel will be independent of any team participants and will not be involved in any other area of prize operations. All members of the Judging Panel will be required to sign non-disclosure or similar agreements, as well as statements acknowledging that they make no claim to the Intellectual Property developed by teams or relevant team sponsors or partners. XPRIZE shall select all members of the Judging Panel and submit them to the SAB for review and approval. Members of the Judging Panel will have cross-functional and relevant backgrounds in order to ensure that the Judging Panel will be able to address all of the requirements of the competition. The Judging Panel will have the sole and absolute discretion to select the Prize recipients. The decisions of the Judging Panel are final, binding, and are not subject to challenge.