It’s no fun being an illegal alien...

Invasion by non-native species has been ranked as one of the most devastating ecological impacts to affect marine and fresh waters. Once established, non-native introductions are difficult to control and often impossible to eradicate.

• Single invasion event can result in major shifts to ecosystems
• High impact on local economies
• Early detection and aggressive control measures are the most efficient way to prevent wide spread ecosystem impacts from aquatic invasive species
• Coordinated response including assessment and control / eradication is critical

If you’ve got ‘em, use ‘em!

• Volunteer recreational divers can be used to provide data about where, when and in what abundance the tunicates can be found
• They can also provide valuable data from a wide geographic area over a long time frame
• Outreach and training of divers is critical for success

The REEF Survey Method

REEF volunteers use the Roving Diver Technique (RDT), a non-point visual survey method specifically designed for volunteer data. During RDT surveys, divers swim freely throughout a dive site and record every observed fish species, and a specific set of invertebrates that can be positively identified. The search begins as soon as the diver enters the water. The goal is to find as many species as possible so divers are encouraged to look under ledges and up in the water column. At the conclusion of each survey, each recorded species is assigned one of four abundance categories based on how many were seen throughout the dive [single (1); few (2-10), many (11-100), and abundant (>100)].

Following a dive, each surveyor records the species data along with location, survey time, depth, temperature, and other environmental information. A separate survey is conducted for each dive. Surveys are then submitted online.

REEF surveys are conducted as part of a diver’s regular diving activities; anytime they are in the water.

Summary reports of REEF data are available online at www.reef.org and raw data files are available upon request.

Christy Semmens: christy@reef.org
Janna Nichols: mwscubamom@comcast.net

The Reef Environmental Education Foundation (REEF) Survey Project is a program that enables volunteer divers to collect fish and invertebrate sighting information during recreational dives. The project started in 1993 in Florida and has expanded to include all coastal areas of North and Central America, the Caribbean and Hawaii, including 8 National Marine Sanctuaries. The Project provides a standardized survey method, data management system, and Internet summary reporting.

The REEF Volunteer Survey Project.

• Incorporating the three species of invasive tunicates into the existing REEF citizen science sub-tidal monitoring program for Washington, Oregon and British Columbia starting in 2006.
• Training recreational divers in the classroom to recognize the invasive species underwater and to report them as part of the REEF Volunteer Survey Project.
• Partnering with WDFW, SeaGrant and others to create a waterproof ID card for divers.
• In 2007, REEF organized five in-situ tunicate assessment and removal efforts in Hood Canal and Puget Sound.
• Special collection permit issued by WDFW to REEF's Advanced Assessment Team to help in short-notice removal efforts.

Invasive Tunicate sightings reported in the REEF database: 2006 - 2008

<table>
<thead>
<tr>
<th>Ciona savignyi</th>
<th>Styela clava</th>
<th>Didemnum sp. A</th>
</tr>
</thead>
<tbody>
<tr>
<td>*April 2006 - December 2008</td>
<td>Total</td>
<td>Total sites</td>
</tr>
<tr>
<td>BC</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>WA</td>
<td>0</td>
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*April 2006 is when REEF began monitoring invasive tunicates