

March 26th In Situ Sensors Meeting
Biofouling

Ben Van Mooy (Assistant Scientist in MC&G) discussed work he is doing on a Navy funded project (<http://www.who.edu/hpb/viewPage.do?id=4075>). Copper based anti-fouling paints are being phased out and will be illegal by 2012 (?). Thus the Navy needs new alternatives for its fleet. One paint being looked at is a “**foul-release**” **paint**. Organisms will colonize the surface, but can be easily brushed off.

Biofouling occurs in stages:

- First bacterial “slime” coats a surface
- Spores and eukaryotes attach to the slime and build up complex structures
- Finally barnacles and larger organisms attach

Ben is also working to understand the cell-cell signaling that bacteria use when populating a surface.

Ray Schmitt and Jeff Lord mentioned a local source for anti-biofouling paint is **ePaint** in Falmouth Technology Park (<http://www.epaint.net/index.shtm>). They produce light-activated (hydrogen peroxide-based) paints. They are also capable of making time-release anti-fouling paints. Their paints have been used on moorings – from the surface down to about 50 m.

Copper shutters are still currently the best way to protect **optical windows** (e.g., HOBI Labs anti-biofouling shutter – <http://www.hobilabs.com/cms/index.cfm/37/152/901/1280>). Heidi Sosik pointed out that it is best to have the entire faceplate be copper as well. Otherwise, growth forming on the faceplate can cause inhibit shutter movement/closure. Andy Girard mentioned using **copper tape** to protect housings (e.g., copper foil tape from McMaster-Carr – item # 76555A725). **Copper mesh** can also be used around intakes (e.g., McMaster-Carr item # 9224T46). For long-term deployments (>6 months) the copper will dissolve away.

Taping housings (with a vinyl tape) can make them easy to clean at the end of a deployment – simply remove the tape. This has worked well for Heidi and there has been no problem or difficulty removing the tape.

Other thoughts...

One idea for keeping **optical windows** clean is shining **UV light** out from the housing. This should be effective but would be power consuming.

Pantyhose used around the outside of a cage can help to protect inner components.

Flushing tubing with **chlorine** is also effective.