



# Bottom Paint Checkup 2016

*Be sure to read your paint's application instructions. After test showed thinner coats yielded better performance in some of its newer paints, Pettit now recommends 1/4-inch nap or even 1/8-inch nap foam rollers, instead of the usual 3/8-inch nap.*

## Impending return of Irgarol 1051 raises questions about environmental priorities.

The list of contradictions that define our sailing affliction is long. We need an anchor that buries deep but can be freed at a moment's notice. We want a sealant that sticks to anything, but releases its grip for easy disassembly. We want a boat that can weather any storm, and still make way under sail in a whisper. And we want an antifouling paint that repels every sea creature, but will never harm the sea.



This brings us to Irgarol 1051, an antifouling algacide that is added to boost the performance of the copper biocide in antifouling paint. Irgarol (listed as NCN in the "Booster" column of the accompanying tables) first earned approval from the EPA in 1994, and was introduced in bottom paint in 1998. Irgarol and its metabolites persist in the environment, and it has now become ubiquitous in ports worldwide. Studies from Hong Kong to Annapolis, Maryland suggest that at high concentrations Irgarol can reduce the growth rate of micro-organisms, and some scientists worry that it is already occurring at levels that could be toxic to eel grass, habitat for many juvenile fish species.

Produced by the world's largest chemical company, BASF, Irgarol 1051 is restricted in a few European countries, and has not been available in the

*None of eco-friendly paints at our Lake Superior test site showed significant growth.*

U.S. for two years. The absence is linked to the closure of a domestic plant and opening of a new foreign facility in Asia. Products from this facility have not yet received full EPA certification. According to industry professionals we spoke with, Irgarol 1015 is set to return to the market, possibly as soon as this spring, but no one is holding their breath.

"I just got a letter saying we will be getting our shipment on March 10," said Don Schnurr, the CEO of New Jersey based Bluewater paints. "They've said that before, but this time it seems like it is going to happen."

Most major bottom paint manufacturers make at least two or three paints with Irgarol in the blend, and in the interim they have been keeping their Irgarol-boosted formulas registered with the EPA with the expectation that the booster would come back. (Any anti-fouling paint with active biocides must be registered with the EPA.) With Irgarol's return imminent, we were curious how the antifouling paint test panels that we'd submerged 20 months ago in Sarasota Bay were doing. Unlike previous years, when the panels had at least half a dozen Irgarol-boosted paints, only four of the 58 paints in our test had the bio-booster in it.

### CHOOSING A BOTTOM PAINT

The paints we test fall into either of the two general categories: Hard paints and ablative paints.

Hard paints tend to have a smooth, tough finish that stands up well to frequent scrubbing or can be burnished for reduced drag. The drawback is the build-up of paint layers over the years. Eventually, it's time to strip off the old paint and begin again. Warm water sailors who try to extend time between haulouts with frequent scrubbing tend to prefer these paints

Ablative paints wear away as biocide is released. They come in two types. Workboat ablatives slough away with water friction to activate more biocide. The more expensive ablative copolymers release biocides at a controlled rate. Although ablative paints are often called "soft" paints, the copolymer types can be hard; these hybrid ablatives will

**AS VALUE GUIDE COPPER-FREE PAINTS FOR FRESHWATER at 5 MONTHS (MICHIGAN)**

NAME	MAKER	PRICE/GAL	SPECIAL USES, COMMENTS	BOOSTER**	ZINC	RATING
ZO ✓	Epaint	\$285	Photoactive, alum. safe, overcoats old paint	ZnP 4.8%	None	Excellent
ZO HP ✓	Epaint	\$325	Photo-active high performance racing paint	ZnP 4.8%	None	Excellent
SN-1 ✓	Epaint	\$275	Freshwater release paint, fast finish	DCOIT	None	Excellent
Ecominder ✓	Epaint	\$200	Eco-friendly, self-polishing, water-based,	ZnP 4.8%	None	Good
SN-1 HP ✓	Epaint	\$330	Freshwater release paint, fast finish	DCOIT//PTFE	None	Excellent
JD Krypton \$ ✓	Flexdel	\$180	Copper-free Ecomea, quick drying	Ecomea 5.2 %	ZnP 4 %	Excellent
Pacifica Plus ✓	Interlux	\$180	Copper-free ablative with Ecomea	Ecomea 3.9%	ZnP 4.1%	Excellent
Micron CF ✓	Interlux	\$220	Copper-free ablative with Ecomea	Ecomea	ZNP 2%	Excellent
Ultima Eco	Pettit	\$190	Solvent-based, multi-season, Ecomea	Ecomea 6%	ZNP 4.8%	Excellent*
Vivid Free ✓	Pettit	\$265	Copper-free, solvent based, hard finish	None	ZnP 4.95%	Very Good
Hydrocoat Eco	Pettit	\$225	Water-based, copper-free with Ecomea	Ecomea 6%	ZnP 4.8%	Good
Mission Bay CSF \$ ✓	Sea Hawk	\$190	Copper and solvent-free	ZnP 3.8%	None	Excellent
Smart Solution ✓	Sea Hawk	\$190	Metal-free, slick-film racing paint	Ecomea 2.9%	None	Good

✓ Recommended \$ Budget Buy

\*Coating irregularity, but no growth. \*\*Copper thiocyanate (not cuprous oxide: ZnP (Zinc Omadine) = bis(2-pyridylthio)zinc 1,1'-dioxide; Ecomea = 2-(p-chlorophenyl)-3-cyano-4-bromo-5-trifluoromethyl pyrrole

The popular, thin-film PTFE paints (Interlux VC 17, Pettit SR-21, and West Marine SR-21) contain small amounts of copper and are being tested separately. These paints, also popular among racers, have consistently done well in previous freshwater paint tests.

resist light cleaning and are fine for trailered boats.

Within these two groups are formulas for more specific purposes. We've placed check marks next to "Recommended" paints that did well in one or more of these categories:

- Single-season paints for those who repaint annually;
- Multi-season paints aimed at year-round boaters;
- Slick racing paints and those that can be polished to a smooth finish;
- Water-based paints that are easy to apply and clean up;
- Eco-friendly paints that have low VOCs;
- Copper-free coatings for aluminum boats;
- Freshwater paints that minimize impact on fragile ecosystems.

There are other niche paints for pro-pellers, pontoon boats, inflatable boats, transducers, and for people who want the Coast Guard to find them when their boat is capsized (rescue orange). Some of these are duplicates of other

products, simply renamed to help make the selection process easier for boaters with a specific need.

An essential step before buying is to confirm what is compatible with your last bottom paint, or whether special prep work is needed. Most makers have compatibility charts on their websites along with information on prep work and instructions on what to do when your old paint is a mystery. In some instances, the tech support will recommend using a tie-coat, a type of primer that can promote bonding to previously painted hulls.

If you plan to haul and relaunch, be sure the paint will not lose potency during storage; some need to be "re-activated" with sanding if they have been out of the water too long. If you plan to switch paints remember that most slick "Teflon" paints with PTFE can't be recoated with other types.

For the year-round sailor, long-lasting protection is what matters. In our tests, the paint types generally fail in this order: freshwater paints; eco-friendly

paints; low-copper, single-season paints; water-based paints; high-copper, multi-season ablative paints; and high-copper, multi-season hard paints.

**WHAT WE TESTED**

For the saltwater test, we evaluated 58 paints immersed in Sarasota, Florida. Seventeen of the paints are classified as hard paints; the remaining are ablatives. An ongoing freshwater antifouling test that began last year on Lake Superior includes 16 copper-free paints. Both tests focused primarily on U.S. brands, but many of these paints are available abroad. We also recently tested a few paints that are available in commercial ports around the world (See "Antifouling Paints Abroad," October 2015).

The manufacturers represented in this test include Blue Water Marine Paint, Epaint, Flexdel, Interlux, Pettit, and Sea Hawk Paint. We also included store rebranded paints from West Marine and Jamestown Distributors.

Most of the saltwater the paints use a copper as the primary biocide. Copper

VALUE GUIDE HARD PAINTS at 20 MONTHS (FLORIDA)						
NAME	MAKER	PRICE/GAL	SPECIAL USES, COMMENTS	BOOSTER	COPPER/ZINC**	RATING
Copper Pro SCX Hard ✓	Blue Water	\$215	High copper, dual biocide	NCN	67%	Fair
Copper Shield Hard \$ ✓	Blue Water	\$82	Economical hard paint, separate booster \$50	None	35%	Poor
EP2000 ✓	Epaint	\$290	Water-based, race paint, alum.-safe, photoactive	ZnP	None	Good
SN-1 ✓	Epaint	\$275	Freshwater release paint, fast finish	DCOIT	None	Fair
ZO HP ✓	Epaint	\$325	Photo-active high performance racing paint	ZnP 4.8%	None	Good
Bottomkote Aqua ✓	Interlux	\$140	Water-based, easy to apply, burnishable	None	47%	Poor
Ultra ✓	Interlux	\$190	High copper, dual biocide	NCN	55%	Fair
VC Offshore ✓	Interlux	\$260	High-performance racing paint	None	41%	Poor
VC 17M Extra ✓	Interlux	\$53 / qt.	Freshwater racing paint, thin film, fast dry	NCN	17%	Poor
Trinidad ✓	Pettit	\$225	High copper	None	76%	Good
Trinidad SR ✓	Pettit	\$250	High copper, dual biocide	PTFE	65%	Good
Unepoxy	Pettit	\$90	Standard hard, single season	None	33%	Poor
Woolsey Defense \$ ✓	Pettit	\$95	Standard hard, single season, high copper	None	52%	Fair-
West Marine Bottomshield*	Pettit	\$140	Uses copper composite technology	None	29%	Poor
Sharkskin \$ ✓	Sea Hawk	\$150	Budget priced, single season	None	45%	Fair-
Talon	Sea Hawk	\$95	Single season, copper-based modified epoxy	None	33%	Poor
Tropikote ✓	Sea Hawk	\$250	Multi-season, high copper	None	76%	Fair

✓ Recommended \$ Budget Buy  
 \*Re-branded Pettit paint. \*\*Copper oxide; copper thiocyanate in aluminum-safe paints. NCN (Irgarol 1051) = N-cyclopropyl-N-(1,1-dimethylethyl)-6-(methylthio)-1,3,5-triazine-2,4-diamine; ZnP (Zinc Omadine) = bis(2-pyridylthio)zinc 1,1'-dioxide; Ecomea = 2-(p-chlorophenyl)-3-cyano-4-bromo-5-trifluoromethyl pyrrole

bottom paint is already subject to restrictions in California and in Washington State, where copper-based paints are to be banned from use in all recreational vessels by Jan 1, 2020. As more stringent environmental protections are phased in, paint manufacturers realize that copper-free paints hold the key.

Today, one of the most common substitutes for copper is Ecomea, a non-metallic antifouling agent that has been used for years in other applications. Although not as potent as copper over the long haul, Ecomea offers good protection for periods up to 12 months, occasionally longer. The Ecomea paints did surprisingly well in the early phases of our saltwater tests, and we're seeing the same thing in freshwater. Long-term saltwater protection, however, has been inconsistent.

The accompanying tables indicate the best paints after 20 months submersion at the Sarasota site, and five months on Lake Superior. Except for one mysterious

adhesion failure (Ultima Eco) that we are looking into, the lake paints had very little growth, so the distinction between a paint rated Excellent and Good is small.

Based upon previous test results, we're not convinced that Irgarol provides demonstrably longer protection, but it is effective at preventing slime growth during the first 12 months in the water. If you want to search for an Irgarol-based paint this spring, here is the list of current paints that use it. Several of these paints might not be available.

- **Interlux:** Micron Extra, Ultra, ACT with Irgarol, VC17m Extra
- **Pettit:** Trinidad SR, Trinidad Pro, Ultima SR 40, Ultima SR 60, Hydrocoat SR
- **Seahawk:** Cukote Biocide Plus, Tropikote Biocide Plus
- **West Marine:** BottomPro Gold, PCA Gold
- **Blue Water:** Copper Pro SCX, Copper Pro SCX Hard, Copper Shield SCX

Before you buy one of these paints, check the active ingredients. Irgarol 1051 is usually listed under its systematic name, N-Cyclopropyl-N'-(2-methyl-2-propyl)-6-(methylsulfanyl)-1,3,5-triazine-2,4-diamine. If you can't find an Irgarol boosted paints, another additive, zinc pyrithione, is also effective.

If don't mind a little extra algae after eight months, or you are a single-season boater, a non-boosted paint should suffice. Given the regional variations we've seen, we encourage boaters to seek out recommendations from local boatyards or marinas.

Many readers tell us that they are quite happy with low-priced paints that struggle in our long term tests. Some bottom tier ablatives are especially well-suited for seasonal boaters who repaint every year, and some lower-priced hard paints have followers among year-round boaters. Seasonal boaters looking for a more complete picture of short-term protection should review our previous

**VALUE GUIDE ABLATIVE PAINTS at 20 MONTHS (FLORIDA)**

NAME	MAKER	PRICE	SPECIAL USES, COMMENTS	BIO-BOOSTER	COPPER/** ZINC	RATING
Aquashield	Blue Water	\$120	Water-based, multi-season, re-launchable	None	45%	Poor
Gold Coast SPC Ablative ✓	Blue Water	\$155	High copper, for high-fouling waters	ZnP 3%	39%	Fair
Copper Shield Ablative \$ ✓	Blue Water	\$120	High copper, high fouling waters	ZnP 3%	45%	Fair-
Copper Shield Uno	Blue Water	\$82	Single-season, budget-priced	None	25%	Poor
Kolor	Blue Water	\$210	Aluminum-safe, bright colors	None	45%	Poor
New England	Blue Water	\$75	Budget-priced, single-season paint	None	25%	Poor
Shelter Island Plus ✓	Blue Water	\$185	Solvent based, copper free , zinc boosted	ZnP	Zinc 25%	Fair
Total Boat Juggernaut	Blue Water	NA	Single-season (no longer available)	None	35%	Poor
Total Boat Spartan (new)	Blue Water	\$160	Multi-season, high-fouling waters	None	45%	Poor
Ecominder ✓	Epaint	\$200	Eco-friendly, hybrid-hard, water-based	ZnP 6%	None	Poor
ZO ✓	Epaint	\$285	Photoactive, alum. safe, harder finish	ZnP 4.8%	None	Good
Total Boat Inflatable (new) ✓	Flexdel	\$50 / qt.	Flexible water-based for inflatable boats	ZO 2.9%	28%	Fair
Total Boat Krypton (new) ✓	Flexdel	\$180	Copper-free, single-season, with Econea	Econea 5.2 %	ZnP 4%	Fair
Total Boat JD Select (new)	Flexdel	\$120	Water-based ablative, low VOC	None	28%	Poor
Total Boat Underdog (new)	Flexdel	\$83	Budget-priced, single-season	None	22%	Poor
Micron CF ✓	Interlux	\$220	Multi-season, Copper-free Econea	Econea 3.9 %	NCN 2%	Fair
Micron 66 ✓	Interlux	\$280	Self-polishing copolymer, not for fresh water	ZnP 4.1%	40%	Fair
Micron CSC ✓	Interlux	\$205	High-strength, low VOC	None	37%	Fair
Pacifica Plus	Interlux	\$180	Copper-free ablative with Econea	Econea 3.9%	ZnP 4.1%	Poor
Trilux 33	Interlux	\$225	Aluminum safe, bright colors	ZnP	17%**	Poor

✓ Recommended \$ Budget Buy

\*Re-branded Pettit paint. \*\*Copper oxide; copper-thiocyanate in aluminum-safe paints.

NCN (Irgarol 1051) = N-cyclopropyl-N-(1,1-dimethylethyl)-6-(methylthio)-1,3,5-triazine-2,4-diamine;

DCCOIT (Sea-Nine 211) = 4,5-dichloro-2-n-octylisothiazolin-3-one; ZnP (Zinc Omadine) = bis(2-pyridylthio)zinc 1,1'-dioxide;

Econea = 2-(p-chlorophenyl)-3-cyano-4-bromo-5-trifluoromethyl pyrrole

eight-month or one-year checkups (See March 2016, March 2014, and others at [online](#)). For more details on the test protocol see “How We Tested,” on page 12.

**BLUEWATER/JAMESTOWN**

We tested 11 paints from New Jersey-based Blue Water Paint. The group included two hard paints; the rest were ablatives. The best Blue Water paint in the hard group was Copper Pro SCX 67, a perennial top finisher which contains Irgarol. This multiseason paint has 67 percent copper content by weight. Gold Coast SPC also did well over the long term.

An eco-friendly option, zinc-boosted, copper-free Shelter Island Plus rated well at eight months, though

it lost its punch at the 20-month mark. The company recently introduced a ZnP boosting additive sold separately (\$50) to be used with their paints, but we have not tested this yet.

Three Blue Water paints were introduced in 2015 under Jamestown Distributors’ Total Boat brand, although one—the single-season, self-polishing paint Juggernaut—was dropped this year. The best of the Bluewater Total Boat paints we tested was Spartan, a multi-season paint comparable to Copper Shield Ablative, which contains 45 percent copper by volume.

Blue Water paints are available through the company’s website or through distributor Donovan Marine ([www.donovanmarine.com](http://www.donovanmarine.com)). Some of the paints are also sold under the MarPro label.

**EPAINT**

Epaint had two real standouts at the 20-month mark, the water-based EP-2000 and ZO-HP; both are copper-free. The ZO-HP, which at \$325 a gallon is aimed mostly at deep pocketed racers, had no barnacles and almost no soft growth, something we rarely see in any paint at 20 months. Most of Epaint’s offerings are copper-free paints that are photo-active, meaning they release a biocide when exposed to light, and this approach seems well-suited for our test site. Because several Epaint coatings are activated by sunlight, high-latitude sailors should check with ePaint to see if it’s appropriate for your region. EP-2000 can’t be applied over other conventional paints.

**VALUE GUIDE** ABLATIVE PAINTS at 20 MONTHS (FLORIDA)

NAME	MAKER	PRICE	SPECIAL USES, COMMENTS	BIO-BOOSTER	COPPER/** ZINC	RATING
Alumacoat SR	Pettit	\$150	Aluminum friendly	None	ZnP 5%	Poor
Horizons \$ ✓	Pettit	\$170	Ablative multi-season	None	48%	Fair
Hydrocoat SR	Pettit	\$150	Water-based, copper, multi-season ablative	NCN 2%	40%	Poor
Hydrocoat Eco ✓	Pettit	\$225	Water-based, copper-free with Econe	Econe 6%	ZnP 4.8%	Fair
Ultima Eco	Pettit	\$190	Solvent-based, multi-season with Econe	Econe 6%	ZnP 4.8%	Poor
Ultima SR-40	Pettit	\$200	Multi-season, dual-biocide	NCN 2%	40%	Poor
Ultima SR-60 ✓	Pettit	\$240	Multi-season, dual-biocide	NCN 2%	60%	Fair
Neptune 5 (new)	Pettit	\$105	Hybrid hard finish, thin-film, water-based	None	25%	Poor
Pontoon Pro (new) ✓	Pettit	\$190	Copper-free with Econe	Econe 6%	ZnP 4.8%	Poor
Ultima SSA ✓	Pettit	\$130	Single-season ablative paint	None	38%	Fair
Woolsey Yacht Shield ✓	Pettit	\$175	Multi-season, dual biocide, high-copper	NCN 2%	40%	Fair
Vivid ✓	Pettit	\$240	Bright colors, white	ZnP	25%	Fair
West Marine CFA Eco* (discontinued)	Pettit	\$180	Water-based, copper-free with Econe	Econe 6%	ZnP 4.8%	Poor
West Marine CPP* ✓	Pettit	\$140	Uses composite copper technology	None	38%	Fair
West Marine PCA Gold* ✓	Pettit	\$210	Industry standard with biocide	NCN 2%	40%	Good
AF-33	Sea Hawk	\$130	Harder ablative, economical, trailerable	None	34%	Poor
Biocop TF ✓	Sea Hawk	\$275	Dual-biocide, multi-season	ZnP 4.5%	38%	Fair
Cukote ✓	Sea Hawk	\$200	High copper	None	48%	Fair
Mission Bay CF	Sea Hawk	\$190	Copper and solvent-free	ZnP 3.8%	None	Poor
Monterey	Sea Hawk	\$140	Water-based, high copper, semi-hard paint	None	55%	Poor
Smart Solution ✓	Sea Hawk	\$190	Metal-free, slick-film racing paint	Econe 2.9%	None	Fair

✓ Recommended \$ Budget Buy

\*Re-branded Pettit paint. \*\*Copper oxide; copper-thiocyanate in aluminum-safe paints.

NCN (Irgarol 1051) = N-cyclopropyl-N-(1,1-dimethylethyl)-6-(methylthio)-1,3,5-triazine-2,4-diamine;

DCOIT (Sea-Nine 211) = 4,5-dichloro-2-n-octylisothiazolin-3-one; ZnP (Zinc Omadine) = bis(2-pyridylthio)zinc 1,1'-dioxide;

Econe = 2-(p-chlorophenyl)-3-cyano-4-bromo-5-trifluoromethyl pyrrole

**FLEXDEL/JAMESTOWN**

Based on testing done in conjunction with Roger Williams University, Rhode Island-based Jamestown Distributors has settled on five Flexdel paints to roll under its relatively new Total Boat brand. The company has focused its most recent research on identifying cost effective coatings suited for temperate brackish waters, where fouling can occur quite rapidly in summer. Krypton, which uses Econe, scored well at eight months, as did its flexible “Inflatable” boat paint, an area where Flexdel (as the name implies) has earned a solid reputation. Spartan had done moderately well in field trials on a local sailboat. We’ve not tested its newest paint, Keelhauler, which the company says has excelled

above all others in its own test. Another promising product not included this round was Argo, which is comparable to West Marine’s PCA Gold.

**INTERLUX**

Interlux’s Micron 66 has done consistently well in our Sarasota tests since they began. Its only drawback is that it loses potency in freshwater, so if you keep your boat in brackish water, check with Interlux first. Among Interlux’s copper-free offerings, Micron CF and Pacifica Plus showed very little slime after eight months. Boaters who want to haul out next winter and relaunch without re-painting will like Micron CSC. Interlux’s water-based Fiberglass Bottomkote Aqua has also done well

in our long-term tests and is a favorite among do-it-yourselfers who prefer hard paints. Interlux introduced four paints this year that we’ve not tested, Micron Optima, a water-based version of its popular Micron line; professionally applied Micron WA, which is promising 24-month protection; and Ultra-Kote, which replaces the Irgarol-boosted Ultra.

**PETTIT/WEST MARINE/WOOLSEY**

Four of the slime-resistant (SR) Pettit paints we tested had Irgarol in them and should be available by spring. If not, Pettit had several contenders, especially in the hard paint category where the company’s products have excelled in the past. Among copper-based hard paints,

# Tests Include Panel Testing & Field Trials

Our test fiberglass panels are taped into sections and paints are applied following the manufacturer's instructions. Testers rate the paints with no reference to the paint name or manufacturer.

The finished panels are suspended from a fixed dock so they are about two feet below the water at mean low tide. One complete set is secured to a dock on Sarasota Bay. The other set, featuring only eco-friendly paints, hangs from a dock on Lake Superior.

Although the panels do not move like a boat, the paints are rated after they have been sluiced once with a bucket of water. An Excellent rating is given to paints that show no hard growth and virtually no soft growth. A Poor rating is reserved for paints with hard growth or very heavy soft growth. In between, are the Good and Fair ratings, which are based on how much soft growth a paint has relative to



We supplement our panel testing with head-to-head field trials, usually limited to two paints per boat. Our test boats are quartered to ensure equal exposure of both paints..

the field. Good paints have no hard growth and a minimal amount of soft growth. Fair paints will clearly have more soft growth than a panel rated Good.

Editors identify overall winners and the top paints in the various categories. They also search the Internet to find the lowest price for each paint so they can be compared on a per-dollar basis. However, prices can change without notice, so we recommend checking before you buy.

█ has generally found its field tests to be consistent with the panel results, but antifouling effectiveness can vary from boat to boat, year to year, and place to place. How frequently a boat is used (particularly among some ablative paints) and the variety of marine organisms present in a specific area can affect performance. We encourage readers to supplement our data with reports from local experts and other boat owners in your area.

Photo by █

Trinidad and Trinidad SR were among the cleanest in our test. In the ablative category Ultima-SR60 scored highest. Not far behind was Ultima-SR40, a multi-season paint with slightly less copper. West Marine's PCA Gold also fared well in this category.

## SEA HAWK

Florida-based Sea Hawk Paint has some exceptional ablative paints formulated especially for tropical waters that have gained a following among Caribbean boaters. Both Biocop TF and Cukote have fared well in our previous tests and were among the cleaner panels in this checkup. On the eco-friendly front, we've been watching Smart Solutions, a paint developed by Sea Hawk that contains no metal at all. The budget-friendly hard paint Sharkskin, did well at the eight-month mark.

## CONCLUSION

The success of Epaint and some Ecomea formulas show that there are more eco-friendly alternatives to our current arsenal of biocides. These options will provide acceptable protection to many boaters who don't need the help of a

full-strength copper-based paint. The levels at which some of these biocides are accumulating in harbors and persisting in the environment should prompt conscientious boaters in lakes and poorly flushed estuaries to shift toward low-biocide or no biocide formulas.

Keep in mind that the switch to an eco-friendly paint can come at a higher price—but not always. And it is also important to note that many additives introduced to replace conventional biocides can have their own bad side effects. Irgarol is one example. Ecomea has been shown to break down rapidly in the environment and cause no significant harm to marine life, and the most eco-friendly paints are the new release coatings—which don't even require EPA approval. These paints, which work by creating a slick coating that nothing sticks to, contain no biocide at all.

One way to see how these paints work in your home waters is to try it on your dinghy or a small powerboat. The success of the release coatings in our freshwater test suggest that the only reason for boaters in sensitive, low-fouling environments to use a copper-based paint is

to save money—and this amounts to less than \$10 per month.

For the warm water sailor who is accustomed to going for as long three years between haulouts, the choice still clearly tilts toward copper-based paints, but, for the first time, we are beginning to believe there will come a day when copper-based antifouling will become a thing of the past. ▲

## CONTACTS

**BLUE WATER**, 800/628-8422, [www.bluewatermarinepaint.com](http://www.bluewatermarinepaint.com)

**EPAIN**T, 800/258-5998, [www.epaint.com](http://www.epaint.com)

**INTERLUX YACHT FINISHES**, 800/468-7589, [www.yachtpaint.com](http://www.yachtpaint.com)

**JAMESTOWN DISTRIBUTORS**, 800/490-0010, [www.jamestowndistributors.com](http://www.jamestowndistributors.com)

**PETTIT**, 973/625-3100, [www.pettitpaint.com](http://www.pettitpaint.com)

**SEA HAWK PAINTS**, 727/523-8053 [www.seahawkpaints.com](http://www.seahawkpaints.com)

**WEST MARINE**, 800/262-8464, [www.westmarine.com](http://www.westmarine.com)