

Common anti-fouling mistakes

The following are ways that anti-fouling efforts can be wasted:

Missing the overcoat window when applying anti-fouling over epoxy primer barrier coat

If applying the anti-fouling over new primer barrier coat system or spot repairs, you must apply the anti-fouling paint when the primer is in the "thumbprint tacky" stage. Otherwise flaking may occur, either now or next time the vessel is slipped.

Premature launching

Don't take the risk of launching early, before the paint has cured completely. Painting between tides is also not advised.

Exceeding the recommended launch window of the anti-fouling

If left too long in the sun the film may start to oxidize and lose its effectiveness once immersed in the water, or air contaminants like dust block up the anti-fouling film.

Low salinity in the water

Low salt levels can occur due to the influx of fresh water, either from a freshwater source, such as a river, or from heavy rainfall. Even a temporary drop in salinity can inhibit an anti-fouling paint's ability to leach biocide. When this happens, marine fouling organisms can get a toehold. Once the fouling starts, it can worsen until the anti-fouling becomes completely ineffective.

Contaminants

Contaminants such as silt, chemicals and other pollutants affect the pH balance of the water. High alkaline levels can prevent the anti-fouling from ablating or polishing making anti-fouling coating ineffective.

Water temperature

In general terms, there is more fouling in warmer waters. Using your boat more often will help the anti-fouling coating to be more effective as it helps to expose fresh biocide when the boat moves through the water.

Improper grounding or stray electric current

Electric current in the water underneath and surrounding your boat can neutralize the anti-fouling paint, causing biofouling to occur.

Improper surface preparation

Adhesion failure, flaking, peeling, and delamination problems occur due to improper surface preparation.

Not achieving the specified anti-fouling thickness

Follow the manufacturer's recommendations for film thickness and recommended number of coats. Don't thin it to spread it out further, as while you save a few dollars now, it will cost you dearly due to the reduced effectiveness of the anti-fouling. If you do not apply the recommended number of coats or achieve the correct thickness, you risk affecting the longevity of the paint.

Non-approved additives

Don't add non-approved additives like chilli powder, weed killer, etc. They don't work and compromise the effectiveness of anti-foul.

Problem areas

Sea Chests, water intakes and outlets, bow thrusters

These are all areas that need careful attention for preparation and anti-fouling.

Boot-tops and wind and weather lines

Often boot tops are too low in the water. Commercial vessels, when fully loaded, may grow a biofouling layer up beyond the waterline.

Slipping blocks

Need to be moved each slipping. Even better is to coat all areas on each anti-fouling occasion, so you don't have ineffective coating on biofouling hot spots like the bottom of the keel.

Additional guidance for hull preparation, coating application and maintenance

<http://www.agriculture.gov.au/biosecurity/avm/vessels/biofouling/anti-fouling-and-inwater-cleaning-guidelines>



Getting your anti-fouling application right

Anti-fouling guidelines



Keel block fouling. Photo: Barrie Forrest



Biosecurity New Zealand
Ministry for Primary Industries
Manatū Ahu Matua



Nelson City Council
te kaunihera o whakatū



tasman | Te Kaunihera o te tai o Aorere
district council

Anti-fouling paints and biofouling

The correct use of anti-fouling paints is critical for preventing spread of harmful biofouling organisms. Correct use means choosing the paint that's best suited to your vessel and its operating profile and applying it correctly so that it's effective.

Biofouling begins as soon as the surface of a vessel is submerged in seawater with the formation of a slimy surface film consisting of bacteria and microscopic algae.

Visible biofouling develops as the vessel remains submerged in seawater. The process occurs as organisms settle on top of the microscopic biofouling slime layer.

Over time as biofouling develops, larger organisms appear, such as sponges, sea squirts, mussels, oysters and seaweeds. Levels of biofouling increase the longer a vessel or structure remains submerged in seawater.

Different types of anti-fouling have different uses: choose the right type for your vessel

Ablative anti-fouls are very slightly soluble in water, so microscopic fragments of it are constantly falling away exposing fresh biocide. The build-up of layers of anti-foul is reduced and tends to be cheaper than hard anti-fouls. This is the most commonly used anti-foul and is suitable for cruising yachts and displacement motorboats. Its drawback is that it cannot be scrubbed. It typically lasts 24 months and is better suited to boats which spend more time moored than at sea.

Hard types of anti-foul use biocides that dissolve very slowly in water, so they gradually dissolve as the season progresses. The biocide particles are suspended in the paint resin which dries to a hard finish. They can enable periodic scrubbing during the season to keep the bottom in perfect condition. It is ideal for racing yachts that are kept afloat and for fast powerboats or planing launches. It cannot be easily applied over soft ablative anti-foul. Not as effective unless the boat is used regularly.

Foul release coatings are not actually an anti-foul as these contain NO biocides. They are a type of coating which rely on low surface tension, low surface roughness and high flexibility. They provide no biofoul protection while stationary, are expensive to apply to vessels, require vessel to be used regularly and for long periods, and once this paint has become fouled beyond a primary level, may no longer work. They are typically used on ocean going vessels primarily those at sea more than 90% of the time. They are also used on faster speed, regular use vessels such as pilot boats. They are not suitable for recreational vessels.

Rudders, Kortz nozzles and propellers often need specialist foul release systems (commonly silicone based).



Trim tab fouling. Photo: Barrie Forrest

Get your anti-fouling application right

Thorough surface preparation is the secret to success. Well-applied coatings will protect your boat from marine growth and protect your hull from the harsh saltwater environment. Poor preparation and workmanship result in poor performance, coating failures and expensive repairs. Cutting corners or applications outside label recommendations will also lead to an increased risk of severe biofouling.

Vessels are hauled out on hard stands and work done by commercial firms or vessel owners. Typically, vessel owners should follow these steps:

Step 1: Waterblast surfaces to be painted to remove salts, slime, marine growth and failed coatings. The higher the water pressure the better, as this will reduce your overall workload. Ideally the pressure should be 3,500 - 4,000 psi.

Step 2: Thoroughly wet sand all anti-fouled surfaces with 80 grit wet and dry paper using a pole sander to remove any remaining, hydrolysed (spent) anti-fouling and residual slime.

Step 3: Spot prime and full repaint with the anti-foul system to the specifications on the paint container label (or available from your retailer or the manufacturer). This means 3 coats if you are using a roller or two coats with an airless spray coat. Most paints need 8 to 12 hours to dry and a quick slap of paint on keel and block areas an hour before going back in the water is not effective. For good results you must follow the application protocols given by the coating manufacturer to ensure their coatings work properly.



Water blasting showing removal of hydrolysed layers. Photo: Carboline

Commercial firms will often use sandblasting. All areas of damage are spot blasted and primed. The remaining anti-foul may be sweep blasted to remove any remaining, hydrolysed (spent) anti-fouling. Commercial vessels are usually repainted with 2-5 year systems. Mainly applied by airless spray methods.