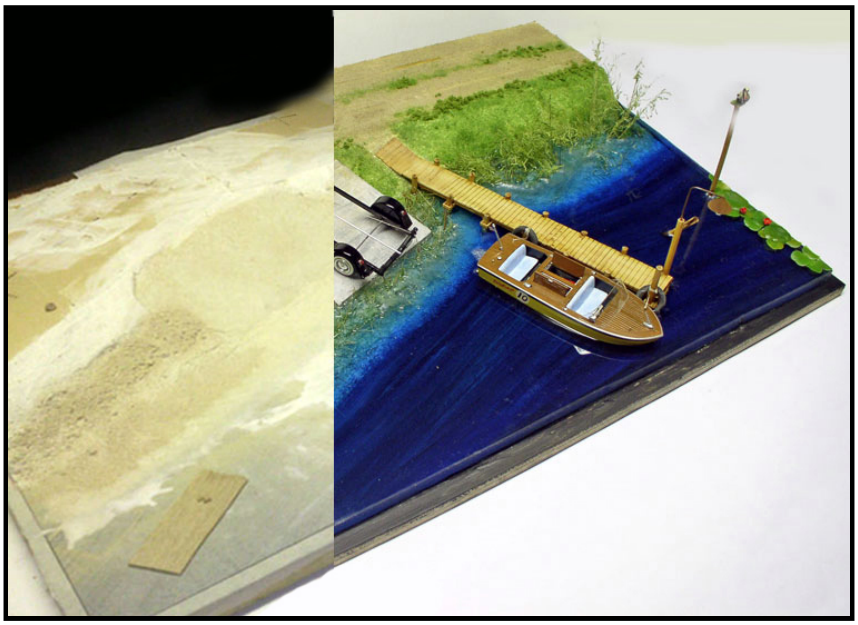


Resin water creation on a diorama

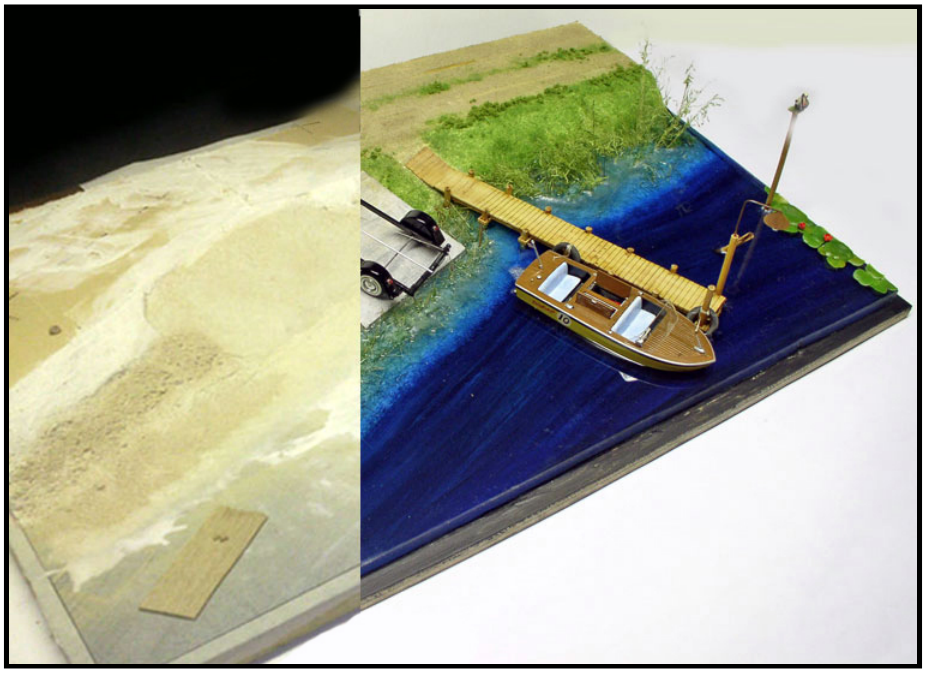
22/11/2014 — Standard Techniques



Contents

1. The pontoon
2. The Riverbank
3. Preparation
4. Casting/Resin

La création de l'eau en résine sur un décor n'est pas toujours une chose simple mais le résultat final en vaut la peine. Elle demande beaucoup de précision dans les doses et une bonne préparation du support. Il existe plusieurs produits pas toujours évidents à manipuler, tous no...





Creating resin water effects on a model isn't always easy, but the end result is worth the effort. It requires a great deal of precision in measuring out the ingredients and proper preparation of the surface. There are several products that aren't always easy to work with—all of which are toxic—and their measurements must be followed down to the gram....

Some are sold in small quantities and can be prepared quickly, making it easy to quickly create small bodies of water, such as ponds, streams, etc.

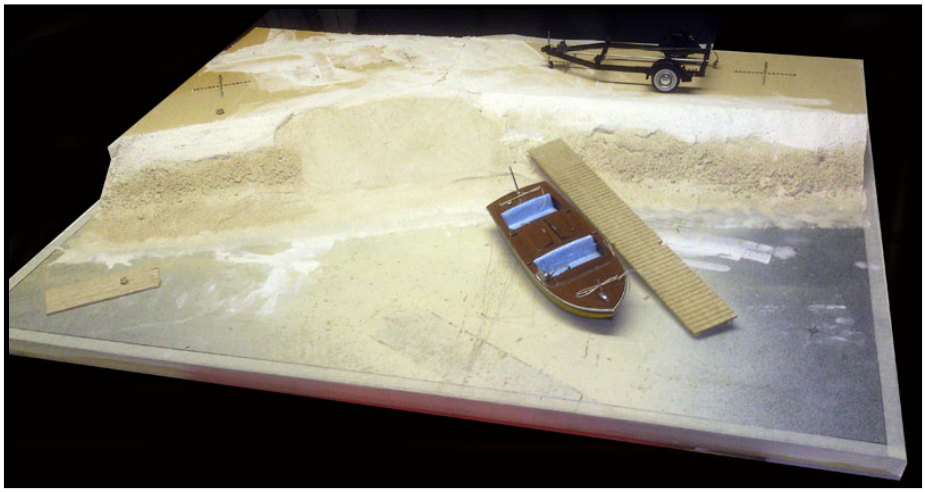
Resin is always sold with a hardener that allows the material to cure through a chemical reaction. Too much hardener and it will crack (or worse: uncontrolled heating, release of toxic fumes, etc.), not enough, and it will NEVER harden and will remain a poison, emitting harmful vapors year-round—even if some are odorless and seem harmless...

Here, we're going to test the CRYSTAL - EC161 resin and its W242 catalyst, sold by ESPRIT COMPOSITE in Paris, which is ideal for this type of work...

We turned to this company because, objectively speaking, it is currently the best supplier on the market for composite materials used in art casting (the author of this article has fifteen years of experience in the field), and what’s more, they offer technical support and very reasonable prices, even for small quantities...

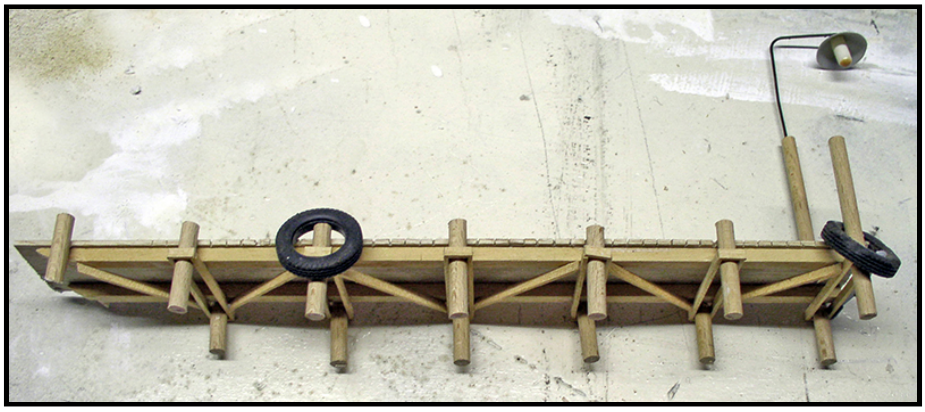


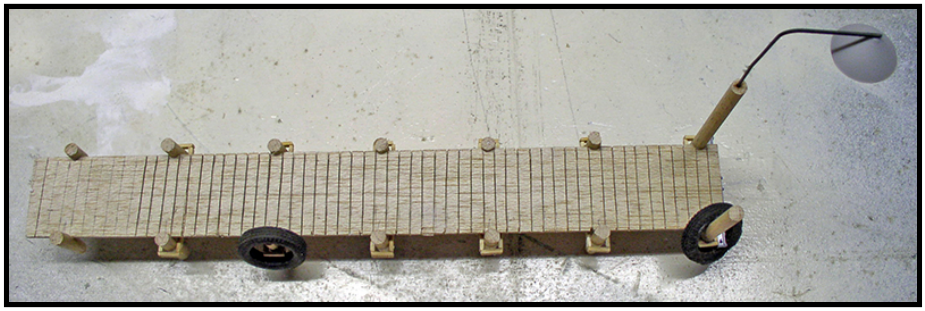
The future structure consists of a 2-cm-thick plywood panel measuring 65 cm by 45 cm. It is a raised riverbank featuring a wooden pontoon and a concrete ramp to allow a vehicle to drive up to the water’s edge to launch a boat. The entire structure is built to a 1/24 scale...



The embankment is made from extruded polystyrene, plaster of Paris, and various small pebbles collected here and there...

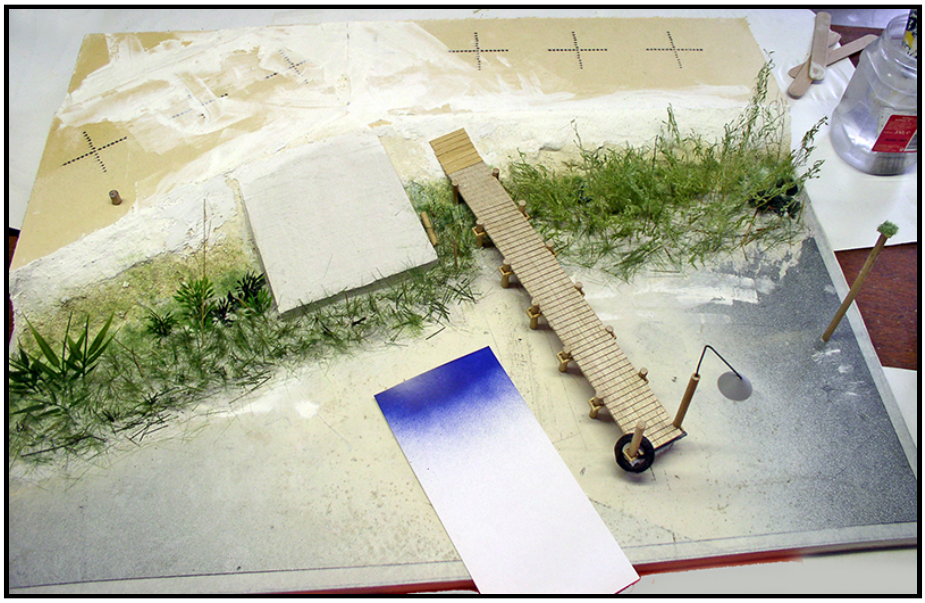
The pontoon

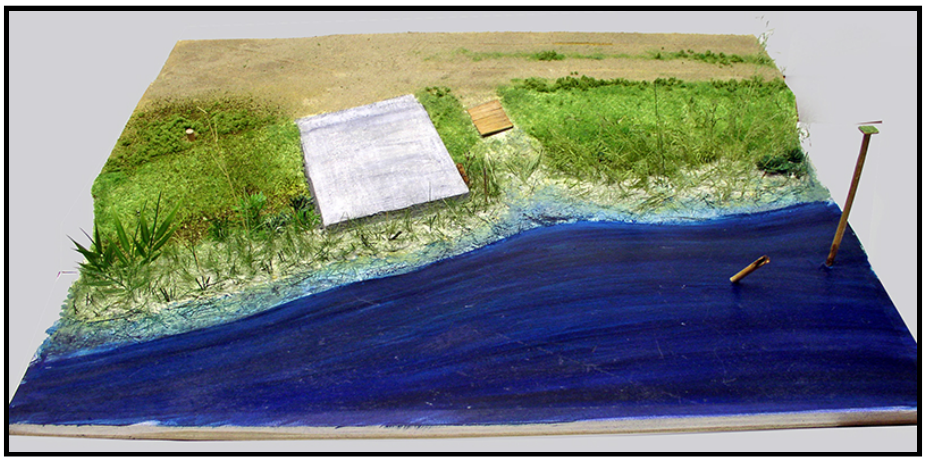




Building the pontoon out of balsa and softwoods...

The Riverbank

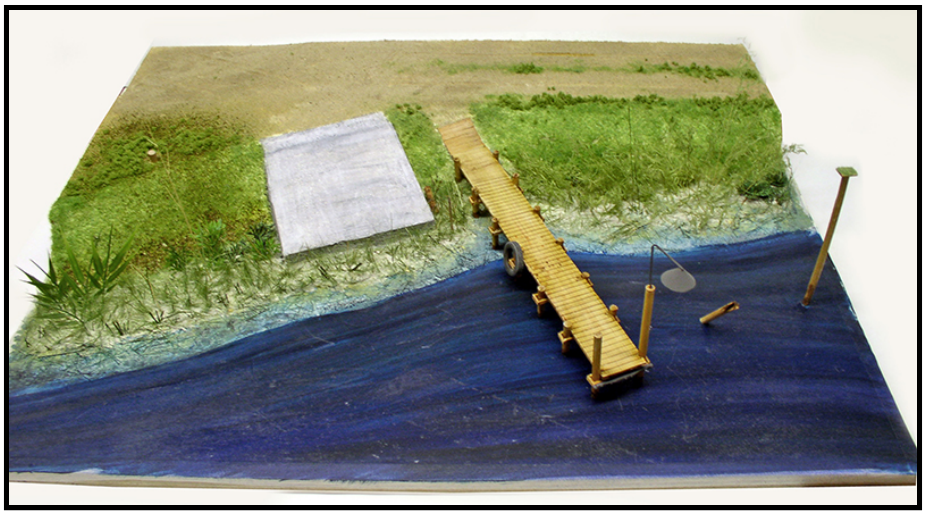




The riverbank is made up of various types of flock, dried grasses, plastic plants, and small pebbles. Testing the future background color...

The "marine" section is painted with Liquitex acrylic paint using phthalocyanine blue...

La partie "marine" est peinte à l'acrylique Liquitex à partir de bleu de phtalocyanine...



Gluing the pontoon and the posts...

Collage du ponton et des poteaux...



Oil painting of a pelican, mounted on a backing above the water...

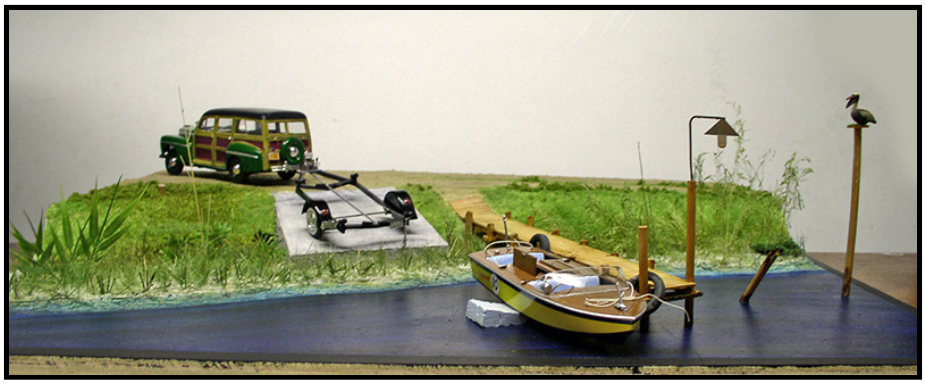
Peinture du pélican à l'huile et collage sur son support au-dessus de l'eau...





Two shots of the vegetation...

Deux plans sur la végétation...



Another view clearly showing the future layout and the various plants along the riverbank, all secured with quick-setting wood glue...



The first thing to do when pouring the resin is to seal your scene completely, because the resin takes great delight in seeping through even the tiniest overlooked hole. Old calendars—already smooth on the front and coated with petroleum jelly on the side that will come into contact with the resin—are perfect for framing. Next, use aluminum tape (available at big-box home improvement stores) and apply it perfectly at right angles all around the edges, making sure to smooth out both sides...

IMPORTANT: The work surface must be PERFECTLY level for the resin to be evenly distributed throughout. Check the level and make adjustments...



Ingredients : The resin and its catalyst—after some careful calculation, the amount needed to represent the volume of water in this scene will be 3.5 liters.

To do this, first calculate the area of your surface (simply length times width for a rectangle, or use other area formulas as appropriate; work in mm). Then multiply by the desired height (always in mm). This will give you a volume in mm^3.

Technical tip: Your shape may not be a perfect quadrilateral, so there are two ways to calculate its area:

-1- Either you break down your surface area into as many calculable geometric shapes (squares, rectangles, triangles, etc.) as possible, then calculate the area of each shape and add them together to get the total surface area; you can then calculate your volume.

-2- Either you estimate an average shape, which you measure in this way.

REMINDER: 1,000 grams = 1 kg = 1 dcm^3

Calculation example: *Your display measures 380 mm long by 250 mm wide. This gives you an area of 95,000 mm^2. If you want the water level in your setup to be 10 mm, multiply the area by the height to get a volume of 950,000 mm^3. This is equivalent to 950 dcm^3, which is 0.950 kg, or 950 grams. There you go—that's why we do all this: electronic scales measure in grams, and you have to be very precise when measuring out ingredients.*

Pitfall to Avoid: To determine the correct mixing ratios, you need to think in terms of the total mixture! In other words, don't just say to yourself, "I need this many mm^3 of resin, so that's the amount I need!" No! That's wrong! Because you've left out the hardener in your final calculation. This is a common mistake made by beginners, who end up ordering and buying far more resin than they actually need.

The tools include a scale for weighing the product, a large plastic basin, and a plastic stirring stick. Blue food coloring, acetone for cleaning everything, and the indispensable paper towels. Don't forget the latex gloves and a mask, either...

Preparation



The resin will be poured in several layers (usually one layer per day) to prevent it from overheating if too much is poured at once...

Generally, you apply layers of three to five mm at a time. If you're pouring concrete in your garage between October and March, five mm is possible. The rest of the year, no more than three mm...

Before you begin, calculate and neatly write down the mixing ratios needed for each coat...

(Simply recalculate the volume, but this time for the height of each layer—so 3 or 5 mm high. Note that the last layer may be slightly more or less if necessary.)...

From there, calculate the proportions of resin and hardener according to the instructions in the product's technical data sheet and write them down...

Casting/Resin

Turn on the scale, place the bowl on it, reset the tare to zero, and pour in the required amount of resin...



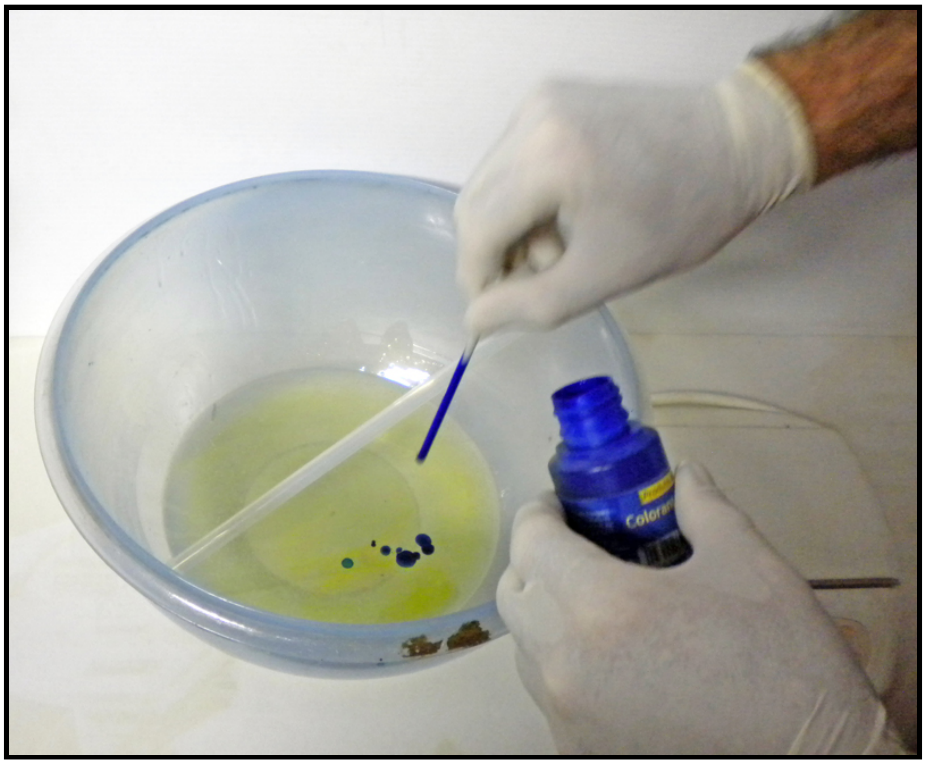
Then reset the tare to zero and add the corresponding amount of hardener...



Using the plastic stirrer, mix the two components thoroughly for several minutes, taking care to remove as many bubbles as possible. (The yellow color is not due to the products, which are completely transparent, but to the color of the mixing bowl.) To ensure the mixture is optimal, the hardener should no longer form streaks on the surface—in other words, your mixture must be perfectly homogeneous...



We use a coloring agent that we mix in small amounts with the resin to add a sense of depth to the water...

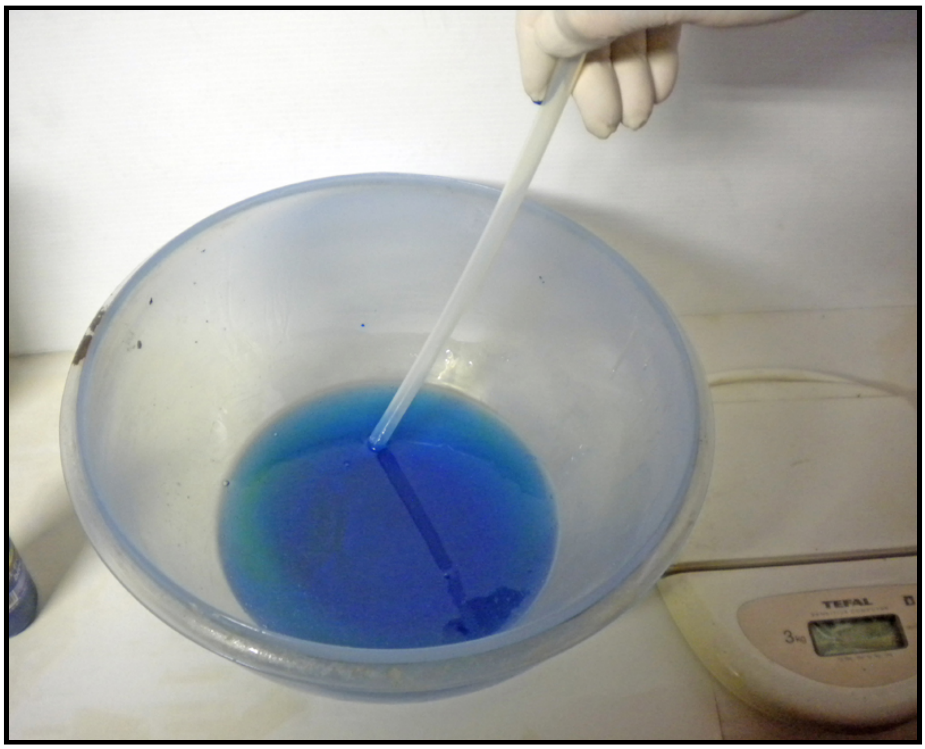


Add the food coloring carefully, a little at a time...



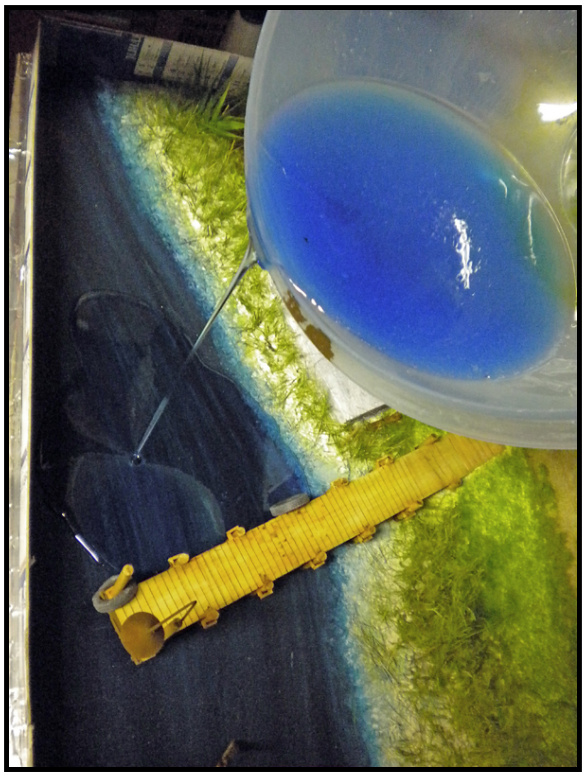
Then mix well...

Puis on mélange bien...



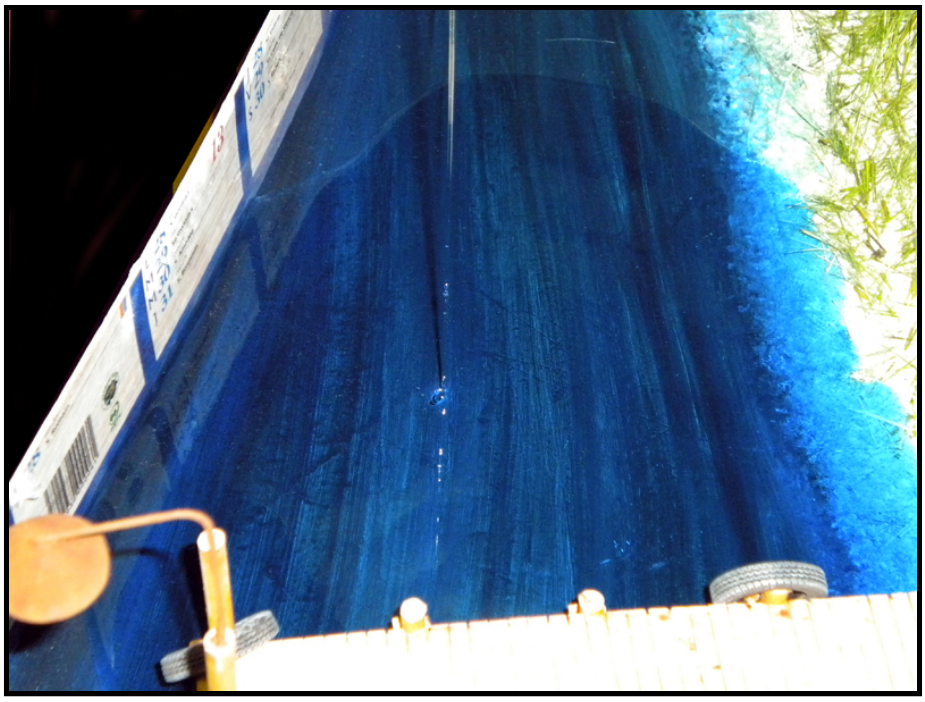
Once the mixture is thoroughly blended, the resin is ready to be poured...

Quand le produit est bien homogène, la résine est prête à être coulée...



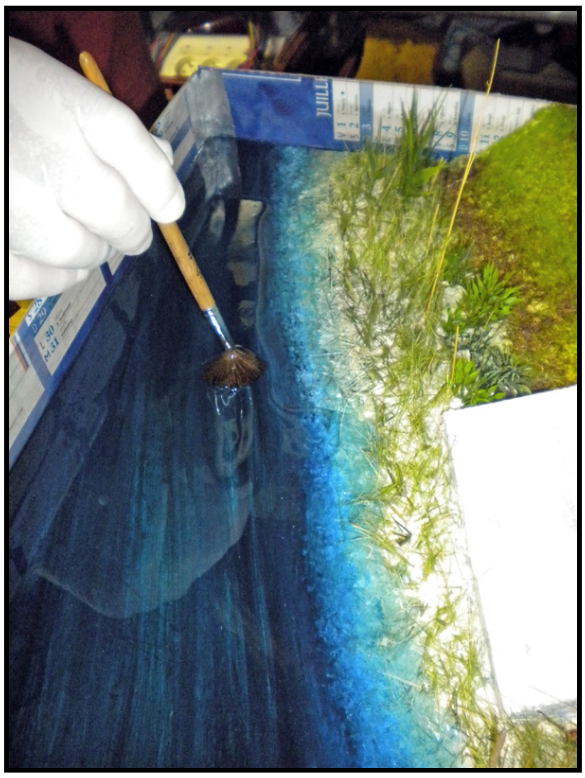
Pour the resin onto the lowest point of the model, in as thin a stream as possible...

This will cause any remaining air bubbles that may have formed during mixing to disappear...



Another view. We let the resin spread on its own...

Autre vue. On laisse la résine s'étaler d'elle-même...



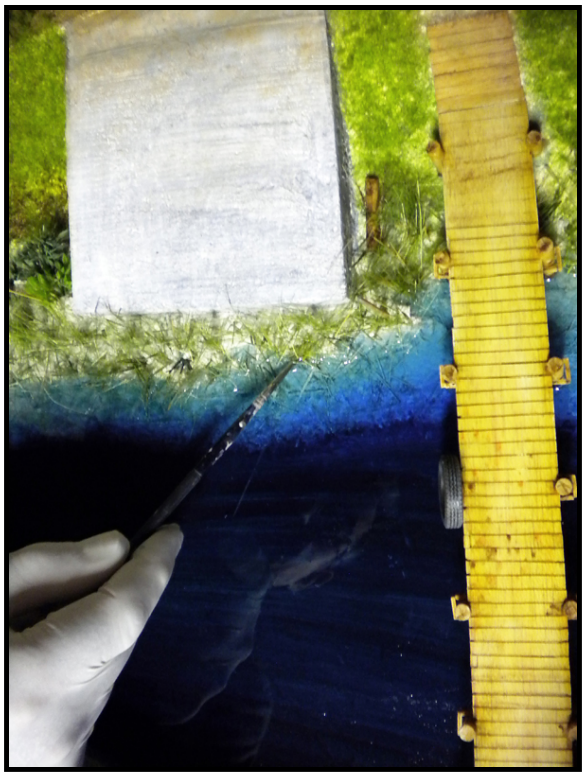
At the base of the embankment, we use an old paintbrush to smooth out the "rocky" edge...

Au niveau de la montée de la berge, on utilise un vieux pinceau pour régulariser le bord "caillouteux"...

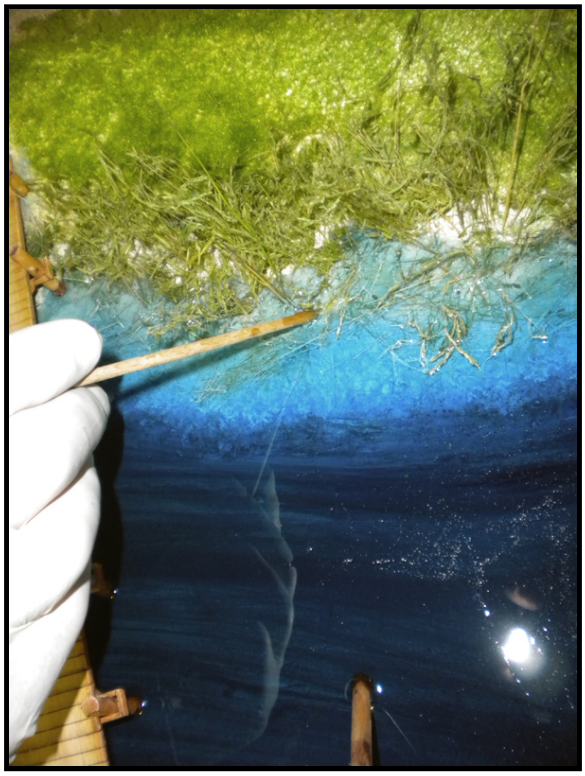


...and work the resin through the grass...

...et faire avancer la résine entre les herbes...



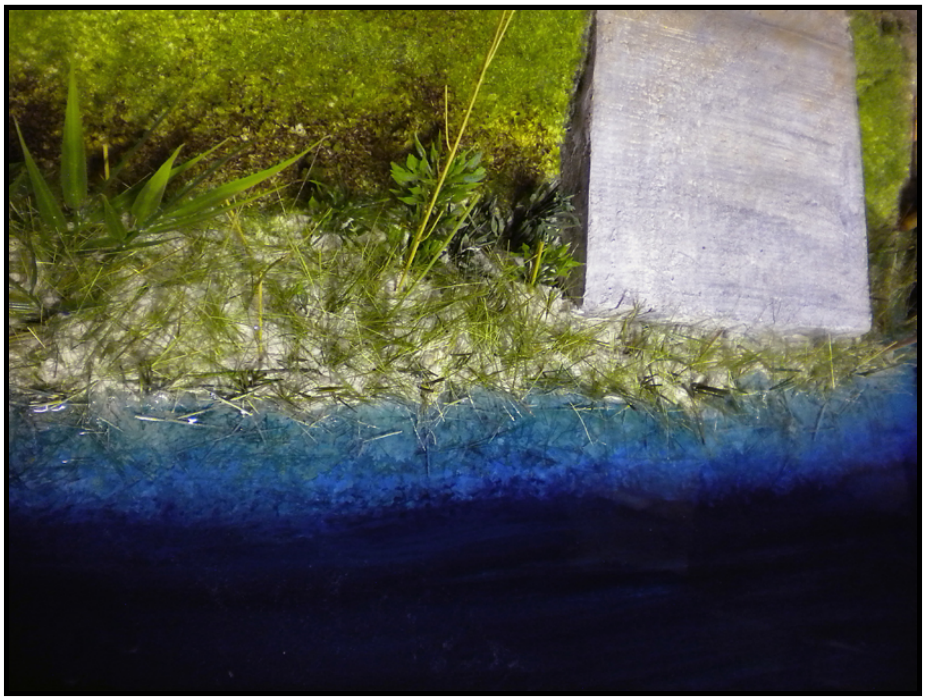
We also need to help him in areas that are inaccessible due to the rising riverbank, because the final layer will reach all the way to the concrete dock...



Here, we use a wooden skewer to thread the resin through the intertwined grasses...

Ici, on utilise une brochette en bois qui permet de faufiler la résine dans les herbes entrelacées...

"The help" given to the resin so it can seep into all the nooks and crannies is because the resin is always a little oily and might not reach every spot...

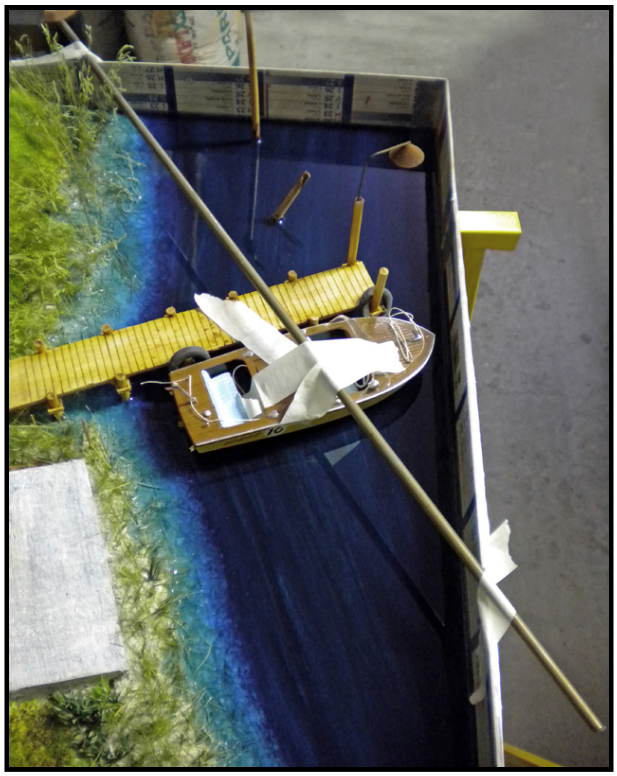


Overview...

Vue d'ensemble...

IMPORTANT: Never "scrape" the bottom of the basin, as uncured resin may still remain on the sides...

Once the resin has completely cured, immediately clean the tools and containers that will be reused with acetone. Contaminated acetone and/or unused resin residue should be absorbed with cat litter or sawdust, then discarded...



After the first layer has cured, the boat is placed in its designated spot to be secured with the next layer. When placing objects in the water, it is important to take into account the depth, the height of the pontoon relative to the boat, and the water level inside the hull...

An "elaborate" mounting system is designed so that the boat remains perfectly horizontal and does not move at all during the pouring process...



The boat’s motor is supposed to be running because characters will be added to it later. After the second layer (poured, as mentioned earlier, 24 hours later), we add aquarium filter media to the resin to create transparent eddies in the water around the propeller. Once the whole thing has hardened, we free the perfectly stabilized boat from its restraints...









The result after four successive layers of resin. No blue dye is added to the last two layers...

It is good practice to protect your resin with a high-quality glossy polyurethane varnish (such as marine, automotive, or, better yet, aerospace grade) that will not yellow. This is because the resin remains slightly inhibited when exposed to air and can attract dust...


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