

Underwater Photography — Workbook

This workbook turns the course into repeatable practice for shooting underwater safely and beautifully. Each section maps to a course module: you will spec and pre-flight your housing rig, drill colour recovery with strobes and white balance, lock in buoyancy and dive-safety habits, and run real shoots that you cull and edit. Fill the templates dive by dive so that within a handful of outings you have a tested rig, a flood-proof assembly ritual, and a growing log of which depths, lights, and settings actually work.

Housings, Ports, and the Underwater Rig

Spec your waterproof system and build a flood-proof assembly and leak-check ritual so every dive starts from a sealed, controllable rig.

Worksheet: My Underwater Rig Spec Sheet

Fill this in for the system you actually own or plan to buy. Confirm the housing is made for your exact camera model and that its depth rating comfortably exceeds your planned dives.

Camera body and sensor size (full-frame / APS-C / compact / action)

Housing make, model, and material (polycarbonate / aluminium)

Housing depth rating (m) and my planned max depth (m)

Port type and lens behind it (dome + wide / flat + macro)

Wet lenses owned (wide-angle / macro diopter) if compact

Strobe(s) and trigger method (fibre-optic / sync cord)

Leak protection (vacuum valve / moisture alarm / none)

Tray, arms, and total rig buoyancy notes (floaty / heavy)

Exercise: Wide-vs-Macro Decision Drill

Before a real dive, decide your subject type and lock the rig to match, since most dedicated rigs cannot switch lens types underwater. Answer for your next planned dive site.

• What subjects do I expect at this site (reefscape / wreck / big animals / tiny critters)?

• Does that call for wide-angle (dome port) or macro (flat port)?

- If I have a compact with wet lenses, which wet lens will I carry and when would I add it?
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- What will I miss by committing to this choice, and is that acceptable for this dive?
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Checklist: O-Ring and Assembly Ritual Check

- Assembling in a clean, dry, low-humidity room away from sand and spray
- Main and port o-rings removed, inspected for hairs, grit, cracks, and flat spots
- O-ring grooves cleaned; thin film of correct silicone grease applied (glisten, not gobs)
- O-rings re-seated evenly with no twists
- Fresh charged battery and formatted RAW-set card inside; lens and port clean
- Desiccant / moisture pack added inside the housing
- Housing closed; nothing (strap, desiccant) pinched in the seal
- Each control operated once after sealing to confirm it engages the camera

Checklist: Pre-Splash Leak Check

- Vacuum pumped and indicator reads sealed (green), if equipped
- Moisture alarm armed, if equipped
- Housing lowered into rinse tank or shallows and watched for bubbles / interior droplets
- Spare o-rings and grease packed for the trip
- All controls confirmed reaching the camera one last time before descent

Light, Colour, and Strobes Underwater

Prove how depth steals colour, then drill strobe placement and exposure that light the subject without backscatter.

Exercise: Colour-Loss-by-Depth Test

In a pool or shallow shore, photograph the same red and orange object at the surface, 1m, 3m, and 5m with NO strobe and auto white balance. Compare the frames and answer honestly.

- At what depth did red visibly drain from the object?
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- How blue and flat does the deepest frame look compared with the surface frame?
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- Did a custom or preset underwater white balance recover any of the warmth, or was the colour simply gone?
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- What does this prove about when you must add a strobe versus when white balance alone is enough?
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Worksheet: Strobe and Exposure Starting Points

Record the baseline settings you will dial for each subject type so you can set up fast underwater instead of guessing. Fill the planned values, then note what you actually used.

Subject type (macro / wide-angle)

Mode (manual recommended) and ISO

Aperture (macro f/11-f/16, wide f/8-f/11)

Shutter (macro near sync ~1/200s, wide ~1/100s for blue background)

Number of strobes and trigger (fibre-optic / cord)

Strobe power (TTL or manual level)

Strobe arm position (wide and back / close and forward)

Ambient vs strobe balance result (background blue, subject lit)

Exercise: Backscatter Diagnosis and Fix

Shoot a subject in slightly particle-rich water with strobes aimed straight ahead, then re-shoot with strobes pulled wide and angled outward while getting closer. Compare the two.

- How heavy is the backscatter snowstorm with the strobes aimed forward and close to the lens?
 - How much does pulling the strobes wide and angling them outward reduce the lit particles?
 - How much did getting closer to the subject (less lit water in front) help?
 - What strobe position and shooting distance gave the cleanest frame, and why?
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Checklist: Strobe Lighting Setup Check

- Shooting RAW for white-balance latitude in post
 - Strobes pulled out wide, not directly above or beside the lens
 - Strobes angled slightly outward; subject lit by the beam edge, not the hot centre
 - As close to the subject as practical to minimise lit water column
 - Aperture small and shutter fast enough to keep background water dark
 - Strobe power balanced so a near subject is not blown out
 - Two strobes balanced evenly on the subject (no shadowed side)
 - Red filter removed when using a strobe (filters are for ambient only)
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Buoyancy, Dive Skills, and Safety

Lock in neutral buoyancy and dive-safe habits so the camera never compromises your safety or the reef.

Exercise: No-Camera Hover Drill

On an easy dive with no camera, spend the dive fine-tuning weight and breathing until you can hold a fixed spot a metre off a sandy bottom for a full minute without finning. Record your results.

- How much lead did you need to hold a 5m safety stop without fighting to stay up (and were you overweighted)?
 - Could you hold depth using only your breath, inhaling to rise and exhaling to sink?
 - Was your trim flat and horizontal so fin kicks went backward, not down into the bottom?
 - How did adding the full camera rig later change your weighting and balance?
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Worksheet: Dive Plan and Limits Sheet

Complete with your buddy before every dive. Agreeing limits in advance is what stops task fixation from pushing you past them when a subject tempts you.

Site, date, and buddy name

Max planned depth (m) and my certification limit (m)

Planned bottom time and no-decompression limit from computer

Turn-around / ascent air pressure (e.g. start up at 50 bar)

Safety stop plan (3 min at 5m)

Max ascent rate my computer allows (m/min)

Buddy plan for photography (no disappearing; agreed signals)

Hazards to manage (current, entanglement, equalisation, surge)

Checklist: Diver-First Safety Check

- Ears equalised early and often on descent, before any pain
- Air gauge checked on a fixed schedule, not when the camera allows
- Depth watched on the computer continuously (easy to drift deeper through the viewfinder)
- Within no-decompression limit and certification depth at all times
- Buddy in sight; not abandoned to chase a subject
- Camera clipped to a lanyard or handed off when both hands needed
- Safety stop made even when a subject is tempting me to skip it
- Rig streamlined; no dangling arms or lanyards snagging wreck or kelp

Checklist: Reef and Marine-Life Etiquette Check

- Buoyancy and trim controlled so fins, knees, gauges, and rig never touch coral
- No touching, holding, riding, chasing, or cornering marine life
- Animals and coral photographed as found, not moved or rearranged
- Large animals (turtle / shark / ray) given space and a clear exit; let them approach
- Strobe bursts at light-sensitive small animals kept brief
- Reef-safe sunscreen used; no feeding of wildlife
- Stress signals (fleeing, colour change, defensive display) respected by backing off
- Dive ended by confirming the reef looks exactly as it was found

Composition, Workflow, and Editing

Drill the low-angle, shoot-up composition, protect your files, and finish blue, flat frames into sharp, colour-accurate images.

Exercise: Down-vs-Up Angle Comparison

On one dive, photograph the same coral head or friendly fish first from above looking down, then from below looking up toward the surface. Compare the pair.

- How much flatter, busier, and more colourless is the downward frame?

- How does shooting up change the background (blue water, sunbeams, separation)?

- Did getting eye-to-eye or below the subject give it more presence?

- What will you now default to on every future dive, and why?

Worksheet: Post-Dive Care and Backup Log

Complete after every dive day. Saltwater care and a two-copy backup before formatting are what protect both your rig and your irreplaceable files.

Date and number of dives

Housing soaked in dedicated camera rinse tank (yes/no)

Every control pressed and rotated underwater to flush salt (yes/no)

Housing fully dried before opening; opened in clean dry place (yes/no)

Strobes, arms, and o-rings rinsed and stored greased (yes/no)

Copy 1 location (laptop)

Copy 2 location (separate drive / SSD / cloud)

Card formatted ONLY after both copies verified (yes/no)

Worksheet: Underwater Edit Recipe

Record the develop steps you apply to an underwater frame so your edits stay consistent and natural, restoring stolen colour without going neon.

White balance approach (warm sliders / sample neutral grey)

Shadow lift and highlight recovery (strobe hotspot pull-back) amounts

Contrast and clarity restored (water strips these) settings

Vibrance / saturation amount (natural, not neon)

Backscatter removal method (spot heal / dust-and-spots / Backscatter tool)

Noise reduction amount (for deep / high-ISO frames)

Subject and eye sharpening amount (no halos)

Crop, surface-line straighten, and dehaze amount

Checklist: Cull and Finish Discipline

- Two-pass cull: reject failures first, then select best of each subject/sequence
- Critical sharpness confirmed at 100 percent on the eye (soft eye = reject)
- Frames with least backscatter and best strobe lighting favoured
- White balance neutral; colour true-to-life, not over-saturated
- Backscatter spots painted out
- Contrast and clarity restored without crunchy halos

[] Edit kept honest: no marine life or coral added, moved, or deleted

[] Compared against an over-cooked version to confirm restraint

Your Action Plan

1. Complete the rig spec sheet and confirm your housing fits your exact camera and exceeds your planned depth.
2. Practise the o-ring and assembly ritual, then the pre-splash leak check, until they are automatic before every dive.
3. Run the colour-loss-by-depth test in shallow water to see exactly when red disappears and a strobe becomes necessary.
4. Dial and record your macro and wide-angle strobe-and-exposure starting points so you can set up fast underwater.
5. Shoot the backscatter diagnosis drill and learn the wide-and-angled strobe position that keeps water dark.
6. Master buoyancy with the no-camera hover drill before adding the camera, re-checking weight with the full rig.
7. Complete a dive plan and limits sheet with your buddy on every dive, and hold the diver-first safety habits.
8. Apply reef and marine-life etiquette so your buoyancy and behaviour leave the reef untouched.
9. Shoot the down-vs-up angle comparison and default to getting low and shooting toward the light.
10. Back up every card to two places before formatting, then cull and finish your best frames with the underwater edit recipe.

