

ArrowCrab AI Dive Studio User's Guide

Version 2.2

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October 2026

Contents

1. Overview 3
2. Getting Dive Data into the App 3
3. Projects (Saving and Loading) 4
4. Trips 5
5. Dives 5
6. Pictures & Videos 6
7. The Picture/Video Viewer 7
8. Underwater Color Correction & Adjustments 8
9. Collections 8
10. AI Marine Life Identification 8
11. Ask ArrowCrab AI (Project Chat) 9
12. Slideshows & Video Tools 9
13. Buddies 10
14. Charts & Gas Analysis 10
15. Settings 10
16. Keyboard Shortcuts (viewer) 11
17. Troubleshooting 11

1. Overview

ArrowCrab AI Dive Studio organizes your scuba dives, trips, photos, and videos in one place. Everything is stored locally on your computer in project files (.db) — no accounts, no cloud.

The main screen has a header bar (import, project, settings), a tab bar (Trip Dashboard, Trip Details, Dive Table, Charts, Gas Analysis, Buddies), and the content area. Every button shows a tooltip when you hover over it.

In the header title bar:

- click the circled ? after the title to open this guide
- click the "ArrowCrab AI Dive Studio" title for the About box (version, author, contact)
- hover over the ArrowCrab logo for "Ask ArrowCrab AI" (section 11)

2. Getting Dive Data into the App

Two ways to import from a Shearwater dive computer:

A) **Shearwater phone app export**
On your phone: Profile > Options > Export (*.db), send the file to yourself, then in the app: Import Dives > Import DB from Shearwater Dive DB and pick the file. (The welcome screen's (i) icon shows these steps too.)

B) **Direct download from the dive computer (Bluetooth or USB)**
Import Dives > Download from Dive Computer (Bluetooth / USB). The app scans Bluetooth LE and USB for any supported computer (Shearwater, Suunto EON/D5, Aqualung i330R / Apeks DSX, Oceanic, Mares, Scubapro, OSTC, Cressi, Ratio, ... about 350 models via libdivecomputer) and shows what it found; pick one if there are several. Bluetooth computers must be in their Bluetooth/transfer mode (Shearwater: Settings > Connectivity > Bluetooth > On; i330R: open its Bluetooth screen - the first time it shows a 6-digit code to type into the app). For a USB serial cable you choose the model from a list. Already-imported dives are skipped, you choose the starting "actual dive number", and each dive is stamped with the exact computer model (Computer Type field). Every computer you import from is remembered in the project's computer table (Settings > Dive Computers).

C) **FIT / UDDF dive-log files (Garmin, Suunto, Apple Watch)**
Import Dives > Import FIT / UDDF file. Pick one or more files:

- **Garmin Descent: Garmin Connect > open the dive > menu >** Export Original (.fit)
- Suunto Ocean, D5, EON Core / EON Steel, Nautic S: Suunto app > open the dive > Share > Export as FIT (.fit)
- **Apple Watch Ultra with Oceanic+: Oceanic+ app > open the dive >** Share > Export UDDF (.uddf)

Depth, duration, average depth/temperature, gas O2%, tank pressures (when a transmitter/POD was used), dive site (UDDF) and the computer model are filled in; dives already in the project (same date and time) are skipped.

You can also add dives by hand — see section 5.

3. Projects (Saving and Loading)

A project is one .db file holding everything: dives, trips, picture lists, captions, marine IDs, collections, buddies, settings.

```
Save Project      first save / "save as" with a name
Quick Save        one click back into the current file
Load Project      open an existing project
New Project       start fresh
Default project   Settings > set current project as default; it
                  loads automatically at startup
```

Save location — local or cloud

When you save, a "Save Location" chooser appears first (only if a cloud drive is detected on this computer):

```
Local Projects Folder (default)  the app's own projects folder
Cloud folder                     iCloud Drive, Google Drive,
                                 OneDrive, or Dropbox
```

Choosing a cloud folder saves into an "ArrowCrab Dive Studio" subfolder there, so the project file is reachable from your phone (e.g. the iPhone Files app for iCloud, the Drive app on Android) and from other computers signed into the same cloud account. Either way the normal save dialog follows, so you can still rename the file or browse elsewhere.

The header's date line always shows which project is open — e.g. "cloudproject: 2025-04-26 to 2026-07-03" — and updates when you load a project or save it under a new name.

While a project's pictures are still loading (the progress bar is visible) saving is postponed to protect the picture lists — wait for the bar to finish, then save again.

On the iPhone, the Load Project list ends with "Delete All Local Projects…" — it removes every project stored on the phone itself (after a confirmation); projects in iCloud Drive or other cloud folders are not affected. "Save As New Project" on the iPhone asks where to save: the local projects folder, or any folder you browse to in the Files app (iCloud Drive, On My iPhone, …). A copy saved outside the app is a snapshot — Quick Save keeps writing to the project open in the app.

Projects saved by the iPhone use its own .acdsproj format; the desktop app opens those too (Load Project lists both .db and .acdsproj). Saving from the desktop always writes the .db format, which every device reads.

On every project load the app rescans each trip's picture folders: files you added on disk appear in the trip, files you deleted are removed. (Folders that are missing — e.g. an unplugged drive — are left alone, and inventories added on a different device are never touched — see "Sharing a project between devices" in section 6.)

Project files live in the "projects" folder — next to the app on Windows, in ~/Library/Application Support/ArrowCrabDiveStudio on macOS. Closing the app prompts you to save unsaved changes.

4. Trips

Trips are created automatically from imported dives (grouped by location), or manually with "Add Trip" (name, dates via calendar pickers, place of stay, description). Each trip card shows dive count, hours, max depth, and average gas, with a unique color. The dates on the trip tile always span from the trip's first dive to its last dive.

Two trips can share a location (e.g. Roatan 2025 and Roatan 2026): they are fully independent — each dive belongs to exactly one trip, decided by the trip's date range, and adding, editing, or deleting dives in one never affects the other.

The buddies icon on a trip tile opens the Trip Buddies popup: add a buddy once and it applies to all the trip's dives (and to dives you add to the trip later). "Save & Exit" saves and closes, "Save & Add Another" keeps the popup open for the next buddy.

Trip card icons / Trip Details table actions:

```
camera     add a picture folder to the trip
folder     browse the trip's pictures (thumbnail grid)
plus       add a dive to the trip
buddies    see who dived with you
pencil     edit trip details
trash      delete the trip
```

"Add Photo Collection" creates a standalone picture collection not tied to any trip. New collections are named "Photo Collection" (then "Photo Collection 2", and so on); use the pencil to rename. Pictures can come from a whole folder or from individually picked files. If the collection has no dives yet, a popup offers "Create" (pictures only) or "Create and Generate Dives" (dives are generated from the picture times).

5. Dives

The Dive Table lists every dive; click a column header to sort, use the location dropdown to filter, click a row for the detail view (stats, tank pressure chart, photos).

The Actual Dive # is every dive's identity — it must be unique and it is the number shown everywhere (table, detail view, tooltips, charts, slideshow titles). Computer imports pick unused actual numbers automatically starting from the number you choose. (The app also keeps a hidden internal number — negative for manually entered dives — but it is never displayed.)

Row icons: edit dive, buddies, computer type, add pictures. The ✎ edit window lets you change everything, including the dive computer data (depths, duration, temperature, pressures, O2 %, GF99), the date, and the times.

"Add Dive" (or the plus icon on a trip) opens a compact entry form with three sections:

```
Dive Info   date, shown as MM/DD/YY (type 7/15/26 or 7/15/2026,
            or click the calendar icon to pick it — arrows step
            by month or year), optional start/end time (duration is
            auto-computed when both are set, or type it in
            yourself), and Actual Dive # — required, must be
```

```
              unique, and pre-filled with the lowest unused dive
              number. Note: without a start time the dive can't
              auto-match photos by timestamp.
Location      type any location or pick one from the pull-down of
              places you've dived before. Picking a date auto-fills
              the location from the trip date range until you type
              your own. The Site suggestions follow the location.
Dive Data     depth, duration, tank pressures, O2%, temperature
```

Tick "Add Detail Dive Data" to open a second window with the rest: log type, computer type, objective, dive type, visibility, conditions, verifier, comments, and pictures. Close it with Done — everything you entered is kept and saved with the dive.

"Add Another Dive" saves the current dive and keeps the form open for the next one: the date, location, and O2 % carry over, every other field is cleared, and the Actual Dive # moves to the next available number. The ▲ / ▼ arrows on the button choose the direction — ▲ counts up by 1 (default), ▼ counts down by 1, handy when entering an old logbook newest-to-oldest. "Add Dive" saves and closes; "Exit" closes without adding. To fix a dive you already added, use the ✎ edit icon on its row in the Dive Table.

Photos can also be attached from the dive detail view, the edit modal, or the camera icon in the table.

6. Pictures & Videos

Add pictures to a trip with the camera icon — a popup asks whether to add a whole folder or pick individual files. The same choice appears whenever you add pictures to a dive. Supported: Photos : PNG, JPG, JPEG, GIF, WebP, BMP, TIFF, HEIC

```
RAW    : ORF, CR2, CR3, NEF, ARW, DNG (converted automatically)
Video  : MP4, MOV, MPEG, AVI, MKV
```

Photos are matched to dives by their timestamps (within the dive window). Trip dates can be auto-filled from photo dates. The thumbnail grid supports paging, select/deselect, filtering by file type, random selection, captions, "Update Inventory" to remove deselected files from the trip, and "Refresh Inventory" to rescan the inventory's folders on disk — deleted files are removed, the trip tile counters update, and NEW files are added: jpg/png photos and mp4/mov movies whose creation date is newer than the newest picture already in the inventory (so files you removed on purpose don't come back). The colored file-type counts on an inventory line (e.g. "39 orf") open the thumbnail grid filtered to just that type.

If the trip already has a Trip Inventory, adding pictures asks whether to ADD the new files to the existing inventory or REPLACE it (collections are kept either way). When adding, files already in the inventory are skipped automatically and a note tells you how many duplicates were left out. (On iPhone, adding from the Photo Library into an existing inventory shows only the newly picked files, not everything already there.)

Sharing a project between devices (multi-device trip inventories)
Save a project to a cloud folder (section 3) and open it on another device, and each device keeps its

own Trip Inventory for the same trip — every picture remembers which device added it. Each inventory line on the trip card starts with an icon showing where its files live:

```
🍎  added on a Mac
📱  added on an iPhone or iPad
💻  added on a Windows PC
☁️  the picture files themselves are in a shared cloud folder
    (readable from every device)
```

When inventories from several devices exist, each shows on its own line with the device's name and its own file counts. Clicking a line opens the thumbnail grid with only that device's files, and the trash icon on a line removes only that device's entries. An inventory whose pictures live on another device can't be browsed here — clicking it shows a note naming the device that has the files. Project loads only rescan the inventories this device added, so one device can never drop another device's pictures.

Files added or deleted while you browse are reflected everywhere (trip cards, dive details, collections) as soon as you leave the viewer.

7. The Picture/Video Viewer

Click any thumbnail to open the full-screen viewer. Navigate with the on-screen arrows or Left/Right keys; Esc closes.

Top bar: Keep checkbox (uncheck to discard on exit), caption box, depth at the moment the photo was taken (dive view).

Buttons (photos):

Identify Marine Life	AI species identification (needs API key)
View Marine ID	review a saved identification
🌊 Color Fix	underwater color correction (section 8)
🎚️ Adjust	sliders: correction strength, brightness, exposure, sharpness, saturation, hue, B&W
💾 Save JPG	save a full-resolution copy (corrected / adjusted when active; RAW always available)
✂️ Crop	drag a selection, save it as _cropped.jpg
Set Background	use this photo as the dashboard background
🗑️ Delete Media	remove from the trip AND delete the file from disk (confirmation with "don't ask again" option)

Buttons (videos):

🌊 Color Fix	corrected preview (re-encoded, cached)
🎚️ Adjust	live brightness/exposure/saturation/hue/B&W; sharpness and strength apply on save
💾 Save MP4	save as MP4 (lossless copy, or re-encoded with correction/adjustments)
🎬 Publish	adds a 4-second dive/trip title screen in front of the movie and saves it
🗑️ Delete Media	same as photos

Zoom (photos): mouse wheel zooms at the cursor, up to 800%. Use the − / % / + buttons bottom-right, double-click for 2.5x, drag to pan, keys + - 0. Zoom resets when you change pictures.

Rotate (photos): the ↻ button bottom-right (or the R key) turns the picture 90° clockwise per click. Each photo remembers its rotation while the viewer session lasts, and Save JPG writes the rotated image. Starting a crop clears the rotation first.

Where saved media goes: on macOS the save dialogs for JPGs, overlay images, slideshows and videos open in your Pictures folder by default (Windows keeps the Desktop). On iPhone, saved JPGs, marine-life overlays, published videos and concatenated videos are also added to the Photos app automatically — the first save asks for permission to add to your photo library.

8. Underwater Color Correction & Adjustments

🌊 Color Fix restores the reds lost at depth (red-channel compensation, white balance, contrast stretch). RAW files are re-developed from sensor data at 16-bit depth for the best result. Each photo/video remembers its own corrected/uncorrected state, and that state is saved in the project.

🎚 Adjust opens the adjustment panel (it applies Color Fix first automatically). Sliders update the image live:

```
Color Fix   0–200%  (blend from original to beyond-full correction)
Brightness  -100 to +100
Exposure    -2 to +2 EV
Sharpness   0–200%  (videos: visible in saved output)
Saturation  0–200%
Hue         -180° to +180° color shift
```

Black & white checkbox

"Reset All" returns to defaults; "Done" keeps the settings. Note: toggling Color Fix on/off resets manual adjustments for that file, and turning it off always returns the photo to the original (RAW files re-develop the original the first time — a brief "loading original..." shows in the name bar).

Corrected/adjusted versions are used automatically in slideshows and marine-ID overlay images, and by 💾 Save JPG / Save MP4 (full resolution, saved next to the original as _corrected / _adjusted).

9. Collections

In a trip's thumbnail grid, select photos and "Create Collection" to group them under a name (e.g. "Best of", "Turtles"). From the trip card you can open a collection, run a slideshow from it, identify all marine life in it, copy its files to a folder on disk, or — if it contains only videos — concatenate them into a single movie (with a trip title screen at the front).

10. AI Marine Life Identification

Uses Anthropic Claude or OpenAI GPT-4o vision (your choice in Settings). Requires your own API key — the app prompts the first time; keys are stored only on your computer.

Identify Marine Life	on the current photo in the viewer
Identify All	batch over a whole collection
View Marine ID	re-read a saved identification
Overlay Photo	burns the identification onto a copy of the photo (branded "ArrowCrab AI Dive Studio Marine Life ID"), using the color-corrected image when Color Fix is on



Example: an Overlay Photo saved by Identify Marine Life (species, description, trip, dive site and photo time burned in)

Identifications save species, site, depth and time context with the project.

11. Ask ArrowCrab AI (Project Chat)

Hover over the ArrowCrab logo in the top-left of the header and an "Ask ArrowCrab AI" button appears (only when an API key is set — the same Anthropic or OpenAI key used for marine life ID, section 15). Click it to open a chat window.

Ask anything about the current project in plain language — for example "what was my deepest dive?", "which trip had the most dives?", "who did I dive with in Bonaire?", "summarize my 2025 diving". The app sends your question together with a summary of the project (trips, dives, buddies, notes, picture counts) to the AI provider chosen in Settings, and the conversation remembers earlier questions so you can ask follow-ups.

Only the dive log data described above is sent — no pictures — and only when you press Send.

12. Slideshows & Video Tools

From a trip, dive, or collection you can create:

HTML slideshow	standalone file, arrow keys / space to control
MP4 slideshow	1920x1080 video with title slide, configurable per-photo timing, optional soundtrack (.wav/.mp3/.ogg/.m4a/.aac from the sounds folder)

Photos with Color Fix appear corrected; marine IDs and depth badges are overlaid automatically.

Video tools (require FFmpeg):

Concatenate	join a collection's videos (or selected dive videos) into one file, with a title screen
🎬 Publish	single video with a 4-second dive/trip title

Long encodes run in the background with progress shown — you can keep using the app. Outputs default to the Pictures folder on macOS; on iPhone they also land in the Photos app (section 7).

13. Buddies

The Buddies tab manages your dive buddy list: contact info, home town, photo, comments. Assign buddies per dive with the buddy icon in the dive table. Buddy statistics show how many dives you've shared. "Keep buddies" in Settings carries your buddy list into new projects automatically.

14. Charts & Gas Analysis

Charts tab: depth trends, durations, temperatures, dive frequency, location distribution, tank pressures. Gas Analysis tab: consumption rate over time and by location, start/end pressure profiles, SAC rates, O2 mixes. Toggles: meters/feet, PSI/bar (top right).

Charts are labeled by Actual Dive #, and every measurement chart includes only dives that actually have that data — a dive without a logged depth, temperature, or tank pressure is simply left out of that chart instead of plotting a zero. Clicking a bar or point jumps to the dive's detail view. The 🔍 on any chart title opens that chart as a single large chart (Close returns to the grid); tooltips and click-to-dive work there too, and clicking a dive in the large chart closes it automatically.

Every chart — small or large — can be zoomed: click the ➕ / [redacted] icons on the chart title, scroll the mouse wheel (or pinch on iPhone) over a chart to zoom the dive axis, drag to pan while zoomed, and double-click to reset. The large chart has its own ➕ / [redacted] and Reset Zoom buttons.

15. Settings

API keys	Anthropic / OpenAI for marine life ID and Ask ArrowCrab AI
Preferred provider	which AI to use
Owner profile	name, contact, license, certifications, photo (appears on the dashboard header)
Keep buddies/owner	reuse them in new projects
Background	choose any photo as dashboard background
Default project	auto-load on startup

16. Keyboard Shortcuts (viewer)

```
Left / Right    previous / next picture
Esc             close viewer (or cancel crop/adjust)
+ / -           zoom in / out
0               reset zoom
R               rotate picture 90° clockwise
Enter           apply crop (while cropping)
```

17. Troubleshooting

Blank window at startup (Windows)
Install the Microsoft Edge WebView2 runtime: https://developer.microsoft.com/microsoft-edge/webview2/ (macOS uses the built-in WebKit — no runtime needed.)

Video features don't work / "FFmpeg not found"

```
Windows: install FFmpeg with  winget install Gyan.FFmpeg
macOS:   install FFmpeg with  brew install ffmpeg
```

then restart the app.

Bluetooth download can't find the dive computer
Enable Bluetooth on the computer (Settings > Connectivity > Bluetooth > On) and keep it awake near the PC. If several Shearwaters are nearby, pick yours from the list shown. macOS: the first download asks for Bluetooth permission — click Allow (re-enable later in System Settings > Privacy & Security > Bluetooth if you declined).

Windows SmartScreen blocks the app
Click "More info" then "Run anyway" (the app is unsigned).

macOS says the app is from an unidentified developer / "damaged"
The app is unsigned. Right-click (Control-click) the app, choose "Open", then "Open" again. On macOS 15+ approve it under System Settings > Privacy & Security > "Open Anyway". Or clear the quarantine flag once in Terminal: xattr -dr com.apple.quarantine "/Applications/ArrowCrab Dive Studio.app"

Crash on launch: "Failed to resolve Python.Runtime.Loader.Initialize" Windows blocked the app's files because the zip was downloaded from the internet. Fix: open PowerShell and run (adjust the path to where you extracted the app): Get-ChildItem "C:\ArrowcrabDiveStudio" -Recurse | Unblock-File

(To avoid this next time: right-click the zip before extracting, choose Properties, tick "Unblock", click OK.)

Pictures missing after moving folders
The project stores picture file paths. If you move a picture folder, re-add it to the trip with the camera icon. On load, the app removes entries whose files were deleted (but leaves entries alone if the whole folder/drive is unavailable).

RAW photos slow to appear
ORF/RAW files are converted in the background on first view and cached for the session — the first look can take a few seconds.