

OC77

Two tools in one: a living shoreline soundscape, and a precise white, pink or brown calibration noise generator.

A Lab plug-in. The Lab is where new GFX plug-ins are built in the open: they may change sound or controls between versions.



Overview

OC77 is a generator: it needs no input and makes its own sound. Every sound is synthesised; there are no samples. It has two modes, chosen with the keys in OUTPUT.

SOUNDSCAPE is a shoreline. Waves come in, each with its own life: the swell builds as a low rumble, breaks in a burst of bright noise, washes up the sand and draws back. The foam fizzes and pops on the wash, and behind it all a distant swell rolls slowly. Wind blows in gusts through two moving resonances and whistles a little at the top of a strong gust. Rain falls as tiny bright drops over a soft hiss, from a few drops to a downpour. THICK adds the deep body of the ocean underneath. A gentle low-pass (FILTER CUTOFF) shapes the whole scene, then it goes through its own CHORUS, DELAY, REVERB and WIDTH (the EFFECTS page) and LEVEL.

CALIBRATION is a precise noise generator: white, pink or brown noise, full band, a speaker band, a sub band or any one octave, in stereo, mono, left or right. The level you set is the RMS level that comes out, exactly: -20 dB on the dial reads -20.0 dBFS RMS on a meter. In CALIBRATION there is no scene, no effects, no DRIFT, and LEVEL is bypassed.

OC77 loads silent: the IN key is off until you press it, and presets never change it. The output never exceeds -0.3 dBFS (a safety ceiling, with no added saturation). There is no latency.

DRIFT

DRIFT works on the soundscape only; calibration noise stays exact. The air pressure wanders, so the whole scene's level and warmth breathe slowly; the wind gets small sea-breeze fluctuations; and a faint analogue noise floor sits underneath, its level drifting with the temperature. 0 % is none, 50 % the standard amount and 100 % twice that, a little faster.

Reach for it for

- Ambient beds of sea, wind and rain for film, games, meditation or sound design
- A calm wash of waves under a track, or a storm for a dramatic moment
- Setting monitor and speaker levels with exact pink noise at a known RMS
- Checking a room or a sub with octave-band or 20 - 80 Hz noise
- Testing a plug-in chain or a meter with white, pink or brown noise

Controls

The header

PRESETS	Opens the preset list.
◀ / ▶	Steps to the previous or next preset, wrapping round.
Preset display	Shows the preset's name. Click it for the list too.
SEA / EFFECTS	The two pages: the scene, the noise and the output; or the soundscape's effects.
S / M / L	Panel size: small, medium or large.
?	Opens a pop-up with the design credit, the GFX website and the address of this manual. Click anywhere to close it.

Every knob shows its value while you touch it. Double-click (or Ctrl-click) a knob to return it to its default.

SEA

The scene's controls. In CALIBRATION they rest (greyed), but the two windows stay live.

SHORELINE	A window showing the last ten seconds of the output rolling in from the right: the body of the sound solid, the spray (the peaks) fainter. You can watch the waves build and break.
SPECTRUM	The output's density in third-octave bands from 20 Hz to 20 kHz. Pink noise reads flat.
WAVE RATE	0.05 - 0.5 Hz (default 0.1): how often the waves come, from about one every 20 seconds to one every 2. Never quite regular, and two can overlap.
SHORELINE LICK	0 - 100 % (default 40): the foam on the wash, its fizz and popping bubbles.
WIND GUST	0 - 100 % (default 30): how much air moves. Higher settings bring stronger, more frequent gusts, with a faint

	whistle at their peak.
RAIN DENSITY	0 - 100 % (default 0): from a few drops to a downpour, over a soft hiss of rain.
FILTER CUTOFF	20 Hz to 20 kHz (default 5 kHz): a gentle low-pass over the whole scene, warm and muffled down low, open at the top.
THICK	The small grey key with the red LED: a deep, slow low rumble, the body of the ocean under it all.

NOISE

WHITE / PINK / BROWN	The noise type. White is bright and even per hertz, pink equal per octave (it sounds balanced, and is the usual choice for level setting), brown deep and rumbling. A change crossfades (soundscape) or dips for 10 ms (calibration), so it never clicks.
NOISE LEVEL	-60 to 0 dB, fully left off (default off). In CALIBRATION it is the exact RMS level of the output in dBFS, each channel, for the BAND chosen. In SOUNDSCAPE it adds the raw noise to the scene. The readout under the knob shows the setting (-inf dB when off).
MEASURED	CALIBRATION only: the true RMS of the output, averaged over one second, in dBFS.
BAND	CALIBRATION only. Click for the menu: FULL (20 Hz - 20 kHz), 500 Hz - 2 kHz (for speaker calibration), SUB (20 - 80 Hz), or one octave centred on 31.5 Hz, 63, 125, 250, 500 Hz, 1, 2, 4, 8 or 16 kHz. The band edges are steep (24 dB per octave), and the level stays exact whichever band you choose.
CHANNELS	CALIBRATION only: STEREO (the two sides uncorrelated), MONO (L = R), LEFT ONLY or RIGHT ONLY.

OUTPUT

SOUNDSCAPE /	The mode. The change fades over 50 ms.
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CALIBRATION	
IN	Fades the generator in and out. Off when OC77 loads, so a new instance is silent; presets never change it. The effects' tails ring on after IN goes off.
LEVEL	-18 to +6 dB (default 0). SOUNDSCAPE only: in CALIBRATION it is bypassed, so NOISE LEVEL is what you get.
DRIFT	0 - 100 % (default 50). SOUNDSCAPE only (see above).
L / R	Output level meters, -48 to 0 dBFS.

The effects (EFFECTS page)

The soundscape runs through CHORUS, DELAY, REVERB and WIDTH, in that order. They are for the soundscape only and fade out in CALIBRATION. Each section has a round **title lamp**: click it (or the title) to switch the effect in or out, crossfaded; the section greys out when it is off. Each effect also has its own **HPF** (yellow) and **LPF** (black) on what it works on, with the frequency shown in the readout under each: keep the lows out of the reverb, darken the echoes, widen only the top.

CHORUS

RATE	0.05 - 4 Hz (default 0.4).
DEPTH	0 - 100 % (default 40). Two gently swept voices.
MIX	0 - 100 % (default 35).
HPF / LPF	20 Hz - 2 kHz (default 120 Hz) and 1 - 20 kHz (default 12 kHz): the band that is chorused.

DELAY

SYNC	Lit (its green LED on): TIME is a note value at the project tempo. Dark: TIME is in ms.
TIME	With SYNC: 1/32, 1/16 T, 1/16, 1/8 T, 1/16 D, 1/8, 1/4 T, 1/8 D, 1/4, 1/2 T, 1/4 D, 1/2 or 1 bar (default 1/8 D). Without: 20 -

	2000 ms (default 450). The readout under the knob shows it. A new time glides in smoothly.
FEEDBACK	0 - 95 % (default 35): the number of repeats.
MIX	0 - 100 % (default 25).
HPF / LPF	20 Hz - 2 kHz (default 200 Hz) and 1 - 20 kHz (default 6 kHz). They sit in the echo loop, so each repeat is darker and thinner than the last.

REVERB

SIZE	0 - 100 % (default 70): the size of the space (and its pre-delay).
DECAY	0.5 - 20 s (default 4 s).
MIX	0 - 100 % (default 25).
HPF / LPF	20 Hz - 2 kHz (default 150 Hz) and 1 - 20 kHz (default 9 kHz), on what goes into the reverb.

WIDTH

WIDTH	0 - 200 % (default 140). The last stage: 0 % is mono, 100 % (the "0" mark) leaves the image as it is, 200 % doubles the sides.
HPF / LPF	20 Hz - 2 kHz (default 300 Hz) and 1 - 20 kHz (default 20 kHz): only this band is widened, so the lows stay centred.

Presets

The soundscapes are level-matched (about -20 LUFS). No preset changes IN.

Default	The defaults: SOUNDSCAPE, a wave about every ten seconds, some foam and a light wind, no rain, the filter at 5 kHz, all effects out.
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Gentle Evening Shoreline	Slower waves with more foam, very little wind, a slightly brighter filter, 130 % width and a medium reverb.
Deep Ocean Swells	Slow, deep waves with little foam, the filter down at 1.1 kHz, THICK on and a big, long (7 s), dark reverb.
Coastal Gale	Fast waves, lots of foam, near-full wind and a little rain, the filter open, THICK, chorus and 160 % width.
Midnight Rain	Slow waves, little wind and steady rain, with 140 % width and a medium reverb.
Calibrated White Noise	CALIBRATION: white noise at -20 dBFS RMS, full band, stereo.
Calibrated Pink Noise	CALIBRATION: pink noise at -20 dBFS RMS, full band, stereo.
Brown Noise Room Test	CALIBRATION: brown noise at -20 dBFS RMS, full band, mono.
Distant Surf	Waves heard from far off: the filter at 850 Hz, little foam, THICK, a dark free-time echo and a very large, long (8 s) reverb.
Stormy Beach	Fast waves, heavy foam, strong wind and heavy rain, the filter open, THICK, 150 % width and reverb.

Tips

- Press IN: OC77 is silent until you do.
- To set monitor levels, choose Calibrated Pink Noise, check MEASURED reads -20.0 dBFS, then turn your speakers up until your SPL meter shows your reference level.
- Noise peaks run about 12 dB above its RMS, so above about -12 dBFS RMS the -0.3 dBFS safety ceiling starts to touch the peaks. Stay at -12 dB or below for exact readings.
- Use the 500 Hz - 2 kHz band to match the level of each speaker in turn with LEFT ONLY and RIGHT ONLY.

- For a soundscape under music, pull FILTER CUTOFF down and keep the reverb's HPF up, so the sea doesn't cloud the low end.
- Watch the SHORELINE window while you set WAVE RATE and SHORELINE LICK: you can see each wave build, break and draw back.

File: gfx-lab-oc77.jsfx