

**S1 Table**

**List of symbols, their dimensions, and definitions.**

$\alpha$ [-]	tissue absorptivity	$h$ [ $Wm^{-2}K^{-1}$ ]	heat transfer coefficient
$A$ [ $m^2$ ]	coral surface area	$I$ [ $Wm^2$ ]	irradiance
$T_t$ [ $K$ ]	coral tissue temperature	$T_f$ [ $K$ ]	ambient fluid temperature
$\mathbf{U}$ [ $ms^{-1}$ ]	superficial velocity vector	$\phi$ [%]	porosity
$\nu$ [ $m^2s^{-1}$ ]	kinematic viscosity	$\mu$ [ $Nsm^{-2}$ ]	dynamic viscosity
$\rho_c$ [ $kgm^3$ ]	coral density	$\rho_f$ [ $kgm^3$ ]	fluid density
$C_{p_c}$ [ $Jkg^{-1}K^{-1}$ ]	coral heat capacity	$C_{p_f}$ [ $Jkg^{-1}K^{-1}$ ]	fluid heat capacity
$k_c$ [ $Wm^{-1}K^{-1}$ ]	coral thermal conductivity	$k_f$ [ $Wm^{-1}K^{-1}$ ]	fluid thermal conductivity
$\Gamma_{T_m}$ [ $m^2s^{-1}$ ]	medium thermal diffusivity	$Pr$ [-]	Prandtl number
$D$ [ $ms^{-1}$ ]	Darcy's term	$F$ [ $ms^{-1}$ ]	Forchheimer's term
$k$ [ $m^2s^{-2}$ ]	turbulent kinetic energy	$\omega$ [ $m^2s^{-3}$ ]	specific dissipation rate