1 Supplementary Information (SI)

Days until hatching (DUH) are based on the linear function in Geffen et al. (2006) and degree days;

$$DUH = a + b * \ln(T)^{-1},$$

with parameters described in Table SI.1. Individual ambient larval light is a function of surface light and attenuation;

$$E(z,t) = E_0 e^{(-zk)},$$

with parameters described in Table SI.1. Larval specific growth rate (SPG) below 400 mg is calculated according to Folkvord (2005);

$$SGR = 1.08 + 1.79 * T - 0.074 * T * \ln DW - 0.0965 * T * (\ln DW)^2 + 0.0112 * T * (\ln DW)^3,$$

with variable described in Table SI.1. Above 400 mg the SGR is calculated according to Björnsson et al. (2007);

$$\ln SGR = -0.762 + 0.3982 * T - 0.01288 T^2 - (0.15 + 0.0215 * T) * \ln WW,$$

with variable described in Table SI.1. Larval encounter rate is quantified according to Fiksen and MacKenzie (2002);

$$e = \frac{2}{3}\pi r^3 N f + \pi r^2 N \sqrt{(u^2 + 2\omega^2)} f \lambda,$$

where the larval perception distance r is given by the solution of;

$$r^2 exp(cr) = E'CA_P \frac{E_b}{K_e + E_b},$$

with variables and parameters described in Table SI.1

Metabolic costs are calculated according to Lough et al. (2005);

$$Meta = 0.0014 * DW^{(1.029 - 0.00774 \ln DW)} * e^{(T*(0.1072 - 0.0032 * \ln DW))}.$$

Variables	Description	Unit
DW	Dry weight	mg
WW	Wet weight	mg
e	Encountered prey	s^{-1}
r	Larval perception distance	m
N	Prey abundance	m^{-3}
u	Prey swimming speed, here 1 body length per second	ms^{-1}
ω	Turbulent velocity	ms^{-1}
A_P	Prey size, 0.75 *prey length*prey width	m^2

E_b	Light, function of date, time of day, latitude,	$\mu mol \cdot m^{-2} \cdot s^{-1}$
Parameters	Description	Value, unit
a	Days until hatching parameter	-15.22
b	Days until hatching parameter	55.72
λ	Pause duration	2.0, s
c	Beam attenuation coefficient	$3k$, m^{-1}
k	Attenuation coefficient	0.18, m^{-1}
f	Pause frequencey	0.43, s^{-1}
E'	Larval eye sensitivity	10 000, DL
C	Prey-inherent contrast	0.4, DL
K_e	Larval light satiation	1.0, $\mu mol \cdot m^{-2} \cdot s^{-1}$

Figure caption in Supplementary Information

Figure SI.1. SGs (black stars) and every 100th drift trajectory of eggs/larvae from spawning until late July during 1995 and 2002.