

Estimated Oxygen Consumption (MO₂) Of Resting and Swimming Fish With Body Mass X (gram), Temperature Y (Deg C) and Scope for Activity Z:
 The calculated SMR may be overestimated by 10 - 20 % because the OxyRef include data for resting and routine metabolism.

Variable I - Body Mass:	35,0 grm	==>	SMR	MO ₂ =	2,64 MO ₂ , mg O ₂ /hr
Variable II -Temperature:	12,0 DegC	==>	SMR	MO ₂ =	75,43 MO ₂ , mg O ₂ /kg/hr
Variable III - Scope of Activity:	10,0	==>	AMR	MO ₂ =	26,40 MO ₂ , mg O ₂ /hr
		==>	AMR	MO ₂ =	754,31 MO ₂ , mg O ₂ /kg/hr

MO₂, mg O₂/hr - SMR

BM, grm	3,5	8,75	17,5	26,25	35	43,75	52,5	61,25	70	175	350
Temp, DegC											
-1,8	0,192	0,381	0,641	0,868	1,077	1,274	1,460	1,639	1,812	3,602	6,058
0	0,216	0,430	0,724	0,981	1,217	1,439	1,650	1,852	2,047	4,070	6,845
5	0,301	0,599	1,007	1,366	1,694	2,003	2,296	2,578	2,850	5,665	9,528
12	0,469	0,933	1,570	2,128	2,640	3,121	3,578	4,017	4,440	8,828	14,846
15	0,564	1,121	1,886	2,556	3,172	3,750	4,299	4,826	5,334	10,605	17,836
20	0,759	1,510	2,539	3,442	4,271	5,049	5,788	6,498	7,182	14,279	24,015
25	1,012	2,013	3,385	4,588	5,693	6,730	7,716	8,662	9,574	19,035	32,013
30	1,337	2,658	4,470	6,058	7,517	8,887	10,189	11,437	12,642	25,135	42,272
35	1,749	3,478	5,849	7,928	9,837	11,629	13,333	14,967	16,544	32,892	55,317

MO₂, mg O₂/kg/hr _SMR

BM, grm	3,5	8,75	17,5	26,25	35	43,75	52,5	61,25	70	175	350
Temp, DegC											
-1,8	5,474	4,353	3,661	3,308	3,078	2,911	2,781	2,676	2,588	2,059	1,731
0	6,184	4,918	4,136	3,737	3,478	3,289	3,142	3,024	2,924	2,326	1,956
5	8,609	6,846	5,757	5,202	4,841	4,578	4,374	4,209	4,071	3,237	2,722
10	11,844	9,419	7,920	7,157	6,660	6,299	6,018	5,791	5,601	4,454	3,745
15	16,115	12,816	10,777	9,738	9,062	8,570	8,189	7,879	7,620	6,060	5,096
20	21,698	17,255	14,510	13,111	12,201	11,539	11,025	10,608	10,260	8,160	6,861
25	28,924	23,002	19,343	17,478	16,265	15,383	14,697	14,142	13,677	10,877	9,147
30	38,193	30,374	25,541	23,079	21,478	20,312	19,407	18,673	18,060	14,363	12,078
35	49,979	39,747	33,423	30,201	28,105	26,580	25,396	24,436	23,634	18,795	15,805

Based on:

James F. Gillooly*, James H. Brown, Geoffrey B. West, Van M. Savage and Eric L. Charnov,
 Effects of Size and Temperature on Metabolic Rate
 Science 21 September 2001:
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and

Thurston, R.V. and P.C. Gehrke. 1993. Respiratory oxygen requirements of fishes: description of OXYREF, a data file based on test results reported in the published literature, p. 95-108. In R.C. Russo and R.V. Thurston (eds.) Fish physiology, toxicology, and water quality management. Proceedings of an International Symposium, Sacramento, California, USA, 18-19 September 1990. EPA/600AR-93/157.

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