Regression equations that may be used to estimate the volume of hatched Nile crocodile (*Crocodylus niloticus*) eggs.

The meaning of the terminology used in the regression equations below is as explained in the accompanying article. Each paragraph below contains the regression equation for one scope by polarity combination.

Estimated volume for scope 1.3 and polarity −1 = − 18.86391 − 4.526696\*diameter\_at\_height\_0.35 + 6.807952\*diameter\_at\_height\_0.5 − 9.14039\*diameter\_at\_height\_0.8 + 8.691709\*diameter\_at\_height\_0.85 − 7.90738\*diameter\_at\_height\_1.05 + 6.798798\*diameter\_at\_height\_1.3 + 1.165085\*volume\_below\_diameter\_at\_height\_1.3 if polarity = − 1 and scope = 1.3

Estimated volume for scope 1.3 and polarity 0 = − 33.57792 + 7.368462\*diameter\_at\_height\_0.75 + 7.9422\*diameter\_at\_height\_0.85 − 8.7684\*diameter\_at\_height\_1.0 − 11.31028\*diameter\_at\_height\_1.1 + 7.200752\*diameter\_at\_height\_1.25 + 5.154842\*diameter\_at\_height\_1.3 + 1.147644\*volume\_below\_diameter\_at\_height\_1.3 − 6.374949\*diameter\_at\_height\_0.6 if polarity = 0 and scope = 1.3

Estimated volume for scope 1.3 and polarity 1 = 64.76098 − 1.488286\*(distance between the bottom pole and the girth) + 3.374443\*diameter\_at\_height\_0.3 − 4.285202\*diameter\_at\_height\_0.35 + 4.908687\*diameter\_at\_height\_0.4 − 6.233484\*diameter\_at\_height\_0.45 + 6.794464\*diameter\_at\_height\_0.95 − 7.418842\*diameter\_at\_height\_1.1 − 10.57909\*diameter\_at\_height\_1.15 + 12.75363\*diameter\_at\_height\_1.3 + 1.955941\*volume\_below\_diameter\_at\_height\_1.3 if polarity = 1 and scope = 1.3

Estimated volume for scope 1.35 and polarity −1 = − 11.71605 − 3.364357\*diameter\_at\_height\_0.35 + 4.264235\*diameter\_at\_height\_0.5 − 6.306695\*diameter\_at\_height\_1.05 + 6.061439\*diameter\_at\_height\_1.15 − 7.698693\*diameter\_at\_height\_1.25 + 7.530558\*diameter\_at\_height\_1.35 + 1.183393\*volume\_below\_diameter\_at\_height\_1.35 if polarity = − 1 and scope = 1.35

Estimated volume for scope 1.35 and polarity 0 = − 11.83571 − 1.556575\*diameter\_at\_height\_0.2 + 3.109258\*diameter\_at\_height\_0.4 − 3.840865\*diameter\_at\_height\_0.5 − 4.570261\*diameter\_at\_height\_0.6 + 10.01324\*diameter\_at\_height\_0.85 − 3.980481\*diameter\_at\_height\_1.0 − 8.625072\*diameter\_at\_height\_1.1 + 9.616906\*diameter\_at\_height\_1.35 + 7.035811\*volume\_below\_diameter\_at\_height\_1.15 − 4.499865\*volume\_below\_diameter\_at\_height\_1.35 if polarity = 0 and scope = 1.35

Estimated volume for scope 1.35 and polarity 1 = − 30.94872 − 2.406095\*diameter\_at\_height\_0.35 + 2.540419\*diameter\_at\_height\_0.4 − 7.300781\*diameter\_at\_height\_0.65 + 5.947339\*diameter\_at\_height\_0.7 + 3.322046\*diameter\_at\_height\_0.9 − 12.22452\*diameter\_at\_height\_1.2 + 11.17969\*diameter\_at\_height\_1.35 + 1.171044\*volume\_below\_diameter\_at\_height\_1.35 if polarity = 1 and scope = 1.35

Estimated volume for scope 1.4 and polarity −1 = − 6.073713 − 4.052196\*diameter\_at\_height\_0.4 + 5.701625\*diameter\_at\_height\_0.5 − 2.533255\*diameter\_at\_height\_0.65 − 4.248014\*diameter\_at\_height\_1.25 + 5.532722\*diameter\_at\_height\_1.4 + 1.487271\*mtb\_volume\_below\_diameter\_at\_height\_1.15 if polarity = − 1 and scope = 1.4

Estimated volume for scope 1.4 and polarity 0 = − 17.54074 − 8.483194\*diameter\_at\_height\_0.7 + 4.941603\*diameter\_at\_height\_0.75 + 6.536664\*diameter\_at\_height\_0.85 − 5.757622\*diameter\_at\_height\_1.1 − 4.368711\*diameter\_at\_height\_1.3 + 7.913031\*diameter\_at\_height\_1.4 + 1.168079\*volume\_below\_diameter\_at\_height\_1.4 if polarity = 0 and scope = 1.4

Estimated volume for scope 1.4 and polarity 1 = − 24.68229 − 5.255772\*diameter\_at\_height\_0.65 + 7.353794\*diameter\_at\_height\_0.8 − 10.30878\*diameter\_at\_height\_1.2 + 3.817253\*diameter\_at\_height\_1.35 + 5.315383\*diameter\_at\_height\_1.4 + 1.17547\*volume\_below\_diameter\_at\_height\_1.4 if polarity = 1 and scope = 1.4

Estimated volume for scope 1.45 and polarity −1 =− 1.334408 − 2.455324\*diameter\_at\_height\_0.4 + 2.8915\*diameter\_at\_height\_0.5 − 6.032129\*diameter\_at\_height\_1.05 + 9.402762\*diameter\_at\_height\_1.15 − 7.240422\*diameter\_at\_height\_1.25 + 3.745606\*diameter\_at\_height\_1.45 + 1.183807\*volume\_below\_diameter\_at\_height\_1.4 if polarity = − 1 and scope = 1.45

Estimated volume for scope 1.45 and polarity 0 = − 9.35298 − 1.098688\*diameter\_at\_height\_0.55 − 5.400032\*diameter\_at\_height\_1.3 + 5.439476\*diameter\_at\_height\_1.35 − 5.901071\*diameter\_at\_height\_1.4 + 7.535007\*diameter\_at\_height\_1.45 + 1.159444\*volume\_below\_diameter\_at\_height\_1.45 if polarity = 0 and scope = 1.45

Estimated volume for scope 1.45 and polarity 1 = − 22.21605 + 1.110849\*diameter\_at\_height\_0.2 − 2.199427\*diameter\_at\_height\_0.35 + 2.960578\*diameter\_at\_height\_0.4 − 4.70039\*diameter\_at\_height\_0.45 + 4.217807\*diameter\_at\_height\_0.5 − 6.63095\*diameter\_at\_height\_0.65 + 5.155624\*diameter\_at\_height\_0.75 + 3.539988\*diameter\_at\_height\_0.95 − 8.149269\*diameter\_at\_height\_1.2 + 5.793868\*diameter\_at\_height\_1.45 + 1.125647\*volume\_below\_diameter\_at\_height\_1.45 if polarity = 1 and scope = 1.45

Estimated volume for scope 1.5 and polarity −1 = − 3.48593 − 0.6064899\*diameter\_at\_height\_0.4 − 6.4225\*diameter\_at\_height\_1.05 + 11.003\*diameter\_at\_height\_1.15 − 7.542304\*diameter\_at\_height\_1.25 + 3.997805\*diameter\_at\_height\_1.45 + 1.569366\*volume\_below\_diameter\_at\_height\_1.1 if polarity = − 1 and scope = 1.5

Estimated volume for scope 1.5 and polarity 0 = − 4.328067 − 1.46159\*diameter\_at\_height\_0.55 + 4.121467\*diameter\_at\_height\_0.85 − 2.930063\*diameter\_at\_height\_1.0 − 3.385054\*diameter\_at\_height\_1.3 + 4.772714\*diameter\_at\_height\_1.35 − 5.802039\*diameter\_at\_height\_1.4 + 5.051575\*diameter\_at\_height\_1.5 + 1.156459\*volume\_below\_diameter\_at\_height\_1.5 if polarity = 0 and scope = 1.5

Estimated volume for scope 1.5 and polarity 1 = − 16.28958 2.021439\*diameter\_at\_height\_0.4 − 3.02821\*diameter\_at\_height\_0.45 − 6.634721\*diameter\_at\_height\_0.65 + 5.424759\*diameter\_at\_height\_0.75 + 2.527113\*diameter\_at\_height\_0.95 − 5.024525\*diameter\_at\_height\_1.2 + 5.332009\*diameter\_at\_height\_1.5 + 2.543202\* volume\_below\_diameter\_at\_height\_1.05 + 4.573414\* volume\_below\_diameter\_at\_height\_1.3 − 4.674234\* volume\_below\_diameter\_at\_height\_1.4 if polarity = 1 and scope = 1.5

Estimated volume for scope 1.55 and polarity −1 = − 67.62436 + 1.028666\*(distance between the bottom pole and the girth) − 5.730212\*diameter\_at\_height\_0.35 + 7.886066\*diameter\_at\_height\_0.45 + 6.083221\*diameter\_at\_height\_0.5 − 6.643314\*diameter\_at\_height\_0.55 − 6.208981\*diameter\_at\_height\_0.75 + 8.035124\*diameter\_at\_height\_0.9 − 7.478157\*diameter\_at\_height\_1.05 + 7.929462\*diameter\_at\_height\_1.15 − 11.73021\*diameter\_at\_height\_1.35 + 6.117552\*diameter\_at\_height\_1.45 + 8.215686\*diameter\_at\_height\_1.5 − 4.904771\*diameter\_at\_height\_1.55 + 0.6625005\*volume\_below\_diameter\_at\_height\_1.55 if polarity = − 1 and scope = 1.55

Estimated volume for scope 1.55 and polarity 0 = − 5.174652 -0.741066\*diameter\_at\_height\_0.55 + 1.138672\*diameter\_at\_height\_0.85 − 6.040884\*diameter\_at\_height\_1.4 + 6.040739\*diameter\_at\_height\_1.5 + 1.118966\*volume\_below\_diameter\_at\_height\_1.55 if polarity = 0 and scope = 1.55

Estimated volume for scope 1.55 and polarity 1 = − 13.17399 + 0.7631915\*diameter\_at\_height\_0.2 − 3.520526\*diameter\_at\_height\_0.45 + 5.220719\*diameter\_at\_height\_0.55 − 3.56469\*diameter\_at\_height\_0.6 + 6.181848\*diameter\_at\_height\_1.1 − 7.643125\*diameter\_at\_height\_1.2 + 3.239279\*diameter\_at\_height\_1.55 + 1.13392\*volume\_below\_diameter\_at\_height\_1.55 if polarity = 1 and scope = 1.55

Estimated volume for scope 1.6 and polarity −1 = − 1.020008 − 3.828626\*diameter\_at\_height\_0.35 + 4.788504\*diameter\_at\_height\_0.45 − 3.562615\*diameter\_at\_height\_0.8 + 5.604562\*diameter\_at\_height\_1.0 − 6.539787\*diameter\_at\_height\_1.05 + 5.858829\*diameter\_at\_height\_1.2 − 11.14549\*diameter\_at\_height\_1.35 + 4.727304\*diameter\_at\_height\_1.45 + 7.531385\*diameter\_at\_height\_1.5 − 3.247469\*diameter\_at\_height\_1.6 + 1.057709\*volume\_below\_diameter\_at\_height\_1.6 if polarity = − 1 and scope = 1.6

Estimated volume for scope 1.6 and polarity 0 = − 4.175461 − 2.265658\*diameter\_at\_height\_0.7 + 2.61288\*diameter\_at\_height\_0.85 − 3.82098\*diameter\_at\_height\_1.3 + 4.017217\*diameter\_at\_height\_1.35 − 4.993473\*diameter\_at\_height\_1.4 + 4.819708\*diameter\_at\_height\_1.5 + 1.087074\*volume\_below\_diameter\_at\_height\_1.6 if polarity = 0 and scope = 1.6

Estimated volume for scope 1.6 and polarity 1 = − 9.316861 + 0.989996\*diameter\_at\_height\_0.2 − 3.588334\*diameter\_at\_height\_0.45 + 2.046377\*diameter\_at\_height\_0.55 + 3.044525\*diameter\_at\_height\_1.1 − 4.240352\*diameter\_at\_height\_1.2 + 2.324729\*diameter\_at\_height\_1.6 + 1.126066\*volume\_below\_diameter\_at\_height\_1.6 if polarity = 1 and scope = 1.6

Estimated volume for scope 1.65 and polarity −1 = − 52.03473 + 0.7961276\*(distance between the bottom pole and the girth) − 2.786531\*diameter\_at\_height\_0.35 + 4.630929\*diameter\_at\_height\_0.5 − 4.096578\*diameter\_at\_height\_0.8 + 7.085705\*diameter\_at\_height\_1.15 − 4.726357\*diameter\_at\_height\_1.3 − 9.384918\*diameter\_at\_height\_1.35 + 8.522607\*diameter\_at\_height\_1.4 + 4.785729\*diameter\_at\_height\_1.6 − 2.792297\*diameter\_at\_height\_1.65 + 0.7259423\*volume\_below\_diameter\_at\_height\_1.65 if polarity = − 1 and scope = 1.65

Estimated volume for scope 1.65 and polarity 0 = − 2.135009 − 3.062784\*diameter\_at\_height\_0.7 + 6.273593\*diameter\_at\_height\_0.85 − 2.790334\*diameter\_at\_height\_1.0 − 3.745608\*diameter\_at\_height\_1.3 + 4.828283\*diameter\_at\_height\_1.35 − 6.971515\*diameter\_at\_height\_1.4 + 4.012535\*diameter\_at\_height\_1.5 + 4.284622\*diameter\_at\_height\_1.55 − 2.545396\*diameter\_at\_height\_1.6 + 1.073875\*volume\_below\_diameter\_at\_height\_1.65 if polarity = 0 and scope = 1.65

Estimated volume for scope 1.65 and polarity 1 = − 5.574052 + 0.988444\*diameter\_at\_height\_0.2 − 1.894489\*diameter\_at\_height\_0.45 + 2.541695\*diameter\_at\_height\_1.1 − 2.845321\*diameter\_at\_height\_1.2 + 1.714128\*diameter\_at\_height\_1.65 + 1.113419\*volume\_below\_diameter\_at\_height\_1.65 if polarity = 1 and scope = 1.65

Estimated volume for scope 1.7 and polarity −1 = 29.2379 − 0.4070032\*(distance between the bottom pole and the girth) − 0.0689479\*diameter\_at\_height\_0.2 − 1.605919\*diameter\_at\_height\_0.3 − 3.806406\*diameter\_at\_height\_0.35 − 2.658457\*diameter\_at\_height\_0.4 + 3.749004\*diameter\_at\_height\_0.45 + 1.261712\*diameter\_at\_height\_0.5 + 6.58216\*diameter\_at\_height\_0.55 − 8.459072\*diameter\_at\_height\_0.6 + 5.962873\*diameter\_at\_height\_0.65 − 3.150325\*diameter\_at\_height\_0.7 − 6.469563\*diameter\_at\_height\_0.75 − 1.160222\*diameter\_at\_height\_0.8 + 7.257374\*diameter\_at\_height\_0.85 − 3.119436\*diameter\_at\_height\_0.9 − 1.616707\*diameter\_at\_height\_0.95 − 2.83895\*diameter\_at\_height\_1.0 + 2.358978\*diameter\_at\_height\_1.05 − 2.160258\*diameter\_at\_height\_1.1 − 4.235077\*diameter\_at\_height\_1.15 − 3.55944\*diameter\_at\_height\_1.2 + 6.57836\*diameter\_at\_height\_1.25 − 1.684038\*diameter\_at\_height\_1.3 + 3.781089\*diameter\_at\_height\_1.35 + 10.75307\*diameter\_at\_height\_1.4 + 5.286276\*diameter\_at\_height\_1.45 − 0.641572\*diameter\_at\_height\_1.5 − 0.0659814\*diameter\_at\_height\_1.55 − 5.975906\*diameter\_at\_height\_1.6 − 2.980069\*diameter\_at\_height\_1.65 + 1.107027\*diameter\_at\_height\_1.7 + 0.3569492\* volume\_below\_diameter\_at\_height\_1.0 − 8.057385\*volume\_below\_diameter\_at\_height\_1.05 + 5.061537\*volume\_below\_diameter\_at\_height\_1.1 − 4.765208\*volume\_below\_diameter\_at\_height\_1.15 − 6.300187\*volume\_below\_diameter\_at\_height\_1.2 + 19.95992\*volume\_below\_diameter\_at\_height\_1.25 + 5.895304\*volume\_below\_diameter\_at\_height\_1.3 + 36.77717\*volume\_below\_diameter\_at\_height\_1.35 + 21.31917\*volume\_below\_diameter\_at\_height\_1.4 − 42.68689\*volume\_below\_diameter\_at\_height\_1.45 − 13.81285\*volume\_below\_diameter\_at\_height\_1.5 − 36.45662\*volume\_below\_diameter\_at\_height\_1.55 − 21.85538\*volume\_below\_diameter\_at\_height\_1.6 + 37.25893\*volume\_below\_diameter\_at\_height\_1.65 + 11.33266\*volume\_below\_diameter\_at\_height\_1.7 if polarity = − 1 and scope = 1.7

Estimated volume for scope 1.7 and polarity 0 = − 8.872074 − 1.284485\*diameter\_at\_height\_1.4 + 3.353904\*diameter\_at\_height\_1.65 − 1.553629\*diameter\_at\_height\_1.7 + 1.014449\*volume\_below\_diameter\_at\_height\_1.7 if polarity = 0 and scope = 1.7

Estimated volume for scope 1.7 and polarity 1 = − 14.00238 − 5.874693\*diameter\_at\_height\_0.65 + 4.53384\*diameter\_at\_height\_0.75 − 3.163654\*diameter\_at\_height\_1.15 + 5.173137\*diameter\_at\_height\_1.5 − 5.434566\* volume\_below\_diameter\_at\_height\_1.0 + 4.351786\* volume\_below\_diameter\_at\_height\_1.1 + 22.66488\* volume\_below\_diameter\_at\_height\_1.35 − 15.94726\* volume\_below\_diameter\_at\_height\_1.45 − 17.737\* volume\_below\_diameter\_at\_height\_1.55 + 24.07741\* volume\_below\_diameter\_at\_height\_1.65 − 10.09862\* volume\_below\_diameter\_at\_height\_1.7 if polarity = 1 and scope = 1.7

Estimated volume for scope 1.8 and polarity −1 = 3.729054 + 2.262929\*diameter\_at\_height\_0.3 − 4.201183\*diameter\_at\_height\_0.35 + 2.110675\*diameter\_at\_height\_0.55 − 4.919941\*diameter\_at\_height\_1.05 + 8.263857\*diameter\_at\_height\_1.15 − 4.202106\*diameter\_at\_height\_1.3 − 8.041811\*diameter\_at\_height\_1.35 + 7.025818\*diameter\_at\_height\_1.4 + 2.940462\*diameter\_at\_height\_1.6 − 1.058088\*diameter\_at\_height\_1.7 -0.1770144\*diameter\_at\_height\_1.8 + 1.011794\*volume\_below\_diameter\_at\_height\_1.8 if polarity = − 1 and scope = 1.8

Estimated volume for scope 1.8 and polarity 0 = − 30.95724 + 0.4298682\*(distance between the bottom pole and the girth) − 0.8198334\*diameter\_at\_height\_0.35 + 2.334308\*diameter\_at\_height\_0.5 − 1.936169\*diameter\_at\_height\_0.55 + 1.480761\*diameter\_at\_height\_1.05 − 1.809227\*diameter\_at\_height\_1.3 − 2.586826\*diameter\_at\_height\_1.4 + 4.12729\*diameter\_at\_height\_1.45 − 2.916307\*diameter\_at\_height\_1.6 + 3.910354\*diameter\_at\_height\_1.7 -0.9705656\*diameter\_at\_height\_1.8 + 0.8614524\*volume\_below\_diameter\_at\_height\_1.8 if polarity = 0 and scope = 1.8

Estimated volume for scope 1.8 and polarity 1 = − 7.21861 − 1.999904\*diameter\_at\_height\_0.45 − 6.146249\*diameter\_at\_height\_1.25 + 5.88826\*diameter\_at\_height\_1.3 + 6.3972\*diameter\_at\_height\_1.6 − 2.920951\*diameter\_at\_height\_1.65 − 1.231326\*diameter\_at\_height\_1.8 + 11.22369\*volume\_below\_diameter\_at\_height\_1.2 − 25.85604\*volume\_below\_diameter\_at\_height\_1.35 − 10.48435\*volume\_below\_diameter\_at\_height\_1.4 + 33.07623\*volume\_below\_diameter\_at\_height\_1.45 + 34.03218\*volume\_below\_diameter\_at\_height\_1.55 − 13.01126\*volume\_below\_diameter\_at\_height\_1.6 − 38.68399\*volume\_below\_diameter\_at\_height\_1.65 − 7.426875\*volume\_below\_diameter\_at\_height\_1.7 + 19.51276\*volume\_below\_diameter\_at\_height\_1.8 if polarity = 1 and scope = 1.8