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Vecsei, P. 1999. Illustrating sturgeon species: the art of science in highlighting morphological features. *J. Appl. Ichthyol.* 15: 7-8.

Environmental Studies Acipenseriformes of the world

Fontana, F., Rossi, R., Lanfredi, M., Arlati, G., Bronzi, P. 1999. Chromosome banding in sturgeons. *J. Appl. Ichthyol.* 15: 9-11.

Birstein, V.I., Doukakis, P., DeSalle, R. 1999. Molecular phylogeny of Acipenserinae and black caviar species identification. *J. Appl. Ichthyol.* 15: 12-16.

Tagliavini, J., Conterio, F., Gandolfi, G., Fontana, F. 1999. Mitochondrial DNA sequences of six sturgeon species and phylogenetic relationships within Acipenseridae. *J. Appl. Ichthyol.* 15: 17-22.

Pourkazemi, M., Skibinski, D.O.F., Beardmore, J.A. 1999. Application of mtDNA d-loop region for the study of Russian sturgeon population structure from Iranian coastline of the Caspian Sea. *J. Appl. Ichthyol.* 15: 23-28.

Vasil'ev, V.P. 1999. Polyploidization by reticular speciation in Acipenseriform evolution: a working hypothesis. *J. Appl. Ichthyol.* 15: 29-31.

Vasil'eva, E.D. 1999. Some morphological characteristics of Acipenserid fishes: considerations of their variability and utility in taxonomy. *J. Appl. Ichthyol.* 15: 32-34.

Artyukhin, E., Vecsei, P. 1999. On the status of Atlantic sturgeon: conspecificity of European *Acipenser sturio* and North American *Acipenser oxyrinchus*. *J. Appl. Ichthyol.* 15: 35-37.

Debus, L. 1999. Meristic and morphological features of the Baltic sturgeon (*Acipenser sturio* L.). *J. Appl. Ichthyol.* 15: 38-45.

Hernande, J.A., Arlati, G., Domezain, A., Soriguer, C., Poliakova-Belysceva, L.A., Domezain, J., Vallespin, C., Bravo, K. 1999. Morphometric study of *Acipenser naccarii* (Bonaparte, 1836) in fish farm individuals. *J. Appl. Ichthyol.* 15: 46-49.

Loy, A., Bronzi, P., Molenti, S. 1999. Geometric morphometrics in the characterisation of the cranial growth pattern of Adriatic sturgeon *Acipenser naccarii*. *J. Appl. Ichthyol.* 15: 50-53.

Arlati, G., Hernando, J.A., Poliakova-Belisceva, L.A. Soriguer, M.C. 1999. Some meristic characteristics of hybrids between *Acipenser naccarii* and *Acipenser baerii*. *J. Appl. Ichthyol.* 15: 54-56.

Environmental Biology

Cataldi, E., Barzaghi, C., Di Marco, P., Boglione, C., Dini, L., McKenzie, D.J., Bronzi, P., Cataudella, S. 1999. Some aspects of osmotic and ionic regulation in Adriatic sturgeon *Acipenser naccarii*. I. Ontogenesis of salinity tolerance. *J. Appl. Ichthyol.* 15: 57-60.

McKenzie, D.J., Cataldi, E., Di Marco, P., Mandich, A., Romano, P., Ansferri, S., Bronzi, P., Cataudella, S. 1999. Some aspects of osmotic and ionic regulation in Adriatic sturgeon *Acipenser naccarii*. II. Morpho-physiological adjustments to hyperosmotic environments. *J. Appl. Ichthyol.* 15: 61-66.

Agnisola, C., McKenzie, D.J., Pellegrino, D., Bronzi, P., Tota, B., Taylor, E.W. 1999. Cardiovascular responses to hypoxia in the Adriatic sturgeon (*Acipenser naccarii*). *J. Appl. Ichthyol.* 15: 67-72.

Di Marco, P., McKenzie, D.J., Mandich, A., Bronzi, P., Cataldi, E., Cataudella, S. 1999. Influence of sampling conditions on blood chemistry values of Adriatic sturgeon *Acipenser naccarii* (Bonaparte, 1836).

Clementi, M.E., Cataldi, E., Capo, C., Petruzzelli, R., Tellone, E., Giardina, B. 1999. Purification and characterization of the hemoglobin components of Adriatic sturgeon (*Acipenser naccarii*) blood. *J. Appl. Ichthyol.* 15: 78-80.

Radaelli, G., Domeneghini, C., Arrighi, S., Vaini, F., Mascarello, F. 1999. Histochemical and immunohistochemical investigation of muscle fibres in the sturgeon (*Chondrostei; Acipenser*). *J. Appl. Ichthyol.* 15: 87-91.

Obukhov, D.K., 1999. Cytoarchitectonics and neuronal organization of the sturgeon telencephalon. *J. Appl. Ichthyol.* 15: 92-95.

Agradi, E., Brevini, T.A.L., Bolla, M., Baga, R., Favetta, L.A. 1999. Cytochrome P-450 levels and EROD activity in the Adriatic sturgeon (*Acipenser naccarii*, *Chondrostei*) and its induction by β -Naphthoflavone. *J. Appl. Ichthyol.* 15: 96-98.

Population Biology and Management

Luk'yanenko, V.I., Vasil'ev, A.S. Lukyanenko, V.V., Khabarov, M.V. 1999. On the increasing threat of extermination of the unique Caspian sturgeon populations and the urgent measures required to save them. *J. Appl. Ichthyol.* 15: 99-102.

Ivanov, V.P., Vlasenk, A.D., Khodorevskaya, R.P., Raspopov, V.M. Contemporary status of Caspian sturgeon (*Acipenseridae*) stock and its conservation. *J. Appl. Ichthyol.* 15: 103-105.

Khodoresvskaya, R.P., Krasikov, Ye.V. 1999. Sturgeon abundance and distribution in the Caspian Sea. *J. Appl. Ichthyol.* 15: 106-113.

Bacalbasa,-Dobrovici, N., Patriche, N., 1999. Environmental studies and recovery actions for sturgeon in the Lower Danube river system. *J. Appl. Ichthyol.* 15: 114-115.

Sulak, K.J., Clugston, J.P. 1999. Recent advances in life history of Gulf of Mexico sturgeon, *Acipenser oyrinchus desotoi*, in the Suwannee River, Florida, USA: a synopsis. *J. Appl. Ichthyol.* 15: 116-128.

Paaver, T. 1999. Historic and recent records of native and exotic sturgeon species in Estonia. *J. Appl. Ichthyol.* 15: 129-132.

Fernández-Pasquier, V. 1999. *Acipenser sturio* L. in the Guadalquivir River, Spain. Water regulation and fishery as factors in stock decline from 1932 to 1967. *J. Appl. Ichthyol.* 15: 133-135.

Gessner, J., Debus, L., Filipiak, J., Spratte, S., Skora, K.E., Arndt, G.M. 1999. Development of sturgeon catches in German and adjacent waters since 1980. *J. Appl. Ichthyol.* 15: 136-141.

Bruch, R.M. 1999. Management of lake sturgeon on the Winnebago System - long term impacts of harvest and regulations on population structure. *J. Appl. Ichthyol.*

15: 142-152.

Caron, F., Tremblay, S. 1999. Structure and management of an exploited population of Atlantic sturgeon (*Acipenser oxyrinchus*) in the St. Lawrence Estuary, Québec, Canada. *J. Appl. Ichthyol.* 15: 153-156.

Duke, S., Anders, P., Ennis, G., Hallock, R., Hammond, J., Ireland, S., laufle, J., Lauzier, R., Lockhard, L., Marotz, B., Praragamian, V.I., Westerhof, R. 1999. Recovery plan for Kootenai River white sturgeon (*Acipenser transmontanus*). *J. Appl. Ichthyol.* 15: 157-163.

Hildebrand, L., McLeod, C. McKenzie, S. 1999. Status and management of white sturgeon in the Columbia River in British Columbia, Canada: an overview. *J. Appl. Ichthyol.* 15: 164-172.

McLeod, C., Hildebrand, L., Radford, D. 1999. A synopsis of lake sturgeon management in Alberta, Canada. *J. Appl. Ichthyol.* 15: 173-179.

St.Pierre, R.A. 1999. Restoration of Atlantic sturgeon in the northeastern USA with special emphasis on culture and stocking. *J. Appl. Ichthyol.* 15: 180-182.

Chebanov, M.S., Savelyeva, E.A. 1999. New strategies for brood stock management of sturgeon in the Sea of Azov basin in response to changes in patterns of spawning migration. *J. Appl. Ichthyol.* 15: 183-190.

Aquaculture Reproduction and breeding

Artyukhin, E., Barannikova, I.A., Romanov, A.G. 1999. Russian strategies for conservation and reproduction of rare and common Caspian sturgeon species. *J. Appl. Ichthyol.* 15: 191-192.

Barannikova, I.A. 1999. Sex steroids in the serum of Caspian sturgeons and their specific cytosol binding in brain and gonads during the migratory cycle. *J. Appl. Ichthyol.* 15: 193-195.

Safi, S.H., Mojabi, A., Azari Takami, G., Nowrouzian, I., Mahmoodi, M., Bokaei, S. 1999. Evaluation of sturgeon follicle-stimulating hormone, luteinizing hormone, estradiol, progesterone and testosterone in *Acipenser persicus* serum to identify fertile broodstock. *J. Appl. Ichthyol.* 15: 196-198.

Billard, R., Cosson, J., Fierville, F., Brun, R., Rouault, T., Williot, P. 1999. Motility analysis and energetics of the Siberian sturgeon *Acipenser baerii* spermatozoa. *J. Appl. Ichthyol.* 15: 199-203.

Jähnichen, H., Warnecke, D., Trölsch, E., Kohlmann, K., Bergler, H., Pluta, H.J. 1999. Motility and fertilizing capability of cryopreserved *Acipenser ruthenus* L. sperm. *J. Appl. Ichthyol.* 15: 204-206.

Boglione, C., Bronzi, P., Cataldi, E., Serra, S., Gagliardi, F., Cataudella, S. 1999. Aspects of early development in the Adriatic sturgeon *Acipenser naccarii*. *J. Appl. Ichthyol.* 15: 207-213.

Aquaculture technology and production systems

Abramenko, M.I. 1999. Sturgeon production trials in the waste-heat effluents of a pulp and paper plant in Archangelsk, Russia. *J. Appl. Ichthyol.* 15: 214-219.

Abrosimova, N.A., Abrosimov, S.S., Biryukova, A.A. 1999. Lipid composition characteristics of stellate sturgeon, *Acipenser stellatus*, eggs and incubation success under conventional hatchery conditions. *J. Appl. Ichthyol.* 15: 220-223.

Bronzi, P., Rosenthal, H., Arlati, G., Williot, P. 1999. A brief overview on the status and prospects of sturgeon farming in Western and Central Europe. *J. Appl. Ichthyol.* 15: 224-227.

Environmental and husbandry factors in sturgeon culture

Kasumyan, A.O. 1999. Olfaction and taste senses in sturgeon behaviour. *J. Appl. Ichthyol.* 15: 228-232.

Kuzmin, S., Mironov, S., Vostroushkin, D., Shutov, V. 1999. Behavioural responses to various chemical incentives in hybrid beluga x Russian sturgeon (*Huso huso* x *Acipenser gueldenstaedtii*) fry. *J. Appl. Ichthyol.* 15: 223-236.

Gisbert, E., Williot, P., Castelló-Orvay, F. 1999. Behavioural modifications in the early life stages of Siberian sturgeon (*Acipenser baerii*, Brandt). *J. Appl. Ichthyol.* 15: 237-242.

Staaks, G., Kirschbaum, F., Williot, P. 1999. Experimental studies on thermal behaviour and diurnal activity rhythms of juvenile European sturgeon (*Acipenser sturio*). *J. Appl. Ichthyol.* 15: 243-247.

Jähnichen, H., Kohlmann, K., Rennert, B. 1999. Juvenile growth of *Acipenser ruthenus* and 4 different sturgeon hybrids. *J. Appl. Ichthyol.* 15: 248-249.

Moreau, R., Dabrowski, K., Czesny, S., Cihla, F. 1999. Vitamin C - Vitamin E interaction in juvenile lake sturgeon (*Acipenser fulvescens* R.), a fish able to

synthesize ascorbic acid. J. Appl. Ichthyol. 15: 250-257.

GyPapp, Zs, Saroglia, M., Jeney, Zs, Jeney, G., Terova, G. 1999. Effects of dietary vitamin C on tissue ascorbate and collagen status in sturgeon hybrids (*Acipenser ruthenus* L x *Acipenser baeri* Brandt). J. Appl. Ichthyol. 15: 258-260.

Garcia-Gallego, M., Sanz, A., Domezain, A., De la Higuera, M. 1999. Age-size influences on tissue-lipid quality of the sturgeon *Acipenser naccarii* from intensive culture. J. Appl. Ichthyol. 15: 261-264.

McKenzie, D.J., Piraccini, G., Agnisola, C., Steffensen, J.F., Bronzi, P., Bolis, C.L., Tota, B., Taylor, E.W. 1999. The influence of dietary fatty acid composition on the respiratory and cardiovascular physiology of Adriatic sturgeon (*Acipenser naccarii*): a review. J. Appl. Ichthyol. 15: 265-269.

Semenkova, T.B., Bayunova, L.V., Boev, A.A., Dyubin, V.P. 1999. Effects of stress on serum cortisol levels of sturgeon in aquaculture. J. Appl. Ichthyol. 15: 270-272.