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Modeling of Modern International Conflicts

The main theoretical positions concerning the possibilities of using the modeling of foreign political processes, including international conflicts, in practice are generalized. The specifics of the use of conflict modeling in contemporary international conflict research is considered. The main forms, content and tasks of modern international conflicts modeling are defined. Some methods of international relations modeling and complex manifestations of the foreign policy situation are investigated. Practical aspects of the possibilities of contemporary international conflicts modeling are analyzed. Concrete methods of international conflicts modeling are described and their practical content is disclosed. The main disadvantages of mathematical modeling in the study of modern international conflicts and foreign policy processes are indicated. Expediency of using modeling methods in research and forecasting of problem international situations and international conflicts in practice is accented. The author points to the potential prospects for the use of modeling techniques in further foreign policy analysis of contemporary international relations.

Key words: modeling, international conflicts, modeling process, modeling situation, models of international conflicts, international relations, foreign policy environment.

Formulation of Scientific Problem and its Significance. Relevance of Research Topic. The current international situation is characterized by increased tension and conflict, which requires the scientific study and application of complex methodological and constructive measures for its settlement. International research subdivisions are making significant efforts to stabilize and resolve international conflicts. Experts use a variety of methods and techniques for studying and forecasting of conflict situations in order to prevent the new international conflicts, including the methods of mathematical modeling. The latter should contribute to the establishment of a coherent picture of the investigated conflict process, its development environment and consider all possible options for a specific problem of the international situation, taking into account the qualitative properties of investigated contradictions and the dynamics of their development in quantitative characteristics and parameters, which can enable policy-makers and international structures of different levels to influence their stabilization. The question of applying the modeling methods and techniques in the practice of solving international conflicts stimulates research in this area of scientific knowledge, which led to the choice of subject matter of this publication.

The Purpose and Main Objectives of the Research. The main purpose of the article is to study the specificity of the use of modeling methods in the resolving of contemporary international conflicts. The main objectives of this publication are characteristic of the modeling techniques used in modern political and the conflict studies, the possibility of using various modeling techniques in resolving international conflict situations.

Analysis of Recent Research on this Problem. The first attempts to use the methods of mathematical modeling for the study of the foreign policy process and the analysis of international conflicts were applied by Frederic Lanchester (1881–1953) in his book «Aviation in War», where he tried to assess the possibility of a strategy and tactics of military action from the point of view of the concentration of enemy forces. Another scientist – Lewis Richardson (1868–1946) in the work «Mathematical Psychology of War» attempted to assess the power positions of the parties of the First World War and the dynamics of armament and the possibility of preventing the development of conflict and its transformation into an international

conflict. He tried with the help of quantitative methods to substantiate the inadmissibility of the world war, which can cause significant damage to humanity, not only from the point of view of the loss of people, that is the most important, but to bring significant material, moral and other negative consequences. His proposed model urged opponents to defend sustainable peace in the world [22].

Since the 60's and 70's of the twentieth century, political modeling of international processes has become widely used in American and British science, especially in the study of complex international situations and political-spatial processes. During this period, there are many publications concerning the modeling of the external environment and internal state of the spatial-political system, including such scholars as V. Gourmet, D. Easton, S. Lipset, William Prague, T. Saaty [17], P. Hagget, J. R. Chorley, V. Shtoff and others. However, their scientific researches mainly take into account the quantitative characteristics of the investigated processes and they were purely mathematical calculations describing the problem situation and did not allow to take into account all qualitative characteristics and searches for possible variants of resolving conflict. Subsequently, research centers and research institutes appeared at well-known educational units (Stanford, Oxford, London, Boston, California, etc.) and under international structures (UN, IMF, NATO, etc.) engaged in a comprehensive study of existing international conflicts. The Soviet scientific school tried to introduce its scientific principles for the study of international conflicts and to develop methods for their forecasting. Known are the work of such Russian researchers in the field of foreign-policy conflicts as A. Dmitriev, M. Kosolapov, M. Lebedev, A. Nikitin, E. Streltsov, A. Torkunov, D. Feldman, M. Khrustalev [19], P. Tsigankov, M. Shepeliev and other international conflict scientists. Modern Russian scientists A. Akimov [1], A. Lotov [7], E. Ozhiganov [12], T. Ovchinnikov [11], B. Sovetov [18], E. Shikin and A. Chkhartishvili [20] and others researchers are studying existing socio-political problems and consider mathematical methods of modeling as one of the practical ways of their stabilization and resolving.

Nowadays in Ukraine there is a multidimensional research on modeling of non-standard political situations, including conflicts. For example, scientists from the Vinnytsia National Technical University – I. Bogach, O. Boyko, O. Sofin, O. Shushura and other scientists working under the direction of Professor R. Kvetnoy are involved in computer modeling of systems and processes, including socio-political phenomena [5]. There is also a publication of other Vinnytsia authors, such as S. Denisyuk, A. Shiyan, who develop the modeling methodology of modern international processes [3], as well as modeling processes in the politico-communicative space – V. Kornienko etc. [6]. Other Ukrainian researchers, such as M. Polyovyi, justifies expediency of using mathematical and theoretical developments in the modeling of complex political processes, including modeling of the conflict environment and problem situations [16]. There are also theoretical and methodological developments in the field of modeling of modern international relations, among which the works of R. Vovk [10]. A researcher T. Malyarenko consider the possibility of using game models on an example of game theory in the study of contemporary political conflict [8]. M. Kapitonenko explores the possibility of using the system process in the research of contemporary international conflicts [4]. V. Gorbatenko deals with political modeling of both internal and external political processes [2]. V. Mandragel explores the causes and nature of wars and armed conflicts in the modern geopolitical space [9]. However, a clear picture of the possibilities of using modeling techniques of modern international conflicts in the Ukrainian scientific center has not yet formed, that led to the choice of subjects of this scientific article.

The Main Mmaterial of the Research and the Substantiation of the Research Results. Modeling is based on the study of the main properties of the existing features of the investigated objects and processes on the basis of their quantitative characteristics and assessing the dynamics of events, as well as clarification of the main structural elements of the simulated phenomenon, their qualitative characteristics and parametric data describing them, and the details of the main trends and the prediction of possible new states of the studied object (process or phenomenon), which is modeled [17]. Thus, the model is a system of elements that reflects certain properties and parameters, communication, functions of the object of research, and the modeling process is the construction of a model of the studied object [10]. In modern conditions of the study of international conflicts, application of modeling techniques enables better establish relationships with individual conflict factors and specific components of conflict situations. Since the model is a set of logical, mathematical or other objects, connections and relationships, reflecting a necessary or maximum achievable degree of similarity of a fragment of reality, which is subject to comprehensive, detailed study and reproduction, using mathematical tools and algorithms action and solving complex equations, describing these phenomena and processes, then the statistics of all properties of the system being modeled, including

international structures and processes, are the main practical tasks of mathematical modeling of international conflicts [5].

Mathematical modeling is a methodological procedure that transforms assumptions about a particular conflict situation or process (phenomenon) into a mathematical expression, followed by an analysis of the problem by using mathematical tools [7]. The ultimate goal of creating mathematical models – the establishment of functional dependencies between variables and parameters. The variable in this case is considered as a specific mathematical value, which in the investigated problem can take various values [2]. Parameter is a mathematical value that retains the same value in the investigated problem. The difference between a variable and a parameter is relative, because the value, constant during the study of one problem, may be variable in another research setting. Function – the correspondence between variables, in which each value of one of them (an argument, an independent variable) corresponds to a specified value of another variable (dependent variable). Such correspondence may be given by a formula, a graph, a table. Mathematical expression – a totality of finite set of variables, parameters, functions, joined by operators of mathematical actions [6].

In conflictology two classes of models are used: material that is objective in form and content, and the ideal ones are objective in content (reflect the real reality), but subjective in form (exist only in the minds of people and operate according to the laws of logic). Among ideal models are: visual (charts, maps, drawings, graphs, hypotheses, representations, analogies), characters (symbols; alphabet; ordered record; topological record; graph description; network representation; etc.); mathematical (structural, functional, analytical, numerical, simulation, etc.) [9].

Structural models reproduce the composition of elements of international conflict and help to understand the relationship between them, that is, they reflect the structure of the conflict modeling object. Such models reproduce the meaningful significance of the process of international conflict interaction and often used in theoretical political studies, where model knowledge is presented in the form of structural schemes, drawings, descriptions and table material. Functional models simulate the behavior of the original object, its functional dependence on the external environment, so they are often used in monitoring studies of existing international conflicts and confrontations, where it is necessary to simulate the situation of existing interconnections and factors of the studied conflict [19]. Analytical models make it possible to study the explicit dependencies of the required value on variables and parameters, characterizing the investigated international conflict environment and its external influence. The analytical solution of the mathematical relation is a generalized description of the investigated conflict, which is often illustrative (in the form of graphs, charts, cartograms and other cartographic materials and maps, etc.). Numerical models are characterized by the fact that the required value for the examination of the conflict can be obtained through the use of quantitative methods. In most cases, the creation of such models involves the calculation of index indicators (coefficients and indices of localization of international conflict processes and phenomena, etc.) [16]. Imitation models are implemented using a computer in the form of simulating algorithms (programs), which make it possible to calculate the value of output characteristics and determine the new state in which the simulation object is located at the given values of the input variables, parameters and the initial state of the model. Such models are created by machine tools and implemented using software tools. They are used to construct previous types of models and are promising in the study of specific international conflicts. Among them are the so-called virtual models that use game scenario techniques (game theory, scenario method, theory simulation methods, forecasting methods, etc.) [20].

According to the logical level, models are divided into macro and micro model. Macro-modeling is usually understood as an abstract and complex representation of processes. Micro-modeling is a representation of particular details of a phenomenon or concentration of attention on some parts of the simulated process [3]. By methods of constructing models, one can distinguish: manual – created without the use of computer technology; analog – designed by special electronic devices; computer – created using computing and software, as well as mixed models. As practical experience shows, the most successful for displaying conflicting processes in complex interaction are computer models representing the processes by using artificial languages on the basis of special programs [6]. By behavior in time models are: dynamic (time plays the role of an independent variable, and the behavior of the object modeling changes in time); static (the behavior of the object modeling does not depend on time); quasi-static (the behavior of the modeling object varies from one static state to another according to external influences). If the elements of the mathematical model are sufficiently precisely defined and the behavior of the modeling object can be accurately determined, such a model is deterministic, in the opposite case – stochastic. If the parameters and

variables of the model are continuous, then it is continuous, in the opposite case – discrete. A mathematical model may have linear or nonlinear mathematical expressions. Models of international relations, as a rule, are dynamic, stochastic, discrete, nonlinear, etc. [14]. All mathematical models can be divided into three interconnected groups: 1) deterministic models presented in the form of equations and inequalities describing the behavior of the system being studied; 2) optimization models that contain an expression that needs to be maximized or minimized under certain constraints; 3) Probabilistic models that are expressed in the form of equations and inequalities but have probabilistic content, That is, finding a solution based on maximizing the average value of utility [17].

The process of modeling of international conflicts takes several stages: 1) setting objectives; 2) collection and processing of necessary information; 3) development and creation of the model; 4) scientific study and analysis of the model as a source of new information; 5) extrapolation of the obtained data from the model to the object of cognition; verification of the model based on the praxis assessment of suitability and viability of the model [2].

Researchers in international conflicts often apply the quantification process when creating game models of conflict situations. Of particular importance is the use of quantification when creating gaming models, as well as the use of game theory techniques [8]. The latter has a widespread use in the analysis of many international situations. For example, there are models of the arms race and the resolving of existing international conflicts.

The main requirements for construction of quantitative models of international conflict, according to experts, are: 1) thorough elaboration of the conceptual scheme of quantification and reflection in it of the greatest number of properties of the investigated conflict situation (or other components of the conflict as an object of dynamic observation); 2) accurate description and definition of parameters and variables characterizing the investigated conflict, as well as the quantitative determination of units of their measurement using specific numerical values (the introduction of parametric data into the matrix, characterizing the actual state and dynamics of the investigated conflict situation); 3) the simulation of the situation in the experimental expression must be decomposed (divided) into a number of simpler situational cases, which should be pre-studied, that is, the necessary is the process of fragmentation of the studied conflict process into smaller components with the possibility of interpreting the data and their detailed analysis, which gives an opportunity to evaluate all the probable consequences of the dynamics and structural changes in the conflict at the micro level [10].

When constructing conflict models there is the possibility of transition from one content form to another taking into account the structural components and the main qualitative and quantitative characteristics of the investigated conflict environment and logical components and dynamic situation, depending on the completeness of information content (fig. 1).

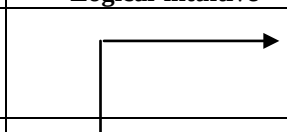
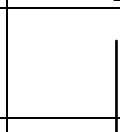
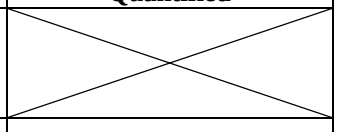
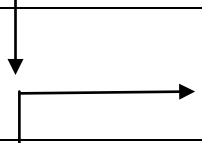
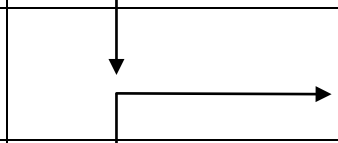
The Content of the Model	*Model Form*		
	Logical-intuitive	**Formalized**	**Quantified**
Conceptual (Ideal or Hypothetical)			
Abstract (Theoretical)			
Concretized (Mathematical-statistical)			

Fig. 1. *Main Content Forms of International Conflicts Models [1]*

During the differentiation of models by content, the main boundary passes between the conceptual, which characterizes the definite form of abstraction of the investigated conflict and reflects his philosophical

and socio-political content, and a theoretical model that takes into account the main conflict and international legal aspects of the situation under investigation. Nevertheless, both of them are hypothetical and constructed in the context of a socio-political paradigm. As for a concrete (mathematical-statistical) model, it reflects the actual content of an existing international conflict situation or it can be predicted under certain conditions of development of the foreign policy environment [2]. Thus, the researcher of conflict situation can meaningfully move from one structural-logical-intuitive model of conflict to another – partially quantitative, which reflects all important elements and properties of the actual conflict process on the basis of the detailed information and the specification of the mathematical and statistical apparatus, considering the main objectives and needs of the simulation. Particularly significant in the study of international conflicts are specific mathematical and statistical models. To construct the latter, according to experts, it is necessary to use a variety of methods of mathematical modeling: 1) analytical using a large number of formalized methods; 2) hardware-machine with the use of software and analogue computer systems and special stands; 3) software or simulation with the solution of algorithmic problems; 4) phenomenological with the maximum detail of the conflict situation and specification of its processes, etc. [1].

For example, the L. Richardson's model of political opposition is based on a system for differential equations. He argued, that the basis of the arms of competing countries (blocs of states) is the fear of external (sometimes internal) threats. In this context, the main motives of the opposing parties are fear of danger and their military needs are symmetrical, which causes a competitive arms race. The researcher has determined that if x and y determine the readiness for war between the two parties, then

$$dx/dt = ky - ax + g; \quad (1)$$

$$dy/dt = Lx - by + h, \quad (2)$$

where a and b are positive constants that reflect the opposition of the government and the population to increasing spending on armaments, k and L are positive «coefficients of defense», g and h – Positive or negative constants of offend that are modeled by friendly feelings or hate between the parties [22].

Taking into account the proposed equation, we can conclude that even complete disarmament on both sides ($x = y = 0$) can not prevent confrontation in the presence of the factor of mutual offend, because the budget for defense can not be negative, and the balance in the cost of defense can not exist, if the constants g and h are positive. Thus, L. Richardson concluded that the lower the probability of war or the cost of weapons, the greater common benefit of the parties.

Current models of conflict are mainly based on the specific material and resource rationality, including statistical analysis of international conflicts in their spatial dynamics of loss of manpower in them [9]. They rarely take into account the role of rather significant factors, which are an incentive to strengthen conflict and confrontation between warring parties, such as hatred, intolerance, pride, prestige, etc. Therefore, some academic schools focus on the psychological constituents of the conflict or the social factor of the international conflict situation. For example, a Ukrainian researcher T. Malyarenko suggested modifying the rational model of the escalation of the «arms race» by L. Richardson and B. Otomar by introducing an additional argument to it – an emotional factor (a sense of hostility) that gives the opportunity to reflect irrational aspects of the conflict. Such an equation of the model of the conflict escalation by one side, taking into account the factor of hostility, has the following form [22]:

$$dE1/dt = rE2 - uE1 + h; \quad (3)$$

$$dE2/dt = rE1 - uE2 + h, \quad (4)$$

where dE/dt – escalation of the conflict by one side; uE – single-person escalation; rE – escalation in response; h – hostility between the parties; r – the degree to which party of the conflict may or wishes to use violence; u – level to which the parties want to express enmity. The proposed equation means that the escalation of a conflict on one side depends on the ability and desire of the opponent to respond to similar actions, from the possibility of de-escalation and the degree of hostility between the conflicting parties involved in the international conflict. The right-hand side of the equation reflects the effect of the factors contributing to the resolution of the conflict, left-hand – the real actions of the opposing sides. In this context, all potential participants in the conflict have three possible variants of behavior: start a conflict, respond to the aggressive behavior of the opponent, express hostility [8]. This involves a simulated behavior strategy of the parties of the conflict, accompanied by a similar reaction to the response to the escalation of one of the conflicting parties. Experts estimate that a stable peace is possible under such conditions only with zero motivation to conflict ($E1 = E2 = 0$, if $h = 0$), but when enmity grows, the peace is impossible [7].

The proposed model is behavioral and psychological, since the main emphasis of the solution of the equation in this context will be given to hostility as an irrational conflict aspect, rather than mathematical calculations of the cost of armaments, or some other material resources to stimulate a conflict situation [15]. In this context, conflict behavior of international actors will largely depend on the sense of hostility between them. The latter is an important motivating factor for long-term conflicts, such as long Arab-Israeli conflict.

This conflict factor stimulates long-term interests and strategies of participants in conflict-fighting, therefore, with the growing hostility between the parties, the level of conflict resolution will be weakened, which needs to be taken into account by high-level specialists and practitioners in resolving the existing Russian-Ukrainian conflict. That is, the driving forces behind the escalation of the conflict are the own interests of the parties, understanding of the opponent's reaction in response to aggression and feelings of hostility between the parties. Thus, the dynamics and impulsiveness of the conflict may change, and it may slow down or even stop if the positions of hostility of one of the parties will change (weaken).

The mathematical modeling of international conflicts has certain disadvantages, which are related with incorrect description and reflection of a real conflict situation; simplified visualization, which leads to the loss of micro-units that are necessary for an understanding of a particular international situation and the dynamics of a particular international conflict; the presence of technical reasons, for example, inadequate perception of the statistical characteristics of the quantities generated by the model; excessive hypotheticality of the modeling process itself, which often does not correspond to a particular political-conflict situation, because every international conflict is unique and its restoration under new conditions on the same territory and with similar conflicting subjects often does not correspond to its theoretical estimates, etc. [13]. In addition, the modern international system is characterized by the process of increased informatization and sociologization of society, which mobilizes the course of different levels of international conflicts, as well as the globalization of undesirable socio-political, including conflict and terrorist-revolutionary phenomena, an increasing the number of global catastrophes and cataclysms, the exhaustion of many mineral resources that affect the emergence of international conflict situations, which can not always be predicted and subjected to modeling and prediction, etc.. Therefore, arises the complexity of modeling of international conflicts as a heterogeneous flexible-dynamic system, the study of which is impossible only by means of mathematics. Because there will always be problems that are not subject to formalization and quantification, which, in the first place, are caused by subjective factors [21]. In such cases, modelling may not be effective. But here it can give significant practical results that can not be obtained by other methods of sociological and political studies of international conflicts. Thus, the potential of mathematical modeling in the resolving of international conflicts will constantly increase.

Conclusions and Perspectives of Further Research. Thus, in the present conditions of international conflicts explore the use of modelling techniques allows to establish better relationships with individual conflict factors and specific components of conflict and describe them using the functional properties and characteristics. This can be done by mathematical modeling, which is widely used in modern international research practice. Modeling is also used as a productive and effective way for a detailed assessment of existing international conflicts and a predictable form of anticipation of the further development of a conflict situation in order to use effective conflict-containment and conflict-stabilizing measures and factors from the various international organizations and governments of the conflicting states, which has significant prospects and will become even more actual constructive-applied task and requires further scientific substantiation and study.

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Патийчук Виктор. Моделирование современных международных конфликтов. Обобщены основные теоретические положения относительно возможностей применения моделирования внешнеполитических процессов, в том числе и международных конфликтов, на практике. Рассмотрена специфика использования методов моделирования в современных международных конфликтологических исследованиях. Определены основные формы, а содержание и задачи моделирования современных международных конфликтов. Исследованы некоторые методики моделирования международных отношений и сложных проявлений внешнеполитической ситуации. Проанализированы практические аспекты относительно возможностей моделирования современных международных конфликтов. Описаны конкретные методики моделирования международных конфликтов и раскрывается их содержание. Показаны основные недостатки математического моделирования в изучении современных международных конфликтов и внешнеполитических процессов. Акцентируется на целесообразности использования методов моделирования в исследовании и прогнозировании развития проблемных международных ситуаций и международных конфликтов на практике и указывается на потенциальные перспективы использования методик моделирования в дальнейшем внешнеполитическом анализе современных международных отношений.

Ключевые слова: моделирование, международные конфликты, процесс моделирования, моделируемая ситуация, модели международных конфликтов, международные отношения, внешнеполитическая среда.

Патійчук Віктор. Моделювання сучасних міжнародних конфліктів. Узагальнено основні теоретичні положення щодо можливостей застосування моделювання зовнішньополітичних процесів, у тому числі й міжнародних конфліктів, на практиці. Розглянуто специфіку використання методів моделювання в сучасних міжнародних конфліктологічних дослідженнях. Визначено основні форми та зміст і завдання моделювання сучасних міжнародних конфліктів. Досліджено деякі методики моделювання міжнародних відносин та складних проявів зовнішньополітичної ситуації. Проаналізовано практичні аспекти щодо можливостей моделювання сучасних міжнародних конфліктів. Описано конкретні методики моделювання міжнародних

конфліктів і розкрито їх практичний зміст. Показано основні недоліки математичного моделювання у вивченні сучасних міжнародних конфліктів та зовнішньополітичних процесів. Акцентовано на доцільності використання методів моделювання в дослідженні й прогнозуванні розвитку проблемних міжнародних ситуацій та міжнародних конфліктів на практиці та вказано на потенційні перспективи використання методик моделювання в подальшому зовнішньополітичному аналізі сучасних міжнародних відносин.

Ключові слова: моделювання, міжнародні конфлікти, процес моделювання, модельована ситуація, моделі міжнародних конфліктів, міжнародні відносини, зовнішньополітичне середовище.

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Класифікації озер Українського Полісся

Важливим етапом дослідження озер є розробка окремих (галузевих) класифікацій кожної з ланок лімносистеми й з'ясування взаємозв'язків окремих її компонентів. Такі класифікації дають конкретне уявлення про кожну водойму й уможливлюють її використання в господарстві або обґрунтовують потребу виділення як природоохоронного об'єкта. Крім того, різні типи водойм по-різному використовуються в господарстві й по-різному реагують на антропогенний вплив. Запропоновано класифікації озер Українського Полісся за площею, максимальною та середньою глибиною, об'ємом водної маси, ступенем відкритості й формою улоговини, відносною глибиною, розвитком берегової лінії, величиною та структурою водозборів, ступенем водообміну, ступенем водообмінності, температурною стратифікацією, величиною мінералізації води й ін. Створення класифікації за різними ознаками дає можливість знайти кількісні і якісні зв'язки між різноманітними об'єктами й показниками. Запропоновані класифікації дають змогу узагальнювати накопичені дані, здійснювати районування й типізацію об'єктів (явищ), описувати головні властивості об'єктів за аналогією з виділеними типами, зменшувати вимірювальні та визначальні ознаки для діагностики об'єктів, тобто віднесення їх до того чи іншого класу; прогнозувати особливості й ознаки невивчених об'єктів.

Ключові слова: озеро, водойма, класифікації, Українське Полісся.

Постановка наукової проблеми та її значення. Проблема раціонального природокористування й охорона ресурсів потребують інвентаризації водойм та опрацювання значного обсягу інформації за основними параметрами. У сучасних умовах значно зросла увага до проблем класифікації, її теорії й методології. Обговорення цих проблем вийшло за межі окремих наук та оформилось у вигляді класифікаційного руху. Не залишилась осторонь від цього руху й географічна наука, для якої класифікації об'єктів дослідження – один із найголовніших засобів пізнання. Класифікація як інструмент пізнання дає можливість передбачити властивості об'єктів, їх діагностику. Однією з проблем, яка виникає під час вивчення різних природних об'єктів, є їх класифікація на основі врахування (обліку) головних особливостей формування й розвитку. Відсутність науково обґрунтованої класифікації утруднює їх вивчення, систематизацію й картографування. Нагромадження даних потребує нових методів обробки й збагачення інформації та її пошуку. Тут класифікаційні методи відіграють провідну роль. Виникає потреба в нових класифікаціях, які б могли детальніше характеризувати вивчені явища. Поява теоретичних узагальнень потребує класифікацій, що враховують верифікації раніше запропонованих гіпотез і припущень.

Аналіз досліджень цієї проблеми. Теоретико-метолодогічні засади розробки класифікацій природних водойм закладені в працях [1–2, 12]. Регіональні лімнологічні узагальнення та дослідження класифікації озер маємо в працях [3–8, 10–11, 13–14]. Генетичну типізацію озер Волинської області наведено в монографії «Озера Волинської області: лімногого-географічна характеристика» [6]. Проте питання розробки галузевих класифікацій озер потребує детальних узагальнень і є важливою передумовою оцінки природно-ресурсного потенціалу водойм.

Мета статті – розробка класифікацій озер Українського Полісся. Головні **завдання** – здійснити галузеві класифікації озер за площею, максимальною та середньою глибиною, об'ємом водної маси, ступенем відкритості й формою улоговини, відносною глибиною, розвитком берегової лінії,